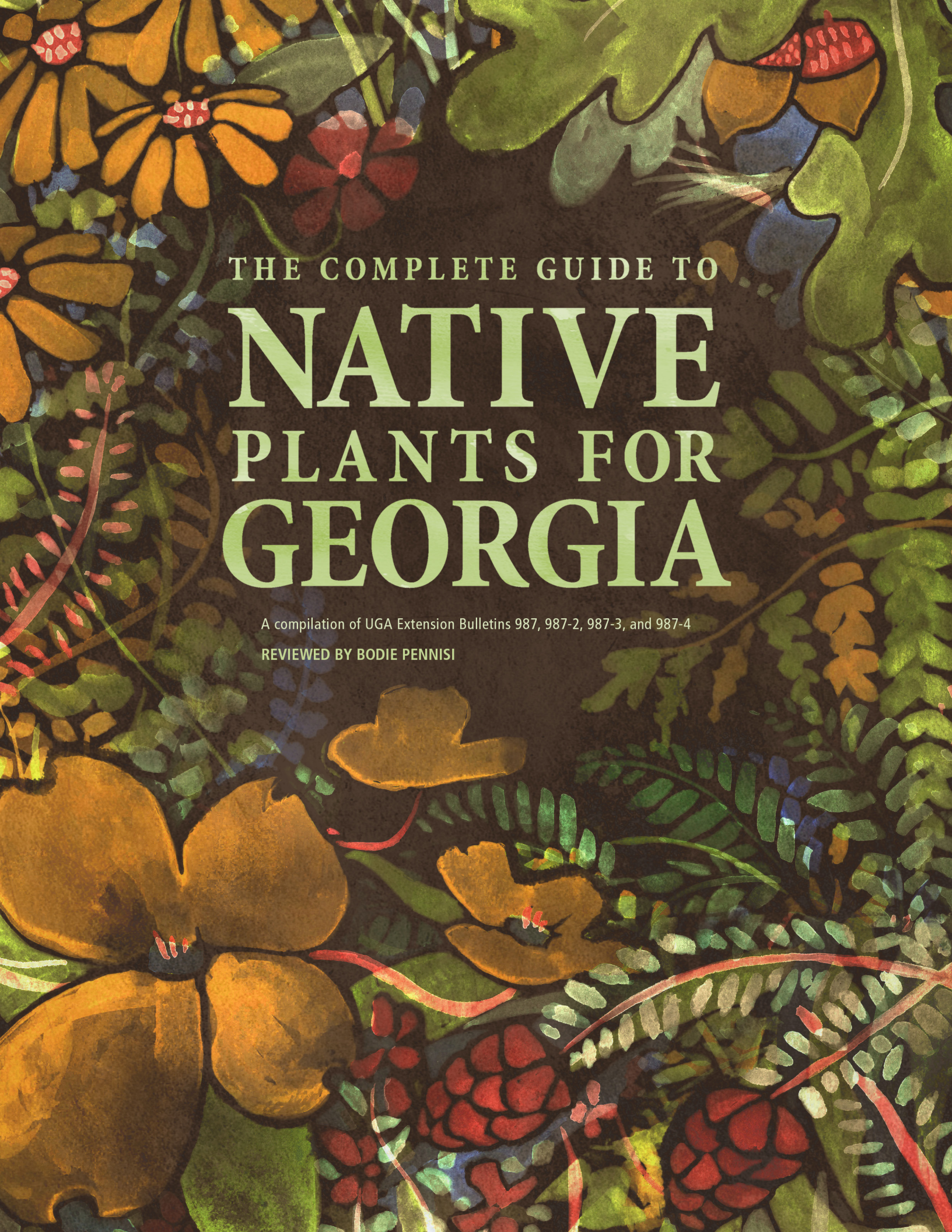


THE COMPLETE GUIDE TO NATIVE PLANTS FOR GEORGIA

A compilation of UGA Extension Bulletins 987, 987-2, 987-3, and 987-4

REVIEWED BY BODIE PENNISI

THE COMPLETE GUIDE TO

Native Plants for Georgia

Part I: Trees, Shrubs and Woody Vines (Bulletin 987)

By Gary Wade, Elaine Nash, Ed McDowell, Brenda Beckham, Sharlys Crisafulli

Part II: Ferns (Bulletin 987-2)

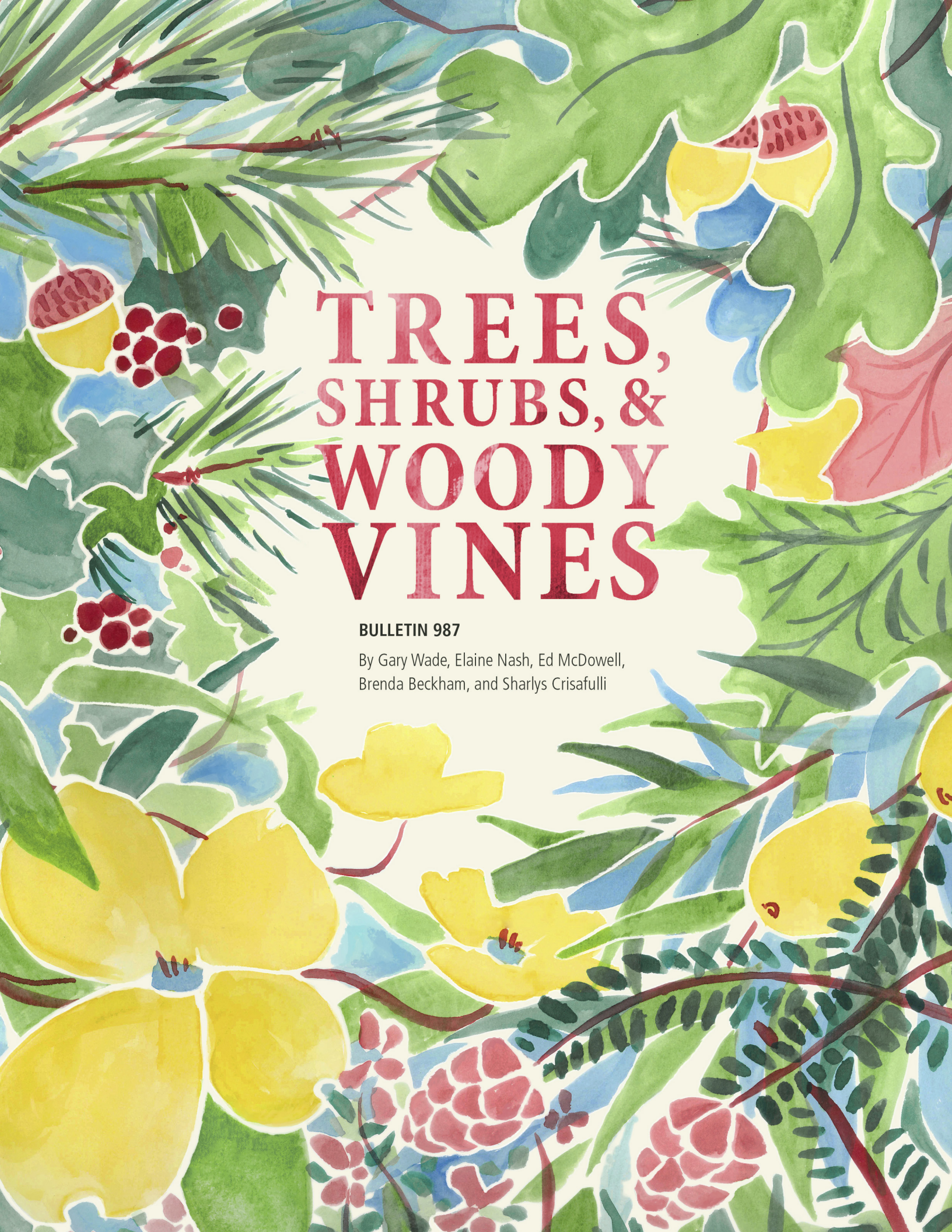
By Gary Wade, Elaine Nash, Ed McDowell, Tom Goforth, Brenda Beckham, Sharlys Crisafulli

Part III: Wildflowers (Bulletin 987-3)

By Gary Wade, Elaine Nash, Ed McDowell, Brenda Beckham, Sharlys Crisafulli

Part IV: Grasses and Sedges (Bulletin 987-4)

By Gary Wade, Elaine Nash, Ed McDowell, Brenda Beckham



TREES, SHRUBS, & WOODY VINES

BULLETIN 987

By Gary Wade, Elaine Nash, Ed McDowell,
Brenda Beckham, and Sharlys Crisafulli

“A thing is right if it tends to preserve the beauty, integrity and stability of the biotic community; it is wrong when it tends otherwise.”

Aldo Leopold
“The Land Ethic,” A Sand County Almanac

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Introduction

What Are Native Plants?

There are many definitions for native plants. Several references say native plants are those that grow naturally in a particular region without direct or indirect human intervention. Other references place a historical timeline on native plants, saying they are plants that were present in a particular area prior to European settlement of that area. Others say they are plants that have inhabited a particular region for thousands of years. Even the federal government published an "official" definition in the Federal Register, defining native plants as those that are "naturally occurring, either presently or historically, in any ecosystem of the United States."

Before the development of the nursery industry, native plants were the only choice for landscape plantings. Early settlers transplanted dogwood, redbud, oak-leaf hydrangea and other plants with appealing qualities from the woods into their landscapes. Harvesting native plants from the wild for landscape purposes is no longer acceptable and is illegal in some areas. Today, nurseries and garden centers offer a wide variety of native plants, and some even specialize in native plants exclusively.

Why Plant Native Plants?

A native plant community, left undisturbed and incorporated into a landscape, is low-maintenance and self-sufficient. Today, there is a growing interest in preserving native landscapes as "green space" in residential communities, giving them a park-like ambiance and providing space for birds and other wildlife. A casual stroll through a woodland setting teeming with ever-changing flora and fauna is a relaxing and peaceful diversion from our daily lives.

Native plants provide "watchable" wildlife habitats. Native butterflies, insects, birds, mammals, reptiles and other animals evolve with the native flora and are sustained by it year round, providing diverse food, shelter and support for native food webs. They also create a sense of place, fostering appreciation of our natural heritage and the diverse beauty of unique regional landscapes.

Weather extremes, either temperature or drought, have shown us one of the best and most practical reasons for using native plants — their adaptations to local climate. Many Georgians will recall the extremely low temperatures in December 1983 and January 1985 that killed or critically damaged many introduced species. Few native plants, however, were injured because of the cold hardiness they had developed over many generations. When provided with growing conditions like those of their native habitat, native plants are dependable additions to cultivated landscapes.

Ecological preservation is another reason for using native plants. With the increasing destruction of natural environments for urban and agricultural use, many plant species and the animals they support have declined dramatically in numbers and in range. In fact, some native plants, having a limited growing range and very specific growing requirements, may decline or die when subtle alterations are made in their native habitat. Oconee-bells (Shortia galacifolia) and Florida Torreya (Torreya taxifolia) are examples of plants that require specific habitats and are rare in the woods of Georgia. Failure to conserve, tend and preserve the habitats of these and other native plants can lead to their extinction. Habitat protection and preservation are obligations of all Georgia citizens.

Plant Ecology of Georgia

The ecological diversity in Georgia is complex and wide-ranging, from high mountain ridges of north Georgia to flatwoods and swamps of south Georgia. Among the geographic regions of the state, numerous ecosystems or environments exist where unique plants and animals have adapted. In some cases, plant species have adapted to very specific and restricted environmental conditions. Others occur over much wider and more general environments.

Georgia environments can be divided into a number of basic groupings: wet, moist, dry, upland or bottomland. There are more than 100 distinct environments or plant communities in the state. Depending upon past adaptive changes in each of these environments, some plants will be dominant while others will be rare or unable to survive. Plants grow where they do because they have finely adjusted to the local environment. For example, some plants require a bare, mineral soil for seed germination. A thick layer of pine straw or leaf litter on the surface of the soil will prevent this type of species from getting started. Some bottomland species of trees grow well on upland sites once they have germinated. Their seeds, however, require wet soils in which to germinate. Other plants are tightly constrained by the environment to small ecological niches or "homes." Although many of these plants will not grow and reproduce in cultivated landscapes like they do in their native habitat, they can adapt and become fine specimens.

Planting trees in areas similar to their native habitat will maximize their chances of survival and success. In nature, the *macroclimate* of an area, including winter and summer temperature extremes, precipitation and humidity, dictates the geographic distribution of a native plant. For instance, white pine and sugar maple can be found in the mountains of north Georgia, but the heat and humidity of the Piedmont and Coastal Plain restrict their occurrence in south Georgia. Fevertree (*Pinckneya bracteata*), Red Titi (*Cyrilla racemiflora*) and Black Titi (*Cliftonia monophylla*) are limited to the southern half of the state because the soils and climate there satisfy their special growing requirements.

Environmental features such as moisture, soil pH and sunlight level of a smaller, more focused area, are called the *microclimate*. Subtle changes in microclimate influence where native plants grow. Mountain Laurel (*Kalmia latafolia*), for example, is common in certain areas of north Georgia, but it is rarely found in the Coastal Plain. Pockets of Mountain Laurel, however, can be found as far south as the Florida panhandle in areas where it receives its required growing conditions, including adequate moisture, shade and cool soils.

Establishing Native Plants in the Landscape

Design Considerations

Our native habitats are full of subtle beauty that can be skillfully and beautifully incorporated into our gardens. Few people can resist the dramatic and breathtaking beauty of our native azaleas, the fragile white blooms of the Silverbell (*Halesia* spp.) or the delicate white, drooping spikes of Sourwood (*Oxydendrum arboreum)*. True plant lovers carefully select from the array of plants available, both native and introduced, to create the most beautiful and functional gardens possible.

People who own naturally wooded lots or acreage benefit from and enjoy the shade, coolness and beauty of a forest. There are several ways to develop these types of properties while capitalizing on their native beauty. One way is to leave the largest and healthiest trees that form the canopy untouched, remove weak, spindly and diseased trees, and then selectively thin the undergrowth. Pine straw and leaf litter left on the site provide natural mulch, and grass and/or ground cover planted in open areas fill the gaps where trees have been removed.

Another approach is to remove no more vegetation than is necessary to locate and build the house. This hands-off approach is more environmentally friendly. It preserves species diversity and distribution, and maintains the natural environment. If other species are introduced, their cultural requirements should be compatible with those of plants already there.

Unfortunately, many new landscapes do not have a plant community already in place. It takes time for a tree canopy and subsequent plant community to evolve on a site. If existing trees are small, delay planting shade-loving plants until tree canopies develop and cast shade. Deciduous trees provide moist, fertile mulch for understory plants. Broadleaf evergreens, coniferous trees and shrubs are useful in providing natural windbreaks, screening unattractive views, and creating areas of privacy for outdoor living and enjoyment.

In large, sunny, open areas, such as fields and rights-of-way, native grasses may provide a low-maintenance alternative to turfgrasses. Broomsedge (*Andropogon virginicus*) and other early succession forbs, may already be present in open, sunny areas. Mints, goldenrods, asters and legumes can often be found growing naturally with many native grasses. These areas can be mowed once a year to prevent forest succession. Otherwise, they can be left alone.

Site Evaluation and Plant Selection

The guidelines when planting a native landscape are the same as those for any landscape: select plants adapted to the soils, local site conditions and climate. Putting the right plant in the right spot will help ensure your long-term satisfaction and success with the landscape. Also, make certain all plants in a given location have similar cultural requirements for ease of maintenance.

Native plants vary widely in their requirement for plant nutrients and soil pH (a unit used to measure the acidity or alkalinity of a soil). Since pH influences nutrient availability in the soil and nutrient uptake by the plant, it is a useful measurement to know before planting. A soil test, available through your local county extension office for a nominal fee, will provide information on the nutrient content and pH level of the soil. Many soils in Georgia are acidic (pH less than 7.0). Most native plants grow well at a slightly acidic pH around 6.0, although some ericaceous plants, like blueberries and rhododendrons, prefer strongly acid soils having a pH below 5.0. Although native plants generally do not require supplements to their native environment, adjustments may be necessary when they are planted outside their native habitat to provide suitable soil fertility for best growth.

The level of sunlight is an important consideration. Most large trees require full sun to grow and develop properly because, in nature, they are dominant plant species. Planting sun-loving plants in shaded areas will result in spindly, weak growth, while planting shade-loving plants in full sun may cause leaf scorching or anemic-looking foliage.

Plants that naturally occur under the shade of more dominant trees are called understory plants. To simulate the understory, plant shade-loving native plants where they will receive partial shade, particularly during the afternoon when sunlight levels are usually more intense. It often requires one to two growing seasons to determine whether a plant can adjust to the specific light environment provided. Furthermore, light levels change as the plant canopies mature and change.

Water is essential for plant growth. In nature, plant growth on moist sites is usually abundant and lush. On dry sites, plant growth is often sparse and stunted. Plants vary tremendously in their need for moisture and their tolerance of moisture extremes. Northern and eastern exposures, slopes and bottomland are normally moist, while southern and western exposures, ridge tops and rocky soils tend to be dry. Red maple, bald cypress, willow and buttonbush are common species found in wet areas, although they will adapt to dry sites when planted in landscapes. Species that occur where it may be wet in winter and dry in summer, such as southern wax myrtle and yaupon holly, are also reliable landscape plants.

For a sustainable stream bank environment, plant native trees and shrubs. Over time, grass alone will not keep stream banks intact during flooding. Stream banks have moist, well-drained soils that fit the habitat needs of several native species, including rhododendron, mountain laurel, stewartia and oakleaf hydrangea. Trees such as tulip poplar, black walnut and southern sugar maple also require moist, well-drained soils for best growth and are excellent choices for stream bank planting.

Dry sites are home to some of our toughest native plants, including some oaks, persimmon, beargrass, some pines, sassafras and sumac.

If rainfall is not adequate, all newly-installed plants, including native plants, need supplemental watering their first year or until they become established.

Site Preparation and Establishment

Good soil preparation is essential for satisfactory plant growth. Dig a large hole at least two times wider than the root ball of the plant and as deep as the root ball. Remove any rocks, roots or other debris from the excavated soil and work it up thoroughly. Set the top of the root ball level with the soil surface or slightly above the surface if the soil is prone to settling. Then backfill with the same soil removed from the hole and water thoroughly to remove air pockets. Mulch with pine straw, pine bark, hardwood mulch or other organic material. For more detailed information on the planting process, see Georgia Cooperative Extension Bulletin 932, Soil Preparation and Planting Procedures for Ornamental Trees and Shrubs.

Guide to Plant Descriptions

This publication focuses on native trees, shrubs and woody vines. It is not our intent to describe all native species — just those available in the nursery trade and those that the authors feel have potential for nursery production and landscape use. Rare or endangered species are not described. Information on each plant is provided according to the following categories:

Common Name(s)/Botanical Name/Family

Generally accepted scientific and common names, as used by specialists in the field, are listed except in cases where names have recently been changed. If the names are in debate, the most widely used names are given. The family is given as a point of information since some unifying threads are common to plants in the same family.

Characteristics

This category provides general descriptive information about the plant, including whether it is deciduous (drops its leaves in fall), evergreen or semi-evergreen. Evergreen plants may be further described according to their leaf shape. Broad-leaf evergreens include plants like holly and anise tree, while narrow-leaf evergreens include hemlock and pine. Other characteristics described for some plants include their texture, growth rate and habit. Texture describes the visual appearance of the leaves and twigs of the plant, from finely textured to coarsely textured. Growth rate is defined as fast, medium or slow. Factors influencing growth rate include the age of the plant (most growth rates decrease with age), genetic background and site conditions. Habit describes the general form or shape of the plant. See Figures 1 and 2 for illustrations of common tree and shrub forms.

Landscape Uses
Suggestions are made for using the plant in the landscape. For instance, trees can serve as functional components providing shade. Other trees provide focal points in the landscape and are called specimen plants. Shrubs are often useful in mass plantings, but some may be planted as individual specimens. Vines are generally useful for quickly covering objects such as arbors, trellises, fences or mailboxes. The noteworthy ornamental features of the plant — such as flowers, fruit, bark, leaf color or shape, visual texture or pest resistance — are described in this section.

Size
Mature plant size may vary due to site conditions and genetics of the plant. A tree that grows to a height of 120 feet in its native habitat may only grow 75 feet under cultivation. Therefore, the mature size of the plant projected in this publication is only an estimate of the size of the plant when it is 10 years old.

Zones
Hardiness zones are listed for Georgia. They are an estimate of the plant's winter hardiness according to established U.S. Department of Agriculture hardiness zones. Most native plants are hardy throughout the state. However, nature does not always cooperate with the guidelines humans develop. Variations in microclimates may extend the growing range north or south of the zone listed. The USDA plant hardiness zones in Georgia are shown in Figure 3 below.

Habitats
By understanding a plant's native habitat and simulating it in the landscape, you are more likely to have success growing the plant. Below are the eight major habitats in Georgia, listed from north to south:

North
1. Cove hardwoods (rich, moist, protected pockets)
2. Mixed pine/hardwoods ("climax") upland forest along valley slopes and bluffs
3. Forest gaps (breaks in the main forest canopy where light reaches the soil surface)
4. Rock outcrops (rocky ridge tops and bluffs)
5. Meadows (herbaceous pastures or prairies)
6. Pine woods (well-drained sands on the Coastal Plain)
7. Bottomland forests (streams, low slopes, flood plain and river areas with cypress and hardwoods)

South
8. Swamps

One or more of these eight habitats are home to all of the plants listed in this publication.

Native To
This refers to the broad geographic area (within the United States) where the plant naturally occurs. In Georgia, there are three geographic regions: Mountains, Piedmont and Coastal Plain. The distribution of plants is sometimes described in terms of these geographic regions.

Comments
Additional information about the plant, such as its wildlife value or whether cultivars are available.

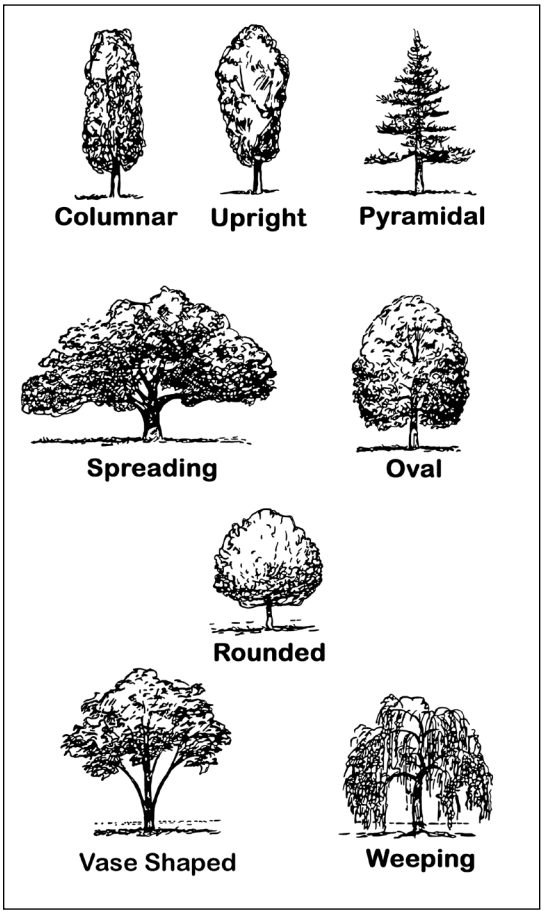


Figure 1. Tree forms

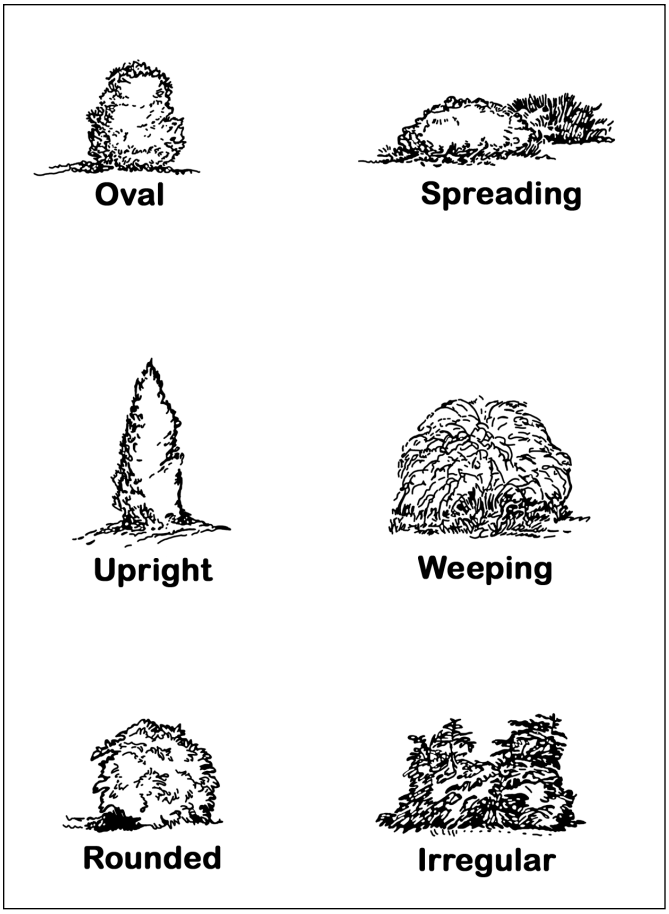
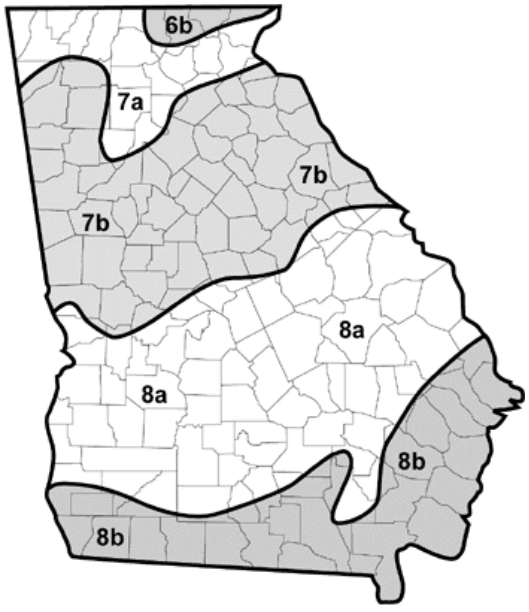


Figure 2. Shrub forms



Zone	Range in degrees Fahrenheit
6b	-5 to 0
7a	0 to 5
7b	5 to 10
8a	10 to 15
8b	15 to 20

Figure 3. Range of average annual minimum temperatures for each zone in Georgia

Medium and Large Trees

Red Maple / *Acer rubrum*

Family: Maple/*Aceraceae*

Characteristics: Red Maple is a deciduous tree with medium texture, medium growth rate and an oblong to oval form. It is widely used in landscaping because it has good site tolerance. The bark is smooth and light gray. Clusters of small, red flowers appear in February and are followed by winged fruit in March. Fall color is variable yellow to red.

Landscape Uses: Use Red Maple as a shade tree in moist soils and full sun. It will adapt to hot, dry locations when irrigated. Red Maple is easy to transplant and tolerates wet soils. Surface roots are common as the plant ages.

Size: 40 to 50 feet tall with a spread of 24 to 35 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Low-lying areas and swamps, always in association with water.

Native To: Canada to the middle of the Florida peninsula and west to Minnesota, Oklahoma and Texas.

Comments: Because this tree has such a wide growing range, its origin is very important. In other words, don't plant a Red Maple from New England in Georgia; it may not adapt to the South's heat and humidity. Some cultivars have been over-used and are subject to diseases.

Images: Page 29

Sugar Maple / *Acer saccharum*

Family: Maple/*Aceraceae*

Characteristics: Sugar Maple is a deciduous tree having a medium texture, medium to slow growth rate and an upright to oval form. It is best known for its brilliant yellow to orange to red fall color.

Landscape Uses: Sugar Maple makes a fine specimen, street or shade tree. It needs moist, well-drained, loamy soils and does not tolerate hot, dry sites. It produces dense shade, which may be a problem for sun-loving plants grown beneath its canopy.

Size: 60 to 80 feet tall with a spread of 25 to 40 feet

Zones: 6b, 7a, 7b

Habitat: Moist, well-drained soils of the north Georgia mountains; found occasionally in the upper Piedmont on fertile north slopes.

Native To: Eastern Canada to Georgia, Alabama, Mississippi and Texas

Comments: No other native tree matches the brilliant yellow, orange and red coloration of Sugar Maple in autumn.

Images: Page 29

Yellow Buckeye / *Aesculus flava*

Family: Buckeye/*Hippocastanaceae*

Characteristics: Yellow Buckeye is a large tree with an upright to slightly-spreading crown. The compound palmate leaves are dark green above, yellow-green and pubescent beneath in youth and smooth at maturity. The flowers are yellow tinged with green, borne in erect panicles, six to seven inches long by two to three inches wide from middle to late April. The bark is gray and smooth in youth, becoming scaly or having large gray to brown plates on older trunks.

Landscape Uses: Yellow Buckeye is a beautiful, fast-growing tree when properly grown. It can be used as a specimen tree since it provides good shade as well as ornamental flowers. It prefers deep, moist, well-drained soils and needs plenty of moisture for optimum growth. Yellow Buckeye is mainly found in extreme north Georgia, but it does occur in a few Piedmont counties. Sosebee Cove Scenic Area near Blairsville, Ga., has several wonderful specimens.

Size: 60 feet high, with a spread of 30 feet

Zones: 7a, 7b

Habitat: Yellow Buckeye attains its largest size in rich Appalachian soils in coves and in cool slope forests.

Native To: Pennsylvania, west to Ohio and Illinois, and south to Tennessee, northern Alabama and northern Georgia.

Images: Page 30

River Birch / *Betula nigra*

Family: Birch/*Betulaceae*

Characteristics: River Birch is a deciduous tree having medium texture and a fast growth rate. In youth, it tends to have an oval shape with somewhat drooping branches and is often multi-stemmed. Young trees have a handsome, exfoliating, reddish-brown bark that ages to a dark gray-brown color.

Landscape Uses: Use River Birch as a shade or specimen tree, particularly in groupings. It looks particularly nice as a multi-stemmed form. A very rapid grower, it is one of the most popular trees for Georgia conditions, adaptable to most landscape sites. It requires adequate moisture during dry weather and prefers acid soils. Iron chlorosis may be a problem in high pH soils. Leaves are occasionally deformed by infestations of aphids. The tree is also affected by webworms.

Size: 40 to 80 feet tall, with a width of 40 to 65 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Moist, well-drained soils along riverbanks and streams, swamps and flood plains.

Native To: Massachusetts to Florida, west to Minnesota and Kansas

Comments: Several cultivars are available. It is an early-succession tree, needing sun for establishment.

Images: Page 30

HICKORY SPECIES

Family: Walnut/*Juglandaceae*

Hickories in this publication are treated as a group rather than individually because of their limited use in home landscapes. Property owners should recognize their beauty and value their presence in naturalized areas. Although extremely beautiful and valuable to wildlife, hickories develop a deep taproot and are difficult to transplant. Only recently has the nursery industry developed pots that enable hickories to be grown from seed, which will make them more widely available in the future.

Characteristics: Hickories are large, deciduous trees, 60 feet or more tall, with alternate, pinnately compound leaves.

Images: Page 31

Pignut Hickory / *Carya glabra*

Leaves are eight to 12 inches long with five to seven leaflets. The terminal leaflet is the largest. Both sides of the leaflets are smooth. Bark on young trees is smooth, eventually developing braided ridges.

Images: Page 31

Shagbark Hickory / *Carya ovata*

Leaves are eight to 14 inches long with five leaflets, sometimes seven. The upper surface is smooth, but the lower surface is pubescent. Bark is gray to brownish, exfoliating with age into narrow plates that are detached at both ends.

Images: Page 31

Mockernut Hickory / *Carya tomentosa*

Leaves are eight to 15 inches long with five to seven leaflets. The lower leaf surface is densely pubescent and glandular. Leaves are aromatic when bruised. Bark is dark gray with shallow furrows in youth, becoming deeply furrowed with distinct interlacing ridges with age. On older trees, the bark develops a diamond-like or "expanded metal" pattern.

Landscape Uses: The fall color of all hickories is glowing, luminescent yellow. No other tree matches the brilliant color in the late October to November landscape. All have excellent wood for timber, and their nuts are coveted by wildlife.

Size: 60 to 80 feet tall, with a sparse branching habit.

Zones: 6b (*Carya glabra* and *Carya tomentosa*), 7a, 7b, 8a, 8b

Habitat: Pignut is common on upland sites in association with oaks and other hickories. Shagbark grows best on moist alluvial river and valley soils and on adjacent slopes and ridges. Mockernut is the most common hickory in Georgia, and is found in upland forests.

Native To: Pignut — Maine to Ontario, south to Florida and west to Louisiana. Shagbark — Quebec to Minnesota, south to Georgia and west to Texas. Mockernut — Massachusetts to Ontario and Nebraska, south to Florida and west to Texas.

Comments: Hickories have a taproot that penetrates downward two to three feet the first season, while top growth is just a few inches. They work to establish their root systems for several years before putting on top growth. They are excellent wildlife resources. Seedlings are tolerant of shade and can remain in the shrub layer for years, waiting for a "gap" that provides light.

Images: Page 31

Sugarberry / *Celtis laevigata*

Family: Elm/*Ulmaceae*

Characteristics: Sugarberry is a deciduous tree with medium texture, medium growth rate and a broad oval to rounded form. Leaves are dark green above and pale green below. They are alternately oblong and lance-shaped, and are two to four inches long and 1¼ inches wide. The trunk is light gray and smooth, with prominent corky, somewhat warty, ridges. Fruit are brownish-red, about 1/3 inch in diameter. They ripen from September to October.

Landscape Uses: Sugarberry is a long-lived shade tree. It grows best in moist soils in full sun.

Size: 60 to 80 feet tall and 23 to 35 feet wide

Zones: 7a, 7b, 8a, 8b

Habitat: Moist soils on river flood plains and in alluvial forests, predominately in the lower Piedmont and the Coastal Plain.

Native To: Southern Indiana and Illinois, south to Texas and Florida.

Comments: It is the larval host of the hackberry emperor butterfly and is a food source for fall migrating birds.

Images: Page 32

American Yellowwood / *Cladrastis kentukea* (Syn. Cladrastis lutea)

Family: Pea/*Fabaceae*

Characteristics: American Yellowwood is a medium-size, deciduous, flowering tree bearing panicles of fragrant, white, pea-like flowers in late spring that cascade from the ends of the branches. It is spectacular in bloom, but a young tree may not bloom until it is five to eight years old. Mature trees tend to be alternate bearing, with good flowering one year, then few to no flowers the next year. Flowers are followed by brown pods, two to four inches long, each containing four to six flat, hard-coated seeds. Leaves are pinnately compound, each with nine to 11 leaflets. Fall color is golden yellow. The tree gets its name from the color of its heartwood, which is bright yellow.

Landscape Uses: A wonderful specimen tree for the landscape. Breathtaking in bloom.

Size: 30 to 50 feet tall and 30 feet wide at maturity

Zones: 6b, 7a, 7b, 8a

Habitat: Rich soils on hill slopes or along ravines near streams. It prefers a more basic soil.

Native To: North Carolina to Tennessee and Kentucky, south to Georgia and west to Oklahoma.

Comments: A 1999 Georgia Gold Medal Winner.

Images: Page 32

American Beech / *Fagus grandifolia*

Family: Beech/*Fagaceae*

Characteristics: American Beech is a deciduous tree with medium texture and medium to slow growth rate. It has smooth, bluish-gray bark and golden bronze fall color. Dead leaves persist on the tree throughout the winter. Fruit, called beech nuts, are yellowish-brown, unevenly triangular and enclosed in a spiny bur less than one inch long. Fruit production tends to be heavy every two to three years.

Landscape Uses: Use American Beech as a shade or specimen tree. It prefers moist, acidic, well-drained soils and full sun to partial shade. It is shallow-rooted and not for dry sites.

Size: 50 to 80 feet tall with a canopy width of 40 to 60 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Moist, rich soils of uplands and well-drained lowlands; eastern United States.

Native To: New Brunswick to Ontario, south to Florida and west to Texas.

Comments: American Beech produces deep shade that discourages other plants from growing under its canopy.

Images: Page 32

White Ash / *Fraxinus americana*

Family: Olive/*Oleaceae*

Characteristics: White Ash is a large, handsome deciduous tree with medium to coarse texture and medium growth rate. It is dioecious (having male and female flowers borne on separate trees). Flowers are borne in panicles before the leaves emerge in April. Leaves are opposite, pinnately compound, eight to 15 inches long with five to nine leaflets (usually seven). The leaves have a drooping quality and are dark green above and light green below. The bark is ashy-gray to gray-brown with interlacing diamond-shaped ridges. Fall color ranges from yellow to deep purple or maroon.

Landscape Uses: Use White Ash as a specimen or street tree for large areas. It maintains a central leader in youth with an even distribution of branches. It transplants easily and prefers moist, well-drained soils and full sun.

Size: 50 to 80 feet tall, with a similar spread

Zone: 6b, 7a, 7b, 8a, 8b

Habitat: Deep, moist, well-drained forest soils. It does not like harsh conditions.

Native To: Nova Scotia to Minnesota, south to Florida and west to Texas.

Comments: White Ash is subject to several pests and diseases. It is difficult to distinguish from Green Ash (*Fraxinus pennsylvanica).*

Images: Page 33

Green Ash / *Fraxinus pennsylvanica*

Family: Olive/*Oleaceae*

Characteristics: Green Ash is a deciduous, fast-growing tree with an upright, spreading habit. It is dioecious (having male and female flowers borne on separate trees). It develops three to five main branches and many coarse, twiggy branchlets that bend downward and then up at the ends. Leaves are opposite, pinnately compound and 12 inches long with five to nine leaflets. They are lustrous dark green above and pubescent underneath. The yellow fall color is inconsistent, especially on seed-grown plants.

Landscape Uses: Green Ash is a popular shade tree because it transplants readily and grows in a wide variety of soils and site conditions. It is subject to a variety of insect and disease problems.

Size: 50 to 60 feet tall and 25 to 30 feet wide

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Flood plains, wetlands and stream banks.

Native To: Nova Scotia to Manitoba, south to northern Florida and west to Texas.

Comments: Cultivars are available. Green Ash and White Ash (*Fraxinus americana*) look identical except for their seeds. The White Ash's samara wing extends less than halfway down the cylindrical fruiting body, and Green Ash's samara wing extends halfway or more down the cylindrical fruiting body. Green Ash is an early succession tree and needs sun to become established.

Images: Page 33

American Holly / *Ilex opaca*

Family: Holly/*Aquifoliaceae*

Characteristics: American Holly is a broadleaf evergreen tree with medium-coarse texture and a moderate growth rate. Distinctly pyramidal when young, it becomes more open and irregular with age. Leaves are alternate evergreen, 1½ to four inches long and half as wide, with spiny teeth along their margins. Bright red fruit persist throughout winter and are eaten by birds. Native seedlings are appropriate for restoration projects.

Landscape Uses: Use American Holly for screening or as a specimen tree. It prefers deep, fertile soils with adequate moisture and partial shade. It will adapt to full sun.

Size: 20 to 50 feet tall and 15 to 30 feet wide

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Grows on moist sites, flood plains and lower slopes. It can be found in mixed hardwood forests and occasionally on dry, sandy sites in south Georgia.

Native To: Massachusetts to Florida and west to Missouri and Texas.

Comments: The foliage is traditionally cut (along with berries) for Christmas decorations; it is sometimes used as an outdoor Christmas tree. Fruit are enjoyed by cedar waxwings, cardinals and other birds. Fruit are borne on female trees only (male and female trees are separate).

Images: Page 33

Black Walnut / *Juglans nigra*

Family: Walnut/*Juglandaceae*

Characteristics: Black Walnut is a large tree with a fine texture and loose, open form. It often develops a trunk that is devoid of branches for several feet from the ground. Its wood is valuable for furniture and veneers because of its beautiful grain. Leaves are alternate, pinnately compound, 12 to 24 inches long, with 15 to 23 leaflets. The terminal leaflet is often missing. Fruit are hard nuts encased in a green husk.

Landscape Uses: Black Walnut is a fine shade tree for streambanks and flood plains. It prefers moist soils. Avoid planting it next to parking lots because falling fruit can dent vehicles.

Size: 75 to 100 feet tall with a canopy width of 50 to 75 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Moist, well-drained soils in the wild. It was often planted around old home sites.

Native To: Massachusetts to Florida, and west to Minnesota and Texas.

Comments: Black Walnut produces the chemical juglone in its roots and leaves, which kills or inhibits growth of other plants nearby. It is a high-value wildlife tree.

Images: Page 34

Eastern Red Cedar / *Juniperus virginiana*

Family: Juniper/*Cupressaceae*

Characteristics: Eastern Red Cedar is an aromatic evergreen tree with a conical to columnar shaped crown. It has a medium growth rate and texture. Handsome grayish- to reddish-brown bark exfoliates into long strips. Leaves are scale-like, closely pressed and overlapping. Summer color is medium green and winter color is dull green. There are male and female trees.

Landscape Uses: Eastern Red Cedar is an excellent specimen tree. It also is useful for windbreaks, hedges, shelter belts and topiary. It is tolerant of adverse conditions and poor soils as well as a wide range in pH. It prefers a sunny location and moist loam on well-drained subsoil. It is not shade tolerant and does not like growing under a heavy overstory.

Size: 40 to 50 feet tall and 8 to 20 feet wide. Size is extremely variable over its extensive native range.

Zones: 7a, 7b, 8a, 8b

Habitat: Dry, upland, rocky soils, particularly calcareous soils. It also is found on moist flood plains, edges of swamps, in abandoned fields and along fence rows.

Native To: East and central North America, east of the Rocky Mountains.

Comments: Many cultivars have been selected for ornamental use in residential and commercial landscapes. The mature berry-like cones are eaten by many kinds of mammals and birds, including the cedar waxwing. It provides refuge and cover for birds in inclement winter weather. Majestic specimens are found in old cemeteries.

Images: Page 34

Sweetgum / *Liquidambar styraciflua*

Family: Witchhazel/*Hamamelidaceae*

Characteristics: Sweetgum is a deciduous tree with a medium texture and a medium to fast growth rate. Form is oval to pyramidal when young, developing into a broad-headed tree with age. Fall color ranges from yellow to orange or purple. Leaves have five to seven star-shaped lobes and are a lustrous green in summer. The foliage is aromatic when crushed. Fruit are round, spiny balls on two- to three-inch pedicels.

Landscape Uses: Use Sweetgum as a shade or specimen tree. It is fast-growing and moderately easy to establish, especially when young. The spiny fruit can present a maintenance problem. It prefers moist, rich, acid soils and has moderate drought tolerance.

Size: 80 to 100 feet tall with a spread of 40 to 50 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Flood plains on moist soils of valleys and lower slopes.

Native To: Connecticut to Illinois, south to Florida and west to Texas.

Comments: Sweetgum is an early succession plant. It is a prolific seeder and quickly invades cut-over hardwood stands and pine plantations on upland sites. It also sprouts profusely from stumps and lateral roots. Birds like the seeds.

Images: Page 34

Tulip Poplar or Yellow Poplar / *Liriodendron tulipifera*

Family: Magnolia/*Magnoliaceae*

Characteristics: Tulip Poplar, also called Yellow Poplar, is a deciduous tree with coarse texture and a medium to fast growth rate. It is pyramidal in form when young, becoming oval-rounded with age. It has a fleshy root system characteristic of the magnolia family. Leaves are tulip-shaped with four lobes. Fragrant orange-yellow tulip-like flowers appear from April to May.

Landscape Uses: Tulip Poplar is a fast-growing shade or specimen tree. It prefers moist, well-drained soils and full sun. Avoid planting it in open, exposed sites and dry soils. Allow plenty of room for development.

Size: 80 to 100 feet tall and 30 to 40 feet wide

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Moist, well-drained soils.

Native To: Massachusetts to Wisconsin, south to Florida and west to Mississippi.

Comments: Tulip Poplar is an early seccession tree and is intolerant of shade. It needs full sun to become established and grow well. It is a good wildlife tree.

Images: Page 35

Southern Magnolia / *Magnolia grandiflora*

Family: Magnolia/*Magnoliaceae*

Characteristics: Southern Magnolia is a broadleaf evergreen flowering tree with coarse texture and a medium to slow growth rate. It is pyramidal when young, then develops an oval shape at maturity. Foliage is dark green and glossy. Large, fragrant, showy white flowers appear in early summer. Fruit consist of cone-like aggregates of follicles from which bright red, shiny seeds are suspended by slender elastic threads.

Landscape Uses: Use Southern Magnolia as a specimen plant or for screening. Plant it in moist soils and full sun or light shade. It does not tolerate hot, dry sites. Branches are best left on ground level because of the leaf litter problem and the fleshy surface root system.

Size: 60 to 80 feet tall with a canopy spread of 40 to 50 feet

Zones: 7a, 7b, 8a, 8b

Habitat: Moist hardwood forests and wet swampy areas in the Coastal Plain.

Native To: North Carolina to Florida, west to Arkansas and Texas.

Comments: Many cultivars are available. Seeds are relished by birds and other wildlife. Suckers may need to be pruned from root or branch sprouts.

Images: Page 35

Black Gum or Tupelo / *Nyssa sylvatica*

Family: Nyssa/*Nyssaceae*

Characteristics: Black Gum, or Tupelo, is a deciduous tree having medium texture and a medium growth rate. Form is narrow upright, pyramidal, with strong horizontal branching. It is dioecious, with male and female flowers on separate trees. Female trees bear tiny, greenish-yellow flowers during leaf development in April or May. Fruit appear only on female trees and are bluish-black drupes about ½ inch long, borne two to three per stalk.

Landscape Uses: Grow Black Gum as a specimen tree. It is difficult to transplant and is best planted from a container-grown plant. It prefers moist, fertile soils but adapts to a wide range of conditions. Leaves color early in the fall and are showy crimson-red.

Size: 70 to 80 feet tall and 40 to 50 feet wide

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Moist soils of valleys and uplands in hardwood and pine forests.

Native To: Maine to Michigan, south to Florida and west to Texas.

Comments: This beautiful tree is becoming more available in the nursery trade. Another species, Swamp Tupelo (*Nyssa biflora*), is commonly found in south Georgia. Wildlife relish the seeds.

Images: Page 35

Shortleaf Pine / *Pinus echinata*

Family: Pine/*Pinaceae*

Characteristics: Shortleaf Pine is a fast-growing, medium to tall tree. It is pyramidal in youth, developing a long, clear trunk with a small, open pyramidal crown as it ages. The dark bluish-green needles are three to five inches long in fascicles (bundles) of two or three, sometimes on the same tree. Shortleaf Pine bark is nearly black when trees are young, aging to reddish-brown with many small resin pockets scattered through its corky layers.

Landscape Uses: Shortleaf Pine has a huge taproot and is harder to transplant than other pines.

Size: 80 to 100 feet tall, but more likely 50 to 60 feet under most landscape conditions.

Zones: 7a, 7b, 8a, 8b

Habitat: Open upland areas including grassy or abandoned agricultural land.

Native To: Central New Jersey west to southern Missouri, south to Texas and into Northern Florida; absent from the upper slopes of the Appalachian Mountains.

Comments: It is one of the most abundant pines in Georgia, second only to Loblolly. Shortleaf is subject to pinebark beetles and pine-tip moths, as are most pine species, as well as to littleleaf disease. The fruit is a prickly cone 1½ to 2½ inches long.

Images: Page 36

Slash Pine / *Pinus elliottii*

Family: Pine/*Pinaceae*

Characteristics: Slash Pine is a large tree often planted as an ornamental because it grows fast and has dense lustrous-green foliage. Foliage consists of two and three needles arranged in fascicles (bundles). Loblolly and Longleaf Pine, in contrast, both have three needles per fascicle.

Landscape Uses: Use Slash Pine as a specimen tree or for windbreaks or screening. Its heavy needle crop and brittle branches make it susceptible to ice damage when planted outside the Coastal Plain. It prefers full sun and moist soils.

Size: 60 to 100 feet tall and 20 to 40 feet wide

Zones: 8a, 8b

Habitat: Moist to wet, sandy, poorly-drained soils bordering shallow ponds and swamps. It occurs in maritime forests and wet flatlands, where it sometimes is the primary canopy species.

Native To: The Coastal Plain from South Carolina to Florida, west to Louisiana.

Comments: Slash Pine is planted widely for timber production in and out of its natural range and habitat. All pines are intolerant of shade and need sun to establish and thrive.

Images: Page 36

Spruce Pine / *Pinus glabra*

Family: Pine/*Pinaceae*

Characteristics: Spruce Pine is an evergreen tree with a medium-fine texture and a medium to fast growth rate. Needles are dark green, two per fascicle, spirally twisted, and two to four inches long. Cones are brown, up to 3¾ inches long, with minute prickles on the scales. They may persist two to four years on the plant. Young trees have a dense, broadly pyramidal form, becoming more open and irregular with age. Bark is dark, brownish-gray and attractive.

Landscape Uses: A dense canopy, slow early growth and attractive yellow-green foliage make Spruce Pine suitable for landscaping. Use it for a windbreak, screening or as a specimen tree. It performs best in moist, fertile soils, but it has been observed growing satisfactorily on dry sites and heavy soils. It requires full sun for best growth.

Size: 50 to 60 feet tall and 40 to 50 feet wide

Zones: 8a, 8b

Habitat: Moist alluvial flood plains or hammocks with mixed hardwoods in the lower Coastal Plain.

Native To: South Carolina to northern Florida and west to Louisiana.

Comments: A good wildlife food source.

Images: Page 36

Longleaf Pine / *Pinus palustris*

Family: Pine/*Pinaceae*

Characteristics: Longleaf Pine is an evergreen tree with needles approximately 10 inches long, grouped in bundles of three. They persist on the tree for two seasons. Its long needles, large cones and sparse branching pattern make it the most distinctive pine of the Coastal Plain. Young seedlings have a unique grass-like appearance, which may last two to seven years or more because the tree first uses its energy to put down a deep tap root. Once the tap root is developed, it provides the resources for rapid top growth, often exceeding three feet in a year. It is a long-lived pine, often growing for more than 300 years. It has adapted to frequent ground fires that were common in the longleaf-wiregrass ecosystem that once covered 90 million acres of the southeastern Coastal Plain.

Landscape Uses: Longleaf Pine is a canopy tree and is best used as a specimen. It provides filtered shade for other plants, like azaleas and dogwoods. It thrives in the well-drained, sandy soils of the Coastal Plain, but it will adapt to Piedmont clay. It is best planted as a seedling and is attractive in its grass-like stage.

Size: This long-lived giant may reach heights of 80 to 100 feet, with a trunk diameter of two to 2½ feet.

Zones: 7a, 7b, 8a, 8b

Habitat: Well-drained, sandy, acidic soils in the Coastal Plain up to the fall line.

Native To: Southeastern Virginia to Florida, west to Texas. There is a race of mountain longleaf growing on ridges from Paulding County, Ga., to Rome, Ga., and into the Talladega National Forest in Alabama.

Images: Page 37

White Pine / *Pinus strobus*

Family: Pine/*Pinaceae*

Characteristics: White Pine is an evergreen tree having medium-fine texture and a medium-fast growth rate. It has soft, bluish-green needles two to four inches long, five per fascicle. They remain on the tree for two years. The mature bark is dark gray and deeply furrowed. Cones are three to eight inches long and 1½ inches wide, often curved.

Landscape Uses: Use White Pine for a windbreak, screening or as a specimen tree. It has a pyramidal form when young and becomes more spreading with age. It is a graceful tree. It is easy to transplant and prefers moist, fertile, well-drained soils. It is a mountain species, so it may struggle and be short-lived in the lower Piedmont and Coastal Plain. Expect it to live only 10 to 15 years when planted outside its natural range.

Size: 50 to 60 feet tall and 30 to 40 feet wide

Zones: 6b, 7a, 7b

Habitat: Variable, from dry, rocky ridges to wet, poorly-drained areas.

Native To: Newfoundland to Manitoba, south to Illinois and Iowa and southeast to Georgia.

Images: Page 37

Loblolly Pine / *Pinus taeda*

Family: Pine/*Pinaceae*

Characteristics: Loblolly pine is an evergreen tree with medium texture and a fast growth rate. Form is upright, broad and oval with irregular horizontal branching. Needles are sometimes twisted, six to 10 inches long, in fascicles of two or three. They persist on the tree for up to four years. Cones are three to six inches long, in clusters of three to five. There are sharp spines on the tips of the cone scales. It is one of the most widespread and valuable pines of the southeast. In Georgia, it comprises most of the timber harvested in the Piedmont.

Landscape Uses: Use Loblolly as a specimen tree or for screening. It provides lightly-filtered shade, so other plants will grow beneath it. Plant it in full sun on well-drained soils. It tolerates poor sites.

Size: 80 to 100 feet tall with a spread of 20 to 30 feet

Zones: 7a, 7b, 8a, 8b

Habitat: River bottoms, abandoned farmland. This is a pioneer species.

Native To: Southern New Jersey to Florida, west to eastern Texas and Oklahoma.

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Virginia Pine / *Pinus virginiana*

Family: Pine/*Pinaceae*

Characteristics: Virginia Pine is a medium-size tree with medium texture and rapid growth rate. It is somewhat scrubby in appearance because of numerous branches that may extend to the ground. Its evergreen needles, arranged two per fascicle, are two to three inches long and persist for three to four seasons. Virginia Pine is easily confused with Shortleaf Pine, but it can be distinguished by its twisted needles. The cones are up to three inches long and approximately one inch wide, grouped in clusters of four. The cone scales have sharp points.

Landscape Uses: Virginia Pine is frequently used for screening or windbreaks. It also has been widely cultivated in the southeast for Christmas trees because of its dense branching habit, fast growth and soil adaptability. Like other pines, it needs full sun for best growth.

Size: 40 to 70 feet tall

Zones: 6b, 7a, 7b, 8a

Habitat: A wide range of sites, including well-drained upland slopes, heavy clays and dry, rocky ridges.

Native To: New York, southwest through the Appalachians and the Ohio valley, to central Alabama and east to Georgia.

Images: Page 38

Sycamore / *Platanus occidentalis*

Family: Sycamore/*Platanaceae*

Characteristics: Sycamore is a deciduous tree with coarse texture and a rapid growth rate. Its most striking characteristic is the exfoliating, dark brown to gray bark, which flakes off to expose a white inner bark.

Landscape Uses: Use Sycamore as a shade or large specimen tree. It prefers deep, moist, fertile soils. It transplants easily and is moderately drought tolerant. It suffers from some disease and insect problems and is always dropping leaves and branches. Still, it is a rapid grower and a widely-used shade tree.

Size: 80 to 100 feet tall with a spread of 40 to 50 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Wet soils along stream banks, on flood plains and at edges of lakes and swamps.

Native To: Maine to Ontario and Minnesota, south to Florida and west to Texas.

Comments: In natural areas, especially along streams, it is an impressive landscape plant with its white bark defining Piedmont streams.

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OAK SPECIES

The genus *Quercus* is divided into two groups, or sub-genera. White oaks are in subgenus *Leucobalanus*. They have leaves lacking bristles on their lobes or leaf apexes, and their acorns require one growing season to mature. Red Oaks are in the subgenus *Erythrobalanus*. This group has leaves with bristles at the tips of the lobes and the leaf apexes. The acorns require two growing seasons (biennial) to mature. These are just two of the most obvious differences in these two sub-genera.

White Oak / *Quercus alba*
White Oak Subgenus: *Leucobalanus*

Family: Beech/*Fagacea*

Characteristics: White Oak is a deciduous tree with medium-coarse texture and a slow to medium growth rate. Form is oval to upright, rounded, with wide-spreading branches. Foliage is blue-green in summer, turning wine-red in fall.

Landscape Uses: White Oak is a beautiful, stately shade tree. It does best when planted in moist, acid, well-drained soils and full sun. It is best planted as a young tree. Avoid root damage or soil compaction on established trees. There are some minor disease and insect problems, but they are not life-threatening.

Size: 60 to 100 feet tall with a spread of 40 to 60 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Moist, well-drained uplands and rich, moist slopes.

Native To: Maine to Minnesota, south to Florida, west to Texas.

Comments: Probably the most common oak tree in north Georgia, but less common in south Georgia.

Images: Page 39

Scarlet Oak / *Quercus coccinea*
Red Oak Subgenus: *Erythrobalanus*

Family: Beech/*Fagaceae*

Characteristics: Scarlet Oak is a deciduous tree having medium texture and medium to fast growth rate. It is pyramidal to rounded in form. Foliage is glossy green in summer and brilliant scarlet-red in fall.

Landscape Uses: Use Scarlet Oak as a shade or specimen tree, especially on dry sites and ridge tops. It is difficult to transplant from the wild, so it is best to plant a container-grown tree. It prefers well-drained soils and full sun. It has good drought tolerance once established.

Size: 60 to 80 feet tall with a spread of 50 to 60 feet

Zones: 6b, 7a, 7b, 8a

Habitat: Poor, dry uplands and slopes.

Native To: Maine to Minnesota, south to Florida, west to Missouri.

Comments: Acorns are an important wildlife food. This tree often survives forest fires.

Images: Page 39

Southern Red Oak / *Quercus falcata*
Red Oak Subgenus: *Erythrobalanus*

Family: Beech/*Fagaceae*

Characteristics: Southern Red Oak is a deciduous, fast-growing tree with a short trunk and a rounded crown. Leaves have a variable lobe pattern with three to five bristle-tipped lobes; the upper leaf surface is shiny green and the lower leaf surface is pubescent and yellow-gray. Bark is dark brown to black, thick, and deeply fissured, becoming ridged and rough near the base. The inner bark is orange.

Landscape Uses: Use Southern Red Oak as a shade or specimen tree. It grows well on dry sites and is fairly long-lived.

Size: 80+ feet wide and 50+ feet tall.

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Dry upland sites with sandy or clay loam soils.

Native To: New Jersey to Florida, west to Missouri and Texas.

Comments: This oak is also called Spanish Oak because of an association with early Spanish settlements. It has good fire tolerance.

Images: Page 39

Laurel Oak / *Quercus hemisphaerica*
Red Oak Subgenus: *Erythrobalanus*

Family: Beech/*Fagaceae*

Characteristics: Laurel Oak is evergreen in zone 8b and semi-evergreen in zones 8a and 7b, where it holds its leaves the entire winter, then drops the oldest leaves at bud break. Growth form is spreading with medium-fine texture. Growth rate is moderately slow. It develops a broad crown at maturity, with horizontal branching.

Landscape Uses: Use Laurel Oak as a shade or street tree. It prefers well-drained, sandy, loose soils and needs adequate moisture during dry weather. It is pest free.

Size: 60 to 80 feet tall with an equal spread

Zones: 7b, 8a, 8b (deciduous but hardy in 7a)

Habitat: Upland sites on well-drained sandy soils, on streambanks and occasionally in mixed woods.

Native To: The Coastal Plain and Piedmont from southern New Jersey to Florida, west to Texas and southeast Arkansas.

Comments: Laurel Oak should be used more in landscapes. Several cultivars are available.

Images: Page 40

Swamp Chestnut Oak or Basket Oak / *Quercus michauxii*
White Oak Subgenus: *Leucobalanus*

Family: Beech/*Fagaceae*

Characteristics: Swamp Chestnut Oak is a deciduous tree with a compact, rounded crown and a medium growth rate. It has chestnut-like foliage with rounded teeth along the margins. Leaves are dark green above and grayish-green with a dense, felt-like pubescence below. Its bark resembles that of White Oak, with light gray, rough, flaky ridges. It produces large acorns, one to 1½ inches in diameter. Fall color is dull red to maroon.

Landscape Uses: Swamp Chestnut Oak is used as a specimen or shade tree.

Size: 50 to 100 feet tall and about half as wide

Zones: 7a, 7b, 8a, 8b

Habitat: Bottomlands and flood plains of streams in the Piedmont and Coastal Plain.

Native To: New Jersey to Indiana, south to Florida and west to Texas.

Comments: The abundant acorn production may be a problem in public areas.

Images: Page 40

Water Oak / *Quercus nigra*
Red Oak Subgenus: *Erythrobalanus*

Family: Beech/*Fagaceae*

Characteristics: Water Oak is a fast-growing tree with a rounded crown. Leaves are alternate, obovate, often with a three-lobed apex. The leaves are variable in size and shape, especially when young. Foliage persists late into fall and winter, especially during mild winters, making the tree semi-evergreen. It is considered by many to be a short-lived "weed tree" on upland sites and is a vigorous early succession tree in Zones 7 to 9.

Landscape Uses: Water Oak transplants easily and is tolerant of a wide variety of soils and site conditions. It does well in full sun. The wood is weaker than that of most oak trees and is subject to limb breakage during ice or wind storms. It also tends to retain numerous dead branches within its canopy.

Size: 50 to 80 feet tall and about half as wide

Zones: 7a, 7b, 8a, 8b

Habitat: Along streams throughout the southeast from the Coastal Plain to the foothills of mountains.

Native To: Southern New Jersey to Florida, west to eastern Texas and northward from the Mississippi valley to southeastern Missouri.

Images: Page 40

Willow Oak / *Quercus phellos*
Red Oak Subgenus: *Erythrobalanus*

Family: Beech/*Fagaceae*

Characteristics: Willow Oak is a deciduous tree with medium-fine texture and a medium growth rate. It has a handsome pyramidal form in youth, which becomes rounded to oval in maturity. The leaves are narrowly oblong or lanceolate, light green and shiny above and pale green below. Young bark is dark gray and smooth, while mature bark has deep furrows and rough ridges. Inner bark is pink.

Landscape Uses: Willow Oak can be used as a shade or specimen tree. It prefers moist, fertile soils but tolerates adverse sites relatively well. It has a shallow root system that will heave concrete, so avoid using it as a street tree.

Size: 40 to 60 feet tall with a spread of 30 to 40 feet

Zones: 7a, 7b, 8a, 8b

Habitat: Moist alluvial soils along rivers and streams, lowlands, flood plains and rich uplands.

Native To: New York to Florida, west to Missouri, Oklahoma and Texas.

Comment: Spider mites are a problem in south Georgia.

Images: Page 41

Chestnut Oak / *Quercus prinus*
White Oak Subgenus: *Leucobalanus*

Family: Beech/*Fagaceae*

Characteristics: Chestnut Oak, also called Rock Oak or Rock Chestnut Oak, is a deciduous tree with medium-coarse texture and a medium growth rate. Form is irregular and open. Foliage is lustrous dark green above and lighter green underneath. Fall color ranges from yellow to orange-yellow. Bark is gray and develops deep V-shaped ridges with age.

Landscape Uses: Use Chestnut Oak as a shade or specimen tree. It prefers well-drained soils and full sun and has excellent drought tolerance once established. Pests are not a problem.

Size: 60 to 70 feet tall with a spread of 50 to 60 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Rocky, dry, upland soils. It also occurs occasionally on well-drained lowland sites.

Native To: Maine to Michigan, south to Georgia and west to Louisiana.

Comments: Deserving of greater landscape use.

Images: Page 41

Northern Red Oak / *Quercus rubra*
Red Oak Subgenus: *Erythrobalanus*

Family: Beech/*Fagaceae*

Characteristics: Northern Red Oak is a deciduous tree with medium texture and a medium to fast growth rate. It develops a rounded crown with age. Leaves are alternate, oval or obovate, up to 8½ inches long and six inches wide, with seven to 11 lobes. They are lustrous green above and yellow-green below. Fall color is usually yellow-brown but may be russet-red.

Landscape Uses: Northern Red Oak is used as a large specimen shade tree. It transplants readily because of a negligible taproot. It needs acidic, sandy loam, well-drained soils and full sun for best development. Northern Red Oak tolerates dry conditions and urban sites.

Size: 60 to 75 feet tall with a spread of 40 to 50 feet

Zones: 6b, 7a, 7b, 8a

Habitat: Widely adapted to a variety of sites, from rocky bluffs to water's edge.

Native To: Nova Scotia to Minnesota, south to North Georgia and west to Oklahoma.

Comments: A source of wildlife food, it starts fruiting around 25 years of age.

Images: Page 41

Shumard Oak / *Quercus shumardii*
Red Oak Subgenus: *Erythrobalanus*

Family: Beech/*Fagaceae*

Characteristics: Shumard Oak is one of the largest of the southern red oaks. It develops a round, open crown, a buttressed trunk and a shallow root system. It's leaves are dark, shiny green above and dull green beneath, with pubescent woolly hairs at the leaf axils.

Landscapes Uses: Shumard Oak is used as a fast-growing shade or specimen tree. It is easily transplanted as a container-grown tree or balled-in-burlap tree.

Size: 80 to 100 feet tall and 60 to 70 feet wide

Zones: 7a, 7b, 8a, 8b

Habitat: Well-drained soils along rivers and streams.

Native To: Southern Michigan to Kansas, south to North Carolina and Florida, and west to Texas.

Comments: Its distribution seems to skip the northeastern section of Georgia (the Blue Ridge Province).

Images: Page 42

Post Oak / *Quercus stellata*
White Oak Subgenus: *Leucobalanus*

Family: Beech/*Fagaceae*

Characteristics: Post Oak is a medium-size tree with stout, spreading branches and a dense, rounded crown. Leaves are lustrous, dark green, rough on the upper surface and grayish-brown underneath. Bark is gray with shallow fissures and scaly ridges. Foliage turns golden-brown in fall.

Landscape Uses: Post Oak is not usually planted as a landscape tree, but it would be a good choice for dry reclamation sites.

Size: 40 to 50 feet tall by 40 feet wide

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Poor, dry upland clay and sandy soils. In the natural landscape, it is a ridge tree.

Native To: Southern Massachusetts to Florida, west to Iowa and Texas.

Comments: As a member of the White Oak sub-genus, it produces acorns every year and is a good food source for wildlife.

Images: Page 42

Live Oak / *Quercus virginiana*
Red Oak Subgenus: *Erythrobalanus*

Family: Beech/*Fagaceae*

Characteristics: Live Oak is an evergreen tree with medium-fine texture and a slow growth rate. It has a broad-spreading form with massive horizontal branches. It is a long-lived tree and a haven for resurrection fern and Spanish moss. The bark on older trees is almost black, develops a blocky appearance, and looks like alligator hide. Leaves are lustrous, dark green above and light green below. Old leaves drop in the spring as new leaves emerge.

Landscape Uses: Use Live Oak as a specimen tree in large spaces. Its evergreen foliage does not allow much sunlight beneath the canopy. It prefers sandy, moist, limestone soils and full sun for best development. It tends to grow poorly in Piedmont clays.

Size: 40 to 80 feet tall and 60 to 100 feet wide

Zones: 7b, 8a, 8b

Habitat: Sandy, alkaline soils, including coastal dunes and ridges, near marshes and inland hammocks in the lower Coastal Plain. Also commonly found up to 100 miles inland.

Native To: Virginia to Florida, west to Oklahoma and Texas.

Comments: Live Oak is the state tree of Georgia.

Images: Page 42

Palmetto Palm or Cabbage Palm / *Sabal palmetto*

Family: Palm/*Palmaceae*

Characteristics: The state tree of South Carolina, Palmetto Palm, is also called Cabbage Palm. It is a fixture along coastal areas as well as inland sites south of the fall line in Georgia and throughout Florida. In terms of toughness, it is often the tree still standing after hurricanes. Leaves are two to three feet across, blue-green, palmate in shape, with a large notch in the middle. Thread-like strands of fiber hang off each leaf. In the wild, old leaf-stems, called boots, remain on the trunk in a criss-cross pattern, but they are often removed from trees in cultivated landscapes to give the trunk a smooth appearance.

Landscape Uses: Palmetto palm is sometimes used as a street tree, but it is used more often as a single specimen or in groupings in landscapes. A handsome and uniform grower, it lends a tropical look to the landscape. It is often planted at angles for added visual interest. Palmetto palm is very tolerant of salt spray, flooding and wind. Transplanting is most successful when done during the warm summer months.

Size: 30 to 70 feet tall with a canopy width of 10 to 15 feet

Zones: 7b (coastal areas), 8a, 8b

Habitat: Inland hammocks to coastal dunes.

Native To: Southeastern coast from southern North Carolina to the northern panhandle of Florida. North of Florida, the native range of this palm is restricted to coastal areas that are subject to salt spray and storms. It is also native to inland areas of the Florida peninsula as well as to the Bahamas.

Images: Page 43

Bald Cypress / *Taxodium distichum*

Family: Redwood/*Taxodiaceae*

Characteristics: Bald Cypress is a deciduous tree with medium-fine texture and a medium to fast growth rate. Form is pyramidal when young (sometimes narrow) and becomes broader with age. In nature, older trees are flat-topped with few lower branches, which is probably due to competition for light. Its bark is reddish-brown, fibrous and attractive. Bald Cypress produces “knees” (vertical root extensions) in swamps but not when grown in upland sites.

Landscape Uses: Plant Bald Cypress as a specimen tree. It does well in the average home landscape, displaying good drought tolerance and adaptability to sandy or clay soils as well as wet and dry sites. Uniform shape, lacy fernlike foliage, pest resistance and russet-red fall color are some of this tree’s landscaping merits. It needs full sun and plenty of room. Bald Cypress grows too large for the average residential landscape.

Size: 60 to 100 feet tall with a spread of 40 to 50 feet

Zones: 7a, 7b, 8a, 8b

Habitat: Wet, swampy soils along riverbanks and flood plains, and in other areas where water collects.

Native To: Delaware to Florida, west to southern Illinois, Arkansas, Louisiana and Texas.

Images: Page 43

Eastern Hemlock / *Tsuga canadensis*

Family: Pine/*Pinaceae*

Characteristics: Eastern Hemlock is an evergreen tree, having a fine texture and a medium growth rate. It has a graceful pyramidal growth form. Leaves (needles) are short, 1/2- to 2/3-inch long, lustrous, dark green above with two white bands beneath. They are arranged along the stems in two planes. Bark is a cinnamon-red color and becomes furrowed with age.

Landscape Uses: Eastern Hemlock is used as a specimen or screening tree and for a windbreak. It is fairly easy to transplant and prefers moist, well-drained, acid soils and partial shade. Afternoon shade and irrigation during periods of limited rainfall are required to grow the plant successfully in the lower Piedmont.

Size: 50 to 60 feet tall and with a spread of 30 to 40 feet

Zones: 6b, 7a, 7b

Habitat: Moist coves, hardwood forests and rocky bluffs.

Native To: Nova Scotia to Minnesota, south along the mountains to Alabama and Georgia.

Comments: It is subject to several pests, including the woolly adelgid, which has recently invaded the north Georgia mountains.

Images: Page 43

Small Trees

Florida or Southern Sugar Maple / *Acer barbatum*

Family: Maple/*Aceraceae*

Characteristics: Florida or Southern Sugar Maple is a deciduous tree of medium texture and a slow to medium growth rate. It has a rounded to spreading canopy that is more pyramidal in youth. It has few pest problems. The underside of the leaf is lighter than the upper side. The bark is smooth and gray. Fall color is variable, ranging from yellow to orange or rusty-red. It is not as vibrant as Sugar Maple. Considered a close relative of Sugar Maple (*Acer saccharum*), Southern Sugar Maple is more tolerant of the high summer temperatures and humidity of Georgia than northern Sugar Maples.

Landscape Uses: Southern Sugar Maple may be used as a shade, specimen or street tree. Plant it in acid soils with adequate moisture, because it is only moderately drought tolerant. It may require pruning in youth to obtain its best shape.

Size: 35 to 40 feet tall with a spread of 25 to 35 feet

Zones: 7b, 8a, 8b

Habitat: Along stream banks and moist upland sites in the Piedmont and the Coastal Plain. It is commonly found along waterways.

Native To: Southeastern Missouri, southern Illinois, Kentucky and Virginia, south to Florida and west to eastern Texas and Oklahoma.

Comments: Southern Sugar Maple is becoming more popular in the nursery trade in the Deep South.

Images: Page 45

Downy Serviceberry / *Amelanchier arborea*

Family: Rose/*Rosaceae*

Characteristics: Downy Serviceberry is a deciduous, flowering tree with medium-fine texture, narrow-rounded crown and a medium growth rate. It blooms in early April with clusters of pendulous white flowers. Individual flowers are one inch in diameter with five narrow petals. Summer fruit are berry-like, purplish-blue and edible by humans and birds. Fall color can be good and ranges from yellow to orange or rusty-red. The bark is a pleasing gray color.

Landscape Uses: Use Downy Serviceberry as a flowering or specimen tree. It prefers well-drained, acid soils with adequate moisture, although it appears tolerant of many different sites, except wet soils. Plant it in full sun to light shade.

Size: 15 to 25 feet tall and 15 to 20 feet wide

Zones: 7a, 7b, 8a, 8b

Habitat: Moist soils in hardwood forests; often found near streams.

Native To: Nebraska and Minnesota, east to Maine, south to Florida and west to Texas.

Comments: The fruit ripens in June and is enjoyed by birds.

Images: Page 45

American Hornbeam, Ironwood or Musclewood / *Carpinus caroliniana*

Family: Birch/*Betulaceae*

Characteristics: American Hornbeam is a deciduous tree with medium texture and a slow to medium growth rate. It is usually single-stemmed with a spreading to rounded form. It may occur as a multi-stemmed, bushy tree. An unusual feature is the smooth, hard branches and trunk, which acquire a muscle-like rippled (Ironwood) appearance with age.

Landscape Uses: Use American Hornbeam as a specimen or street tree. It should be used much more in home landscapes. An understory tree, often occurring in wet areas, it appears to tolerate both excess moisture and moderate drought. It develops a pleasing shape without much pruning. Fall color is variable, ranging from yellow to orange or red.

Size: 35 to 40 feet tall with a spread of 20 to 25 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: American Hornbeam grows in flood plains and along waterways throughout the southeast.

Native To: Minnesota to Maine, south to Florida and west to Texas.

Comments: Seeds are eaten by birds.

Images: Page 45

Eastern Redbud / *Cercis canadensis*

Family: Legume/*Fabaceae* (syn. *Leguminosae*)

Characteristics: Eastern Redbud is a deciduous, flowering tree with a medium growth rate and coarse texture. Form is oval to rounded. Grown primarily for the pink to rose-colored, pea-like blooms in March and April, Eastern Redbud is showy. The color conveys a warm feeling in the cool early spring.

Landscape Uses: Use Eastern Redbud as a flowering or specimen tree. It occurs in moist soils as an understory tree, but it tolerates most landscape conditions and urban sites. Plant or transplant young trees or container-grown plants because larger trees are difficult to transplant. Moderately acid pH is preferred.

Size: 20 to 25 feet tall with a spread of 15 to 20 feet

Zones: 6b, 7a, 7b, 8a, 8b (shorter-lived in 8a, 8b)

Habitat: Moist soils of valleys and slopes in hardwood forests.

Native To: Massachusetts to northern Florida, west to Texas, north to Nebraska, Iowa, southern Wisconsin and Minnesota

Comments: Eastern Redbud is becoming more popular in the nursery trade in the Deep South. Many cultivars are available with variations in flower color from white to deep rose. It re-seeds readily in cultivated areas.

Images: Page 46

Fringetree or Grancy-Greybeard / *Chionanthus virginicus*

Family: Olive/*Oleaceae*

Characteristics: Fringetree is a deciduous, flowering tree with medium texture and a slow growth rate. Rounded in form, it is grown mostly for its showy flowers in May to June. They give the tree a fleecy appearance. Fruit are dark blue, ½ inch in diameter, and resemble small, black olives. Fruit appear on female trees only.

Landscape Uses: Use Fringetree as a flowering specimen tree. It adapts to most sites, including moderately dry sites. It is vigorous when young, then grows slower with age. It does better with good cultural practices, including fertilization, watering and mulching.

Size: 15 to 25 feet tall and wide

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Moist soils of valleys and bluffs, and in hardwood forests.

Native To: New York and Massachusetts, south to Florida, west to Texas and Oklahoma.

Comments: This tree is dioecious, having male (staminate) and female (pistillate) flowers on separate plants.

Images: Page 46

Flowering Dogwood / *Cornus florida*

Family: Dogwood/*Cornaceae*

Characteristics: Flowering Dogwood, the most popular flowering tree in the eastern United States, is deciduous with medium texture and a medium growth rate. It bears white, pink or rose-colored blooms from March to April. In fall, leaves turn scarlet red, and fruit are red and showy. Bark is dark and mottled. Seedling dogwoods are often planted in woodland landscapes.

Landscape Uses: Use Dogwood as a flowering understory tree. It prefers light shade and adequate moisture during dry weather. Never plant it on wet sites. Mulch to keep roots cool in summer and warm in winter. Powdery mildew and leaf spot anthracnose can be problems.

Size: 15 to 20 feet tall and 15 to 30 feet wide; more spreading in shade.

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Moist soils of valleys and uplands in the understory layer of hardwood forests.

Native To: Maine to Florida, west to Texas, north to Kansas, Missouri, Illinois, Michigan.

Comments: Numerous cultivars exist, including some with variegated foliage. Dogwood fruit are a favorite of birds and other wildlife. Deer browse the leaves.

Images: Page 47

Mayhaw / *Crataegus aestivalis*

Family: Rose/Rosaceae

Characteristics: Mayhaw is a thorny, deciduous, small tree with white flowers borne in a flat cluster in March. The fruit are round, ½ to one inch in diameter, and ripen to shiny red in May and June. Bark is scaly and mottled.

Landscape Uses: Use Mayhaw in shrub borders and woodland edges.

Size: 15 to 20 feet tall and wide

Zones: 7a, 7b, 8a, 8b

Habitat: Thin, wet woods; shallow depressions; and other low, moist areas.

Native To: Virginia to Florida, west to Alabama and Mississippi.

Comments: The fruit makes excellent jelly.

Images: Page 47

Parsley Hawthorn / *Crataegus marshallii*

Family: Rose/Rosaceae

Characteristics: Parsley Hawthorn is a deciduous, flowering tree with medium-fine texture, thorny branches and a slow growth rate. White flowers with showy purple anthers are borne in clusters in March and April. Fruit are ½ inch in diameter, red and oval. Leaves are unique in that they resemble the foliage of parsley. Bark is scaly and mottled.

Landscape Uses: Parsley Hawthorn is an understory tree that prefers moist soils in light shade or full sun. Use it as a specimen tree.

Size: 15 to 20 feet tall and wide

Zones: 7a, 7b, 8a, 8b

Habitat: Moist areas, valleys and swampy forests.

Native To: Virginia to Florida, west to Texas.

Comments: All hawthorns provide fruit for birds in the fall and are preferred nesting trees in spring. Lacebugs can be a problem.

Images: Page 48

Washington Hawthorn / *Crataegus phaenopyrum*

Family: Rose/*Rosaceae*

Characteristics: Washington Hawthorn is a thorny, deciduous, small tree with a broadly oval to rounded dense shape. The foliage is reddish as it emerges, changing to a dark, lustrous green. The leaves are triangular-ovate, coarsely toothed and deeply lobed. The ½-inch white flowers bloom in clusters after the leaves emerge, with pink anthers on numerous stamens.

Landscape Uses: Washington Hawthorn makes an excellent small specimen tree, screen or hedge near buildings, provided it isn't used in high-traffic areas because of its thorns. The fall color varies from orange to scarlet to purple. The bright red fruit display is an outstanding feature.

Size: 25 to 30 feet tall to 20 to 25 feet wide

Zones: 7a, 7b, 8a

Habitat: Riverbanks and low, moist woods from the mountains to the upper Coastal Plain; may not be as vigorous in the southern part of its range.

Native To: Pennsylvania to Florida and westward to Louisiana, Arkansas and Missouri.

Comments: There are cultivars available. All hawthorns are valuable to wildlife by providing fruit and nesting sites.

Images: Page 48

Carolina Buckthorn / *Frangula caroliniana*

Family: Buckthorn/*Rhamnceae*

Characteristics: Carolina Buckthorn is a small, deciduous tree. Leaves are simple, alternate, elliptic to oblong, four to six inches long, with parallel veins extending from a prominent midrib. The small, white flowers appear after the leaves in clusters at the leaf axils. Fruit are berry-like drupes, changing from red to black.

Landscape Uses: Carolina Buckthorn is an attractive tree with slender branches and an open crown. It is quite handsome in fruit and is an excellent specimen understory tree. However, it may have a tendency to reseed itself and become weedy. It prefers partial shade.

Size: 30 to 40 feet tall with a spread about half its height

Zones: 7a, 7b, 8a, 8b

Habitat: Fertile soils of deciduous forests. It is frequently associated with limestone soils, such as shell middens and calcareous bluffs.

Native To: Virginia to Florida, west to Texas, north to Oklahoma, Missouri and Illinois.

Images: Page 49

Loblolly Bay / *Gordonia lasianthus*

Family: Tea/Theaceae

Characteristics: Loblolly Bay is an evergreen tree with medium texture and a medium growth rate, having a narrow, pyramidal to oval shape. Leaves are smooth, dark green and have blunt appressed teeth. Summer flowers are white, 2½ inches in diameter and fragrant. Fruit are woody capsules.

Landscape Uses: Use Loblolly Bay as a screening or specimen flowering tree. It prefers moist, fertile, well-drained soil, and sun to light shade.

Size: 30 to 40 feet tall and 20 to 30 feet wide

Zones: 7b, 8a, 8b

Habitat: Bays, low hammocks, acidic, peaty soils in and around pocosins. Also found on sand hills in association with various hardwoods and conifers.

Native To: The Coastal Plain from North Carolina to Florida, west to Mississippi.

Comments: Loblolly Bay is most often used in the landscape in groupings of three to five plants.

Images: Page 49

Two-Winged Silverbell / *Halesia diptera*

Family: Storax/*Styracaceae*

Characteristics: Two-Winged Silverbell is often confused with Carolina Silverbell (*H. tetraptera*). However, it is smaller and produces fewer flowers than Carolina Silverbell. Its white flower petals are united at the base. Carolina Silverbell, in contrast, has flower petals that are united for more than half their length. Bark is gray-brown and lacks white streaks common on Carolina Silverbell. Fruit are a greenish color. Fall color is pleasant yellow.

Landscape Uses: Use Two-Winged Silverbell as a specimen understory trees in wet to moist locations.

Size: 25 feet tall and 15 feet wide

Zone: 7a, 7b, 8a, 8b

Habitat: Swampy areas near waterways.

Native To: The Coastal Plain, South Carolina to Florida, particularly the southwestern Coastal Plain of Georgia and along the Gulf Coast into Texas.

Comments: A variety called *magniflora* has larger flowers than Two-Winged Silverbell (*H. diptera*).

Images: Page 49

Carolina Silverbell / *Halesia tetraptera*

Family: Storax/*Styracaceae*

Characteristics: Carolina Silverbell is a deciduous tree with medium-coarse texture and a medium growth rate. It has an upright-oval to broad-rounded form. Subtly, but not explosively showy, its best ornamental features are the clusters of white, bell-shaped flowers borne from April to early May. Bark is shallowly ridged with white streaks. Fruit are four-winged capsules approximately 1½ inches long. Fall color is yellow to yellow-green.

Landscape Uses: Use Carolina Silverbell as a flowering or specimen tree. It prefers rich, moist, well-drained, acidic soil and sun to partial shade. Although it naturally occurs as an understory tree, it has shown good drought tolerance in full sun. It seems to transplant well.

Size: 30 to 40 feet tall with a spread of 20 to 35 feet

Zones: 6b, 7a, 7b, 8a

Habitat: Wooded hillsides and along streambanks. It is occasionally found along waterways in the upper Coastal Plain.

Native To: New York to Georgia and Alabama, north to Michigan, southwest from Illinois to Texas.

Images: Page 50

Possumhaw / *Ilex decidua*

Family: Holly/*Aquifoliaceae*

Characteristics: Possumhaw is a deciduous tree with medium-fine texture and a medium to slow growth rate. Form is round at maturity. Possumhaw is grown mostly for its shiny red fall berries, which are consumed by wildlife. The leaves turn a bright yellow in fall. It is similar in fruiting habit to Yaupon Holly (*I. vomitoria*), except it is deciduous, which makes the fruit more obvious.

Landscape Uses: Use Possumhaw as a specimen tree in the shrub border or at the woodland edge. It prefers moist soils in full sun to partial shade. It transplants readily and has fair drought tolerance. It tends to be multi-stemmed but can be easily pruned into a tree shape.

Size: 12 to 15 feet tall and 8 to 10 feet wide

Zones: 7a, 7b, 8a, 8b

Habitat: Moist soils in low woods and lower slopes in woods and thickets from the lower Piedmont to the southern Coastal Plain.

Native To: Maryland and Virginia, south to Florida, west to Texas, Oklahoma, Kansas.

Comments: All hollies are dioecious, having male and female flowers on separate plants. Possumhaw is a good wildlife plant. There are several cultivars in the nursery trade.

Images: Page 50

Yaupon Holly / *Ilex vomitoria*

Family: Holly/*Aquifoliaceae*

Characteristics: Yaupon Holly is a broadleaf evergreen tree with medium-fine texture and a fast growth rate. It has a graceful, attractive, irregular form; sometimes rounded, other times pyramidal. It tends to be multi-stemmed, but it can be easily pruned into a tree form. The bark is smooth gray. Shiny red fruit provide a brilliant display in fall until they are consumed by birds. Fruit only occurs on female plants.

Landscape Uses: Use Yaupon Holly as a specimen tree or hedge for screening. It is commonly used in landscapes because of its adaptability to a wide variety of sites, including sun or shade, wet and dry sites, and both acidic and alkaline soils. It is prone to ice and storm damage.

Size: 12 to 20 feet tall and 8 to 12 feet wide

Zones: 7a, 7b, 8a, 8b

Habitat: Moist soils, especially beaches, maritime forests and sandhills of the Coastal Plain.

Native To: Virginia to central Florida, west to Texas and Oklahoma.

Comments: Cultivars are available, including weeping and dwarf forms.

Images: Page 50

Big-Leaf Magnolia / *Magnolia macrophylla*

Family: Magnolia/*Magnoliaceae*

Characteristics: Big-Leaf Magnolia is a deciduous, flowering tree having coarse texture, a round-headed form, and a medium growth rate. Unusually large leaves are 20 to 30 inches long and eight to12 inches wide. Large, white, fragrant flowers are borne from May to June and have six petals eight to 12 inches across. Its egg-shaped, cone-like fruit and red seeds are typical of Magnolias.

Landscape Uses: Use Big-Leaf Magnolia as a specimen tree. Because of its extremely large leaves, it becomes a focal point wherever it is grown. It is a temperamental tree, often difficult to establish, requiring rich, moist soils and partial shade. Avoid planting it in exposed locations because the large leaves are easily torn by wind. Leaf litter may be a problem.

Size: 35 to 40 feet tall and 25 to 30 feet wide

Zones: 7a, 7b, 8a

Habitat: Moist soils of valleys and ravines. It is sporadically found in the Piedmont, especially in the Chattahoochee drainage area and in hilly sections of the western Coastal Plain. Often found as an understory tree.

Native To: Ohio to Florida, west to Arkansas and Louisiana.

Comments: This is a tree for a plant collector.

Images: Page 51

IMAGES

Medium to Large Trees

Red Maple / *Acer rubrum*

Hugh & Carol Nourse

Chris Evans, Bugwood.org

Wendy VanDyk Evans

Wendy VanDyk Evans

Gary Wade

Sugar Maple / *Acer saccharum*

Ed McDowell

Gary Wade

Ed McDowell

Yellow Buckeye / *Aesculus flava*

Chris Evans, Bugwood.org

William M. Ciesla, Bugwood.org

River Birch / *Betula nigra*

Hugh & Carol Nourse

Ed McDowell

Ed McDowell

Chris Evans, Bugwood.org

HICKORY SPECIES

Gary Wade

Gary Wade

Gary Wade

Pignut Hickory / *Carya glabra*

Gary Wade

Shagbark Hickory / *Carya ovata*

Paul Wray, Bugwood.org

Paul Wray, Bugwood.org

Chris Evans, Bugwood.org

Mockernut Hickory / *Carya tomentosa*

Gary Wade

Gary Wade

Gary Wade

Gary Wade

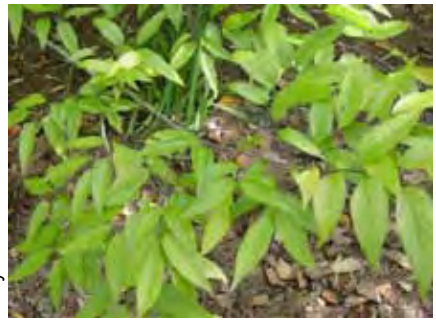
Gary Wade

Sugarberry / *Celtis laevigata*

Gary Wade

Chris Evans, Bugwood.org

Chris Evans, Bugwood.org



Gary Wade

American Yellowwood / *Cladrastis kentukea* (Syn. *Cladrastis lutea*)

Gary Wade

Gary Wade

Gary Wade

Gary Wade

American Beech / *Fagus grandifolia*

Carol & Hugh Nourse

Gary Wade

Hugh & Carol Nourse

Gary Wade

White Ash / *Fraxinus americana*

Gary Wade

Gary Wade

Gary Wade

Green Ash / *Fraxinus pennsylvanica*

Gary Wade

Gary Wade

Gary Wade

American Holly / *Ilex opaca*

Gary Wade

Gary Wade

Gary Wade

Gary Wade

Black Walnut / *Juglans nigra*

Gary Wade

Gary Wade

Steve Sanchez

Gary Wade

Eastern Red Cedar / *Juniperus virginiana*

Gary Wade

Gary Wade

USDA-NRCS PLANTS Database

Sweetgum / *Liquidambar styraciflua*

Ed McDowell

Gary Wade

Gary Wade

Gary Wade

Gary Wade

USDA Forest Service, Bugwood.org

USDA Forest Service, Bugwood.org

Tulip Poplar or Yellow Poplar / *Liriodendron tulipifera*

Gary Wade

Chris Evans, Bugwood.org

Gary Wade

Southern Magnolia / *Magnolia grandiflora*

Gary Wade

Gary Wade

Gary Wade

Gary Wade

Black Gum or Tupelo / *Nyssa sylvatica*

Steve Sanchez

Steve Sanchez

Chris Evans, Bugwood.org

Shortleaf Pine / *Pinus echinata*

Chris Evans, Bugwood.org

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Chris Evans, Bugwood.org

Slash Pine / *Pinus elliottii*

David Stephens, Bugwood.org

Chris Evans, Bugwood.org

David McManus

Spruce Pine / *Pinus glabra*

Steve Sanchez

Chris Evans, Bugwood.org

Steve Sanchez

Longleaf Pine / *Pinus palustris*

Ed McDowell

Dennis Girard

Chuck Bargeron, Bugwood.org

White Pine / *Pinus strobus*

Chris Evans, Bugwood.org

Chris Evans, Bugwood.org

Chris Evans, Bugwood.org

Gary Wade

Gary Wade

Loblolly Pine / *Pinus taeda*

Gary Wade

Ed McDowell

Gary Wade

Hugh & Carol Nourse

Gary Wade

Virginia Pine / *Pinus virginiana*

Gary Wade

Gary Wade

Gary Wade

Sycamore / *Platanus occidentalis*

Gary Wade

Gary Wade

Gary Wade

Gary Wade

OAK SPECIES

White Oak / *Quercus alba*
White Oak Subgenus: *Leucobalanus*

Gary Wade

Gary Wade

Gary Wade

Southern Red Oak / *Quercus falcata*
Red Oak Subgenus: *Erythrobalanus*

Gary Wade

Scarlet Oak / *Quercus coccinea*
Red Oak Subgenus: *Erythrobalanus*

Gary Wade

Gary Wade

Gary Wade

Gary Wade

Gary Wade

Gary Wade

Laurel Oak / *Quercus hemisphaerica*
Red Oak Subgenus: *Erythrobalanus*

Steve Sanchez

Gary Wade

Chris Evans, Bugwood.org

Gary Wade

Water Oak / *Quercus nigra*
Red Oak Subgenus: *Erythrobalanus*

Gary Wade

Gary Wade

Swamp Chestnut Oak or Basket Oak / *Quercus michauxii*
White Oak Subgenus: *Leucobalanus*

Gary Wade

Gary Wade

Gary Wade

Gary Wade

Gary Wade

Willow Oak / *Quercus phellos*
Red Oak Subgenus: *Erythrobalanus*

Gary Wade

Gary Wade

Ed McDowell

Chestnut Oak / *Quercus prinus*
White Oak Subgenus: *Leucobalanus*

Chris Evans, Bugwood.org

Gary Wade

Gary Wade

Northern Red Oak / *Quercus rubra*
Red Oak Subgenus: *Erythrobalanus*

Gary Wade

Gary Wade

Gary Wade

Gary Wade

Shumard Oak / *Quercus shumardii*
Red Oak Subgenus: *Erythrobalanus*

Gary Wade

Gary Wade

Gary Wade

Gary Wade

Post Oak / *Quercus stellata*
White Oak Subgenus: *Leucobalanus*

Ed McDowell

Ed McDowell

Paul Wray, Bugwood.org

Live Oak / *Quercus virginiana*
Red Oak Subgenus: *Erythrobalanus*

Gary Wade

Ed McDowell

Ed McDowell

Palmetto Palm or Cabbage Palm / *Sabal palmetto*

Gary Wade

Gary Wade

Gary Wade

Gary Wade

Gary Wade

Eastern Hemlock / *Tsuga canadensis*

Gary Wade

Gary Wade

Gary Wade

Gary Wade

Bald Cypress / *Taxodium distichum*

Gary Wade

Chris Evans, Bugwood.org

Gary Wade

Gary Wade

Gary Wade

Small Trees

Florida or Southern Sugar Maple / *Acer barbatum*

Gary Wade

David J. Moorhead, Bugwood.org

Gary Wade

Downy Serviceberry / *Amelanchier arborea*

Ed McDowell

Carol Nourse

Gary Wade

Carol Nourse

American Hornbeam, Ironwood or Musclewood / *Carpinus caroliniana*

Steve Sanchez

Chris Evans, Bugwood.org

Chris Evans, Bugwood.org

Chris Evans, Bugwood.org

Eastern Redbud / *Cercis canadensis*

Ed McDowell

Chris Evans, Bugwood.org

Hugh & Carol Nourse

Chris Evans, Bugwood.org

Fred Mileshko

Fringetree or Grancy-Greybeard / *Chionanthus virginicus*

Gary Wade

Gary Wade

Gary Wade

Hugh & Carol Nourse

Gary Wade

Flowering Dogwood / *Cornus florida*

Gary Wade

Ed McDowell

Ed McDowell

Ed McDowell

Chris Evans, Bugwood.org

Hugh & Carol Nourse

Hugh & Carol Nourse

Mayhaw / *Crataegus aestivalis*

Gerard Krewer

Gerard Krewer

Ron Lance

Ron Lance

Gerard Krewer

Gerard Krewer

Gerard Krewer

Gerard Krewer

Parsley Hawthorn / *Crataegus marshallii*

Ed McDowell

Ron Lance

Guy Anglin

Ted Bodner, Bugwood.org

Ron Lance

Washington Hawthorn / *Crataegus phaenopyrum*

Ron Lance

Ron Lance

Ron Lance

Ron Lance

Carolina Buckthorn / *Frangula caroliniana*

Ed McDowell

Michael Strickland

Michael Strickland

Michael Strickland

Michael Strickland

Michael Strickland

Michael Strickland

Two-Winged Silverbell / *Halesia diptera*

Gary Wade

Gary Wade

Fred Nation

Gary Wade

Loblolly Bay / *Gordonia lasianthus*

USF Herbarium Slide Collection

Carol Nourse

John Ruter

Carolina Silverbell / *Halesia tetraptera*

Gary Wade

Gary Wade

Gary Wade

Gary Wade

Yaupon Holly / *Ilex vomitoria*

Gary Wade

Hugh & Carol Nourse

Hugh Nourse

Gary Wade

Possumhaw / *Ilex decidua*

Gary Wade

Gary Wade

Gary Wade

Big-Leaf Magnolia / *Magnolia macrophylla*

Gary Wade

Gary Wade

Gary Wade

Gary Wade

Gary Wade

Ogeechee Lime, Ogeechee Tupelo / *Nyssa Ogeche*

Gary Wade

Gary Wade

Ed McDowell

Ed McDowell

Gary Wade

Narrow-Leaf Crabapple / *Malus angustifolia*

James H. Miller, Bugwood.org

Paul Wray, Bugwood.org

Paul Wray, Bugwood.org

Wild Olive or Devilwood / *Osmanthus americanus*

John Ruter

John Ruter

Chris Evans, Bugwood.org

Sourwood / *Oxydendrum arboreum*

Gary Wade

Gary Wade

Gary Wade

Ed McDowell

Eastern Hophornbeam / *Ostrya virginiana*

Steve Sanchez

Steve Sanchez

Steve Sanchez

John Ruter

Red Bay / *Persea borbonia*

Gary Wade

Gary Wade

Gary Wade

Gary Wade

Cherry Laurel / *Prunus caroliniana*

Chris Evans, Bugwood.org

Gary Wade

Chris Evans, Bugwood.org

Gary Wade

Chris Evans, Bugwood.org

Georgia Oak / *Quercus georgiana* Red Oak Sub Genus: *Erythrobalanus*

Gary Wade

Gary Wade

Gary Wade

Gary Wade

Turkey Oak / *Quercus laevis* Red Oak Sub Genus: *Erythrobalanus*

Ed McDowell

Ed McDowell

Shirley Denton

Shirley Denton

Sassafras / *Sassafras albidum*

Gary Wade

Gary Wade

Gary Wade

Michael Strickland

Gary Wade

Theresa Schrum

Buckthorn Bully / *Sideroxylon lycioides* (Syn. *Bumelia lycioides*)

Ed Lambert

Ed Lambert

Ed Lambert

Bigleaf Snowbell / *Styrax grandifolius*

Michael Strickland

Steve Sanchez

Steve Sanchez

Shrubs

Bottlebrush Buckeye / *Aesculus parviflora*

Ed McDowell

Hugh & Carol Nourse

Gary Wade

Red Buckeye / *Aesculus pavia*

Ed McDowell

Hugh & Carol Nourse

Gary Wade

Ed McDowell

Gary Wade

Hugh & Carol Nourse

Painted Buckeye / *Aesculus sylvatica*

Cynthia Taylor

Wendy VanDyk Evans, Bugwood.org

Fetterbush or Pipestem / *Agarista populifolia*

Guy Anglin

Chris Evans, Bugwood.org

J.S. Peterson

Devil's Walkingstick / *Aralia spinosa*

Ed McDowell

Gary Wade

Gary Wade

Theresa Schrum

Theresa Schrum

Groundsel Bush / *Baccharis halimifolia*

Gary Wade

Gary Wade

Gary Wade

Gary Wade

American Beautyberry / *Callicarpa americana*

Chris Evans, Bugwood.org

Ed McDowell

Gary Wade

Sweetshrub / *Calycanthus floridus*

Gary Wade

Gary Wade

Gary Wade

Gary Wade

Button Bush / *Cephalanthus occidentalis*

Ted Bodner, Bugwood.org

Ed McDowell

Ed McDowell

Hugh & Carol Nourse

Summersweet Clethra, Sweet Pepperbush / *Clethra alnifolia*

Ed McDowell

Ed McDowell

Theresa Schrum

Black Titi, Buckwheat Tree / *Cliftonia monophylla*

Walter Hodge

Chris Evans, Bugwood.org

Hugh & Carol Nourse

Chris Evans, Bugwood.org

Gary Wade

Red Basil, Scarlet Calamint / *Clinopodium coccinea* (Syn. *Satureja coccinea*)

Shirley Denton

Hugh & Carol Nourse

Georgia Basil / *Clinopodium georgianum* (Syn. *Satureja georgiana*)

Michael Strickland

Michael Strickland

Michael Strickland

Hugh & Carol Nourse

Michael Strickland

Hugh & Carol Nourse

Michael Strickland

Littlehip Hawthorn / *Crataegus spathulata*

Ron Lance

Ron Lance

Steve Sanchez

Steve Sanchez

Steve Sanchez

Red Titi, Swamp Cyrilla / *Cyrilla racemiflora*

Hugh Nourse

Ed McDowell

Chris Evans, Bugwood.org

Gary Wade

Strawberry-Bush / *Euonymus americanus*

Michael Strickland

Michael Strickland

Gary Wade

Michael Strickland

Hugh & Carol Nourse

Michael Strickland

Dwarf Fothergilla / *Fothergilla gardenii*

Hugh & Carol Nourse

Gary Wade

J.S. Peterson, USDA-NRCS PLANTS Database

Carol Nourse

Theresa Schrum

Common Witchhazel / *Hamamelis virginiana*

Ted Bodner, Bugwood.org

Hugh & Carol Nourse

Hugh & Carol Nourse

Chris Evans, Bugwood.org

Gary Wade

Oakleaf Hydrangea / *Hydrangea quercifolia*

Hugh & Carol Nourse

Gary Wade

Gary Wade

Gary Wade

Gary Wade

Gary Wade

Gallberry or Inkberry / *Ilex glabra*

Hugh & Carol Nourse

Chris Evans, Bugwood.org

Chris Evans, Bugwood.org

Chris Evans, Bugwood.org

Winterberry / *Ilex verticillata*

Gary Wade

Gary Wade

Theresa Schrum

Gary Wade

Florida Anise-Tree / *Illicium floridanum*

Steve Sanchez

Fred Mileshko

Ed McDowell

Small Anise-Tree or Yellow Anise-Tree / *Illicium parviflorum*

Steve Sanchez

Gary Wade

Gary Wade

Virginia Sweetspire / *Itea virginica*

Gary Wade

Hugh & Carol Nourse

Mountain Laurel / *Kalmia latifolia*

Gary Wade

Carol Nourse

Hugh Nourse

Drooping Leucothoe / *Leucothoe fontanesiana*

Theresa Schrum

Spice-Bush / *Lindera benzoin*

Steve Sanchez

Ed McDowell

Steve Sanchez

Ed McDowell

Fetterbush / *Lyonia lucida*

Carol & Hugh Nourse

Carol & Hugh Nourse

Southern Wax Myrtle / *Morella cerifera* (Syn: *Myrica cerifera*)

Ed McDowell

Gary Wade

Gary Wade

Hugh & Carol Nourse

Pinckneya, Feverbark / *Pinckneya bracteata*

Ed McDowell

Ed McDowell

Tim Grissom

Tim Grissom

Hoptree, Wafer-Ash / *Ptelea trifoliata*

Chris Evans, Bugwood.org

Chris Evans, Bugwood.org

Needle Palm / *Rhapidophyllum hystrix*

Gary Wade

Gary Wade

Gary Wade

DECIDUOUS AZALEA AND RHODODENDRON SPECIES

Alabama Azalea / *Rhododendron alabamense*

Ernest Koone

Ernest Koone

Guy Anglin

Coastal Azalea / *Rhododendron atlanticum*

Ernest Koone

Sweet Azalea / *Rhododendron arborescens*

Matthew Chappell

Matthew Chappell

Ernest Koone

Ed McDowell

Florida Azalea / *Rhododendron austrinum*

Gary Wade

Matthew Chappell

Ed McDowell

Gary Wade

Flame Azalea / *Rhododendron calendulaceum*

Matthew Chappell

Matthew Chappell

Matthew Chappell

Piedmont Azalea / *Rhododendron canescens*

Ernest Koone

Ernest Koone

Ernest Koone

Theresa Schrum

Oconee Azalea / *Rhododendron flammeum* (Syn. *R. speciosum*)

Matthew Chappell

Ernest Koone

Matthew Chappell

Plumleaf Azalea / *Rhododendron prunifolium*

Matthew Chappell

Matthew Chappell

Matthew Chappell

Hammock Sweet Azalea /
Rhododendron serralatum

Matthew Chappell

Matthew Chappell

Swamp Azalea /
Rhododendron viscosum

Matthew Chappell

Matthew Chappell

EVERGREEN RHODODENDRON SPECIES

Catawba Rosebay /
Rhododendron catawbiense

Ed McDowell

Great Laurel /
Rhododendron maximum

Ed McDowell

Piedmont Rhododendron / *Rhododendron minus*

Ed McDowell

Ed McDowell

Winged Sumac / *Rhus copallina* (syn. *Rhus copallinum*)

Hugh & Carol Nourse

Michael Strickland

Ed McDowell

Michael Strickland

Hugh & Carol Nourse

Dwarf Palmetto (Bluestem Palmetto) / *Sabal minor*

Gary Wade

Gary Wade

Gary Wade

Saw Palmetto / *Serenoa repens*

Gary Wade

Tom McClendon

American Bladdernut / *Staphylea trifolia*

Gary Wade

Gary Wade

Troy Evans, Bugwood.org

Mountain Stewartia / *Stewartia ovata*

Jack Johnston

American Snowbell / *Styrax americanus*

Steve Sanchez

Steve Sanchez

Steve Sanchez

Horse-Sugar, Sweetleaf / *Symplocos tinctoria*

Ed McDowell

Chris Evans, Bugwood.org

Ed McDowell

Shirley Denton

VACCINIUM SPECIES

Sparkleberry / *Vaccinium arboreum*

Steve Sanchez

Steve Sanchez

Gary Wade

Gary Wade

Gary Wade

Chris Evans, Bugwood.org

Southern Highbush Blueberry / *Vaccinium corymbosum*

Gary Wade

Gary Wade

Betty Wargo

Walter Hodge

Betty Wargo

Rabbiteye Blueberry Cultivars / *Vaccinium virgatum* (Syn. *Vaccinium ashei*)

Gary Wade

Gary Wade

Darrow's Blueberry or Glaucous Blueberry / *Vaccinium darrowii*

Dennis Girard

Ed McDowell

Ed McDowell

Ed McDowell

Ed McDowell

Hillside Blueberry or Blue Ridge Blueberry / *Vaccinium pallidum*

Steve Baskauf

Gary Wade

Gary Wade

Mayberry / *Vaccinium elliottii*

Chris Evans, Bugwood.org

Chris Evans, Bugwood.org

Ed McDowell

Ed McDowell

Deerberry / *Vaccinium stamineum*

James Miller, Bugwood.org

Alan S. Heilman

Ed McDowell

Mapleleaf Viburnum / *Viburnum acerifolium*

Theresa Schrum

Ed McDowell

Steve Sanchez

Arrowwood Viburnum / *Viburnum dentatum*

Ted Bodner

Gary Wade

USDA

Swamp-Haw / *Viburnum nudum*

Steve Sanchez

Steve Sanchez

Blackhaw Viburnum / *Viburnum prunifolium*

Dow Gardens Archive, Bugwood.org

R.H. Mohlenbrock, USDA-NRCS PLANTS Database

Dow Gardens Archive, Bugwood.org

Steve Sanchez

Rusty Blackhaw / *Viburnum rufidulum*

Ted Bodner

Gil Nelson

Ed McDowell

James Miller, Bugwood.org

Yellow-Root / *Xanthorhiza simplicissima*

Gary Wade

Gary Wade

Michael Strickland

Hugh & Carol Nourse

Gary Wade

Honeycup / *Zenobia pulverulenta*

Walter S. Judd, USDA-NRCS PLANTS Database

Adam's Needle, Beargrass, Spanish Bayonet, Curly Leaf Yucca / *Yucca filamentosa*

Steve Sanchez

Bob Westerfield

Bob Westerfield

Woody Vines

Crossvine / *Bignonia capreolata*

Hugh & Carol Nourse

Ed McDowell

Ed McDowell

Trumpetcreeper / *Campsis radicans*

Theresa Schrum

Gary Wade

Climbing Hydrangea / *Decumaria barbara*

Gary Wade

Ed McDowell

Hugh & Carol Nourse

Gary Wade

Carolina Yellow Jessamine / *Gelsemium sempervirens*

Gary Wade

Gary Wade

Ed McDowell

Ed Mcdowell

Trumpet Honeysuckle / *Lonicera sempervirens*

Hugh & Carol Nourse

Hugh & Carol Nourse

Hugh & Carol Nourse

Virginia Creeper / *Parthenocissus quinquefolia*

Shirley Denton

Gary Wade

Gary Wade

Ed McDowell

Dwarf Smilax (Sarsaparilla Vine) / *Smilax pumila*

Shirley Denton

Fred Nation

Lanceleaf Smilax, Sweet-Scented Smilax / *Smilax smallii*

Robert H. Mohlenbroch, USDA-NRCS PLANTS Database

Chris Evans, Bugwood.org

Chris Evans, Bugwood.org

American Wisteria / *Wisteria frutescens*

Ed McDowell

Gary Wade

Ed McDowell

Narrow-Leaf Crabapple / *Malus angustifolia*

Family: Rose/*Rosaceae*

Characteristics: Narrow-Leaf Crabapple is a deciduous, flowering tree with medium texture and a medium growth rate. The crown is broad, rounded and spreading. While not as showy as named cultivars, it is an attractive flowering tree when in bloom. Flowers are pink, 1½ inches across, and borne in clusters. Flowering time varies from late February in south Georgia to mid April in north Georgia. Fruit are yellow-green, approximately 1½ inches in diameter, edible and very tart.

Landscape Uses: Use Narrow-Leaf Crabapple as a specimen flowering tree in full sun. It prefers moist soils but has moderate drought tolerance. This tree has not been used in landscapes, so its full site tolerance is not known. Avoid wet sites. It shows better disease tolerance than most cultivated varieties under Georgia conditions.

Size: 25 to 30 feet tall and 20 to 25 feet wide

Zones: 7a, 7b, 8a, 8b

Habitat: Moist soils of valleys and lower slopes; also found in fence rows and old fields.

Native To: Maryland to West Virginia, south to Florida and west to Missouri.

Comments: Excellent wildlife food.

Images: Page 51

Ogeechee Lime, Ogeechee Tupelo / *Nyssa Ogeche*

Family: Nyssa/*Nyssaceae*

Characteristics: Ogeechee Lime is a deciduous tree with medium texture and a medium growth rate. Oval, red fruit mature in fall. They are very sour and have been used as a substitute for limes or in making tart preserves and jellies. Form is variable. Fall color also is variable, ranging from yellow to red. This plant is named for the Ogeechee River, where it is commonly found.

Landscape Uses: Use Ogeechee Lime as a specimen or small-scale street tree. It occurs naturally in wet areas but shows good drought tolerance. It prefers acid soils and full sun to partial shade. Provide irrigation on sunny sites.

Size: 20 to 30 feet tall by 15 to 25 feet wide

Zones: 7b, 8a, 8b

Habitat: Wet, swampy areas and along small black-water drainage areas of the Coastal Plain.

Native To: Southeastern South Carolina to Georgia and Florida.

Comments: Fruit can be eaten by humans and wildlife. The tree is a honey source for bees. Reported to be rare, but it is fairly common in south central Georgia.

Images: Page 51

Wild Olive or Devilwood / *Osmanthus americanus*

Family: Olive/*Oleaceae*

Characteristics: Wild Olive is a small evergreen tree with medium texture and a medium to slow growth rate. Form is oval to round. White flowers, borne in spring, are small, fragrant and bell-shaped. The fruit are purple and olive-like.

Landscape Uses: Wild Olive is useful in a naturalized landscape or as a foundation specimen. It displays good drought tolerance if planted in moist, well-drained soils. It establishes moderately well after planting.

Size: 20 to 30 feet tall and 15 to 20 feet wide

Zones: 7b, 8a, 8b

Habitat: Moist soils of river valleys to shady uplands and dunes in the understory of Coastal Plain forests.

Native To: North Carolina to Florida, and west to Mississippi

Comments: A good wildlife plant.

Images: Page 52

Eastern Hophornbeam / *Ostrya virginiana*

Family: Birch/*Betulaceae*

Characteristics: Eastern Hophornbeam is a deciduous tree with medium texture and a slow growth rate. It is rounded in outline with horizontal or drooping branches. It occurs as an understory tree on uphill sites having moist, well-drained, acid soils. Fall leaf color is yellow. Leaves remain on the tree throughout the winter. This is a handsome tree with few pest problems. The fruit are reminiscent of hops, hence the common name. The gray-brown bark is somewhat shaggy, looking like a cat scratching post.

Landscape Uses: Eastern Hophornbeam is best planted as an understory tree in partial to full shade and moist soils. It has moderate drought tolerance but is slow to establish on dry sites. It is not tolerant of wet sites.

Size: 25 to 40 feet tall and 20 to 30 feet wide

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: An understory tree found on dry slopes in upland hardwood forests.

Native To: Ontario to Minnesota, south to Florida and west to Texas.

Comments: The "hops," or inflated bracts that enclose the seed, are irritating to the skin if handled. It is a useful wildlife tree. It is sometimes infected by a fungus that causes "witches broom."

Images: Page 52

Sourwood / *Oxydendrum arboreum*

Family: Heath/*Ericaceae*

Characteristics: Sourwood is a deciduous, flowering tree with an oval form, medium texture and a medium to slow growth rate. Flowers are white, urn-shaped, ¼ inch long and borne on four- to 10-inch drooping spikes in June and July. The flowers make a showy display when nothing else is blooming. Fall color is pink to red or red-purple. Bark is grayish-brown-black, blocky and attractive as the tree ages.

Landscape Uses: Sourwood is an all-season ornamental that grows more beautiful with age. It is best planted as a young tree or from a container plant because it is difficult to transplant as a large tree. Sourwood needs moist soils with good drainage and sun to partial shade. It has moderate drought tolerance. As Sourwood ages in the understory, it can develop picturesque shapes in its quest for light.

Size: 25 to 30 feet tall and 15 to 20 feet wide

Zones: 6b, 7a, 7b, 8a, 8b (8b with good culture)

Habitat: Well-drained, gravelly soils on ridges and on upland slopes. It is found mostly in the mountains and Piedmont and occasionally in the Coastal Plain of the Southeast.

Native To: New York to Florida, west to Louisiana, Arkansas and Illinois.

Comments: The flowers are the source of sourwood honey.

Images: Page 52

Red Bay / *Persea borbonia*

Family: Laurel/*Lauraceae*

Characteristics: Red Bay is a small evergreen tree with medium-coarse texture, medium growth rate and an upright-oval form. The foliage is aromatic when crushed and can be used as a substitute for bay leaves in cooking. Flowers are about ¼ inch in size, yellow and not showy, but the dark blue fruit are moderately showy in the fall.

Landscape Uses: Use Red Bay as a specimen tree or possibly for screening. It prefers moist, acid, well-drained soils and full sun. It will tolerate wet soils and is salt tolerant.

Size: 20 to 40 feet tall and 15 to 20 feet wide

Zones: 7b, 8a, 8b

Habitat: Moist, acid, wet, sandy soils.

Native To: Delaware to Florida and west to Texas.

Comments: In shaded areas in its natural habitat, the leaves tend to be infected with a gall, which makes them look swollen and watery. Plants not growing in a swamp do not have this problem. A beautiful specimen can be seen next to the famous arch on the University of Georgia's Athens campus. Ambrosia beetle and an associated fungus are killing native populations in coastal Georgia.

Images: Page 53

Cherry Laurel / *Prunus caroliniana*

Family: Rose/*Rosaceae*

Characteristics: Cherry Laurel is an evergreen tree with medium texture and a medium to fast growth rate. Form is oval to round. Fruit are berry-like, borne in clusters, green when young and turning black in fall. Foliage has a cherry-like odor when crushed.

Landscape Uses: Cherry Laurel can be used as a specimen tree or screen plant. It prefers moist, well-drained soils and full sun to partial shade. However, it adapts to a wide variety of landscape sites.

Size: 15 to 30 feet tall and 10 to 20 feet wide

Zones: 7a, 7b, 8a, 8b

Habitat: Moist, sandy stream banks.

Native To: Coastal Virginia to northern Florida, and west to Louisiana.

Comments: Re-seeding can be a problem in flower beds. The species is not landscape quality, but there are a number of improved cultivars that are landscape quality in the trade.

Images: Page 53

Georgia Oak / *Quercus georgiana*
Red Oak Sub Genus: *Erythrobalanus*

Family: Beech/*Fagaceae*

Characteristics: A small, deciduous oak associated with rocky soil, granite outcrops and dry slopes in the Piedmont. It has a compact crown and a slow growth rate. Some trees have a single trunk while others are multi-stemmed. Leaves have three to six lobes and are shiny on the upper surface, pale on the lower surface and resemble miniature Red Oak leaves. Leaf size is smaller than the large oaks, befitting its small tree status. Leaves turn bright red in fall.

Landscape Uses: Georgia Oak is being used as a street tree or specimen tree and under power lines in the Georgia Piedmont.

Size: 20 to 40 feet tall and 15 feet wide

Zones: 7a, 7b, 8a

Habitat: Rocky, dry areas with Chestnut Oak, Blackjack Oak and Post Oak in oak-pine forests. Found on granite outcrops.

Native To: South Carolina, Georgia, Alabama.

Comments: Acorns are an important food for wildlife.

Images: Page 53

Turkey Oak / *Quercus laevis*
Red Oak Sub Genus: *Erythrobalanus*

Family: Beech/*Fagaceae*

Characteristics: Turkey Oak is a distinctive, small, deciduous tree with crooked branches. Some trees grow as multi-stemmed shrubs. Its three-lobed leaves are thought to resemble a turkey foot, hence the common name. Turkey Oak's red fall color brightens the landscape of the sandhills.

Landscape Uses: Use Turkey Oak as a specimen understory tree. Its picturesque branching, glossy foliage, attractive fall color and dark, blocky-patterned bark add interest to landscapes.

Size: 30 to 40 feet tall and variable width

Zones: 8a, 8b

Habitat: Sandhills of the upper Coastal Plain, associated with Longleaf Pine, Bluejack Oak and Sand Post Oak. These species are well adapted to drought stress and fire.

Native To: South Carolina to Florida, and west to eastern Mississippi.

Comments: The acorns are an important food source for turkey, deer and small rodents.

Images: Page 54

Sassafras / *Sassafras albidum*

Family: Laurel/*Lauraceae*

Characteristics: Sassafras is a deciduous tree with medium texture and a medium growth rate. Leaves are three to seven inches long and two to four inches wide. Leaves vary in shape from unlobed (oval) to two-lobed (mitten-shaped) or three-lobed. Fall color ranges from bright yellow to fiery orange or vibrant red. Its ridged, reddish-brown bark and picturesque branching make an interesting winter silhouette. Yellow flowers appear in terminal racemes in late March, before the leaves emerge. It commonly occurs along fencerows in poor, dry soils.

Landscape Uses: Use Sassafras as a specimen tree. Older trees are difficult to transplant because they have a tap root and sparse lateral roots. It is a tough plant, preferring moist, acid soils and full sun to partial shade.

Size: 25 to 30 feet tall with a spread of 15 to 20 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Disturbed sites, particularly acid, rocky soils of uplands. It is often found in old fields where it is a pioneer species throughout the South. Occurs in forest openings and along fencerows.

Native To: Maine to Ontario and Michigan, south to Florida and west to Texas.

Comments: Plants tend to spread from suckers. During fall migration, birds eat the seeds quickly. Crushed dry leaves are used for flavoring gumbos. It is prone to dieback in south Georgia.

Images: Page 54

Buckthorn Bully / *Sideroxylon lycioides* (Syn. *Bumelia lycioides*)

Family: Sapodilla/*Sapotaceae*

Characteristics: This small deciduous tree or shrub seldom grows over 20 feet tall and often has short, twisted stems. Leaves are alternate, elliptical to lance-shaped, with an acute tip. They are conspicuously veined on both surfaces. When bruised, the leaves emit a fetid odor. Twigs are reddish-brown to gray, with ¾-inch-long thorns. The twigs are pubescent in youth and become smooth with age. Sap is milky. Clusters of white flowers arise from the leaf axils in early summer. The drupe-like berry is purple-black, appearing in fall.

Landscape Uses: Buckthorn Bully is an attractive small tree that should be used for naturalizing in wildlife habitats. It is especially attractive when flowers are present.

Size: Up to 20 feet tall and wide

Zones: 7a, 7b, 8a, 8b

Habitat: A variety of sites along the borders of streams and sandy soils of the Coastal Plain. It is also a hardwood understory tree on slopes and upland sites in the Piedmont.

Native To: Virginia and Kentucky, south to northern Florida, west to Mississippi.

Comments: The fruit are consumed by many species of birds. This plant is endangered in Florida.

Images: Page 54

Bigleaf Snowbell / *Styrax grandifolius*

Family: Storax/*Styracaceae*

Characteristics: Bigleaf Snowbell is a small deciduous tree, normally single-stemmed, with fragrant, white flowers, ¾ to one inch in size. The flowers occur in racemes, four to eight inches long, in May and June. The leaves are dark green above with pubescence beneath and have no noticeable color change in the fall. Bigleaf Snowbell is not used very much because it is rare in the nursery trade.

Landscape Uses: Bigleaf Snowbell is a fine, fragrant understory tree for moist woodlands.

Size: Up to 20 feet tall by 10 feet wide

Zones: 7a, 7b, 8a, 8b

Habitat: Deciduous mixed woods, usually in well-drained areas.

Native To: Virginia to Florida, west to Louisiana, Arkansas and eastern Texas.

Comments: It can be confused with American Snowbell (*Styrax americanus*), a multi-stemmed and smaller shrub that bears flowers from leaf axils, not in racemes, and grows mainly along sandy streambanks in the Coastal Plain and Piedmont.

Images: Page 55

Shrubs

Bottlebrush Buckeye / *Aesculus parviflora*

Family: Buckeye/*Hippocastanaceae*

Characteristics: Bottlebrush Buckeye is a graceful, deciduous shrub. Leaves are palmate with five to seven leaflets. Many small, white flowers are borne in May and June on upright, cylindrical inflorescences, eight to 12 inches long. They give the appearance of white "bottlebrushes" hovering above the plant. Fall color typically is yellow under the right environmental conditions. Fruit are capsules approximately 1½ inches long. As plants age, new plants arise from the roots and the plants spread outward.

Landscape Uses: Bottlebrush Buckeye is a flowering shrub useful as a single specimen or in shrub borders. It is a broad, spreading, multi-stemmed plant with many upright shoots, so it requires plenty of room in the landscape. It prefers fertile, acid, moist soils and partial shade, and it does not like hot, dry locations. Rejuvenate with heavy pruning in late winter.

Size: 8 to 12 feet tall with a spread of 8 to 15 feet

Zones: 7b, 8a, 8b (with partial shade in 8b)

Habitat: An understory plant in moist locations in hardwood forests, often in association with streams.

Native To: South Carolina, Georgia, Alabama and Florida.

Comments: Seeds are valued by wildlife, particularly squirrels, chipmunks, deer and turkeys.

Images: Page 56

Red Buckeye / *Aesculus pavia*

Family: Buckeye/*Hippocastanaceae*

Characteristics: Red Buckeye is a clump-forming, round-topped, deciduous flowering shrub or small tree. The lustrous, dark green, palmate leaves have five leaflets. Scarlet flowers are borne in panicles four to eight inches long and two to three inches wide in March and April. Fruit are capsules approximately two inches long, bearing one or two lustrous brown seeds.

Landscape Uses: Red Buckeye is an attractive spring-flowering shrub useful in woodland settings where it gets filtered shade and moist conditions. It flowers well in dense shade. It loses its leaves early, often by late September. Scarlet, tubular flowers with protruding stamens are pollinated by ruby-throated hummingbirds.

Size: 12 to 15 feet tall and 8 to 10 feet wide

Zones: 7b, 8a, 8b

Habitat: Swampy, marshy areas to fertile, moist, well-drained lower forest slopes.

Native To: Virginia to Florida, west to Texas.

Comments: Supports hummingbird spring migration. There are selections of this plant, but they are not readily available.

Images: Page 56

Painted Buckeye / *Aesculus sylvatica*

Family: Buckeye/*Hippocastanaceae*

Characteristics: Painted Buckeye is a large shrub or small tree. The leaves emerge early, in March, and vary from green to reddish-purple. Leaves are palmate, with five leaflets, each four to six inches long. The flowers (male and bisexual) occur together in four- to eight-inch panicles in March and May. Flower color is extremely variable and ranges from yellow-green to creamy yellow or varying shades of pink. The smooth, leathery capsule contains one to three shiny, dark-brown seeds. Fruit set is normally minimal.

Landscape Uses: Painted Buckeye prefers rich, moist soil in partial shade. It can be used as a specimen or in a grouping for naturalizing in moist woods.

Size: 6 to 20 feet tall

Zones: 7b, 8a

Habitat: Rich woods and bottomlands of the Piedmont. Found on gentle slopes under oak, hickory and maple trees.

Native To: Virginia to Georgia, west to Tennessee and Alabama.

Comments: Hummingbirds use Painted Buckeye heavily as they move north during spring migration.

Images: Page 56

Fetterbush or Pipestem / *Agarista populifolia*

Family: Heath/*Ericaceae*

Characteristics: Fetterbush is a tall, multi-stemmed evergreen shrub with arching branches and bright green leaves. Flowers are small, fragrant, cream-colored, and urn-shaped, appearing in May and June. They are clustered in loose racemes arising from the leaf axils of the previous season's growth. Fruit is a dry brown capsule.

Landscape Uses: Fetterbush can be used as a specimen plant, to screen patios or yards, or to soften the corners of structures. Its arching habit and evergreen foliage add a wonderful year-round texture to the landscape. It can be pruned into a tree form or shaped as a hedge. It grows best in moist, well-drained soil in dappled shade or morning sun, but it tolerates full shade. For best appearance, remove old stems with regular pruning.

Size: 6 to 15 feet tall and 5 to 8 feet wide

Zones: 7a, 7b, 8a, 8b

Habitat: Along Coastal Plain streambanks and at the edges of swamps and hammocks.

Native To: South Carolina southward into peninsular Florida.

Comments: This plant was once known as Florida Leucothoe (*Leucothoe populifolia*).

Images: Page 57

Devil's Walkingstick / *Aralia spinosa*

Family: Ginseng/*Araliaceae*

Characteristics: Devil's Walkingstick is a deciduous, tall, erect, single-stemmed shrub. Leaves are alternate, bipinnately compound, and three to four feet long. Stems are thorny. White flowers in July and August are arranged in terminal panicles and give the plant a lacy appearance. It seldom branches but forms colonies from root suckers. Fruits turn pinkish-purple and are showy for several months in late summer and fall. Fall leaf color is variable, from yellow to maroon or purple.

Landscape Uses: Devil's Walkingstick is a large, bold plant best used as a specimen or accent plant in the landscape. It grows best in moist, high organic soils in full sun to light shade. It is easy to transplant when young.

Size: 10 to 15 feet tall with a spread of 6 to 10 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Fertile woodland soils with high organic matter.

Native To: Southern Pennsylvania, southern Indiana and eastern Iowa, south to Florida and west to eastern Texas.

Comments: Suckers arising from the roots can be a maintenance problem if roots are disturbed. Fruit are a favorite food for migrating birds in fall.

Images: Page 57

Groundsel Bush / *Baccharis halimifolia*

Family: Daisy/*Compositae*

Characteristics: Groundsel Bush is an evergreen to semi-evergreen flowering shrub. It spreads via suckers arising from the roots. It has an irregular oval form with upright branching. Flowers are indistinct, but seeds look like tiny white paint brushes and are quite showy in late summer.

Landscape Uses: Use Groundsel Bush as a specimen plant or in a shrub border. It is tolerant of a wide variety of sites and is salt tolerant.

Size: 8 to 12 feet tall with a spread of 6 to 10 feet

Zones: 7b, 8a, 8b

Habitat: Waste areas and beaches in the lower Coastal Plain; also found on drier upland sites.

Native To: Coastal areas from Massachusetts to Florida and west to Texas.

Comments: Seeds have traveled north on car tires. It can be invasive.

Images: Page 58

American Beautyberry / *Callicarpa americana*

Family: Verbena/*Verbenaceae*

Characteristics: American Beautyberry is a deciduous shrub with coarse texture and medium to fast growth rate. It has an irregular, spreading, loosely branched, upright growth habit. Light pink to lavender flowers borne from June to August are not showy, but the intense color of the purple fruit clustered around the stems in fall makes a dramatic display.

Landscape Uses: American Beautyberry is a great accent in the shrub border. It will grow in most soils and prefers full sun for best fruit production. It is adaptable to a wide variety of sites. The coarse-textured leaves and showy fruit make this species desirable for naturalistic settings or mixed shrub borders. Plant in groups of three, five or seven for a dramatic statement.

Size: 4 to 8 feet tall with a spread of 4 to 6 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: A variety of sites from wet to dry, sun to shade.

Native To: Maryland, south to Florida, west to Texas and Oklahoma.

Comments: A white-berried form is available.

Images: Page 58

Sweetshrub / *Calycanthus floridus*

Family: Calycanthus/*Calycanthaceae*

Characteristics: Sweetshrub is a deciduous, flowering shrub with medium texture, medium growth rate and an upright oval to mounding form. It tends to form colonies by spreading outward from the mother plant. Foliage is aromatic when crushed. Flowers, borne in April and May, are highly fragrant, with a clove-like aroma. Fall color is yellow.

Landscape Uses: Use Sweetshrub as a specimen plant or in groups within a shrub border or woodland setting. It is a nice choice for a fragrance garden. It prefers moist, fertile soils in full sun to partial shade, but it is moderately tolerant of adverse conditions.

Size: 8 to 10 feet tall with a spread of 4 to 6 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Found in fertile woodlands along sandy streams and hillsides. Grows in acid soils in the Southeast, predominantly in the Piedmont and mountains.

Native To: Virginia to Florida.

Comments: A yellow-flowered cultivar is available in the nursery trade.

Images: Page 58

Button Bush / *Cephalanthus occidentalis*

Family: Madder/*Rubiaceae*

Characteristics: Button Bush is a deciduous, flowering shrub with medium texture and a medium growth rate. It has an open, rounded form with spreading branches. The flowers are round, one to two inches in diameter, and are fragrant. The flowers look like creamy-white balls covered with fiber optic tubes. They appear from June to August. Fruit are hard, round, reddish-brown capsules containing two to four nutlets. This is an unusual-looking plant in flower and fruit.

Landscape Uses: Use Buttonbush as a specimen plant or in group plantings adjacent to ponds and streams, or in other moist areas. It prefers full sun and moist to wet soils. Cut the plant back heavily every few years to rejuvenate because young stems are the most attractive.

Size: 15 to 20 feet tall with a spread of 10 to 15 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Sunny, wet, marshy areas; shrubby swamps and pond edges.

Native To: New Brunswick to Florida, west to Southern Minnesota, Nebraska, Oklahoma and Arizona. Also found in southern New Mexico and southern California.

Images: Page 59

Summersweet Clethra, Sweet Pepperbush / *Clethra alnifolia*

Family: *Clethraceae*

Characteristics: Summersweet Clethra is a deciduous, colony-forming shrub. Leaves are alternate, oblong, two to four inches long and one to two inches wide, and sharply serrated along the margins. Flowers are fragrant, white to whitish-pink, and are borne in erect terminal clusters from late June through August. Fruit are small, brown capsules.

Landscape Uses: Summersweet Clethra is an excellent plant for moist areas and almost any soil type. It will grow in full sun to partial shade. Avoid planting it in drought-prone sites.

Size: 6 to 10 feet tall with a spread of 3 to 5 feet

Zones: 7a, 7b, 8a, 8b

Habitat: Thickets in low, wet areas; bays, bogs, streams and wet pine savannahs in the Coastal Plain.

Native To: Maine to Florida, west to coastal Texas.

Comments: Attracts butterflies. Several cultivars are available.

Images: Page 59

Black Titi, Buckwheat Tree / *Cliftonia monophylla*

Family: Cyrilla/*Cyrillaceae*

Characteristics: Black Titi, or Buckwheat Tree, is an evergreen, multi-stemmed, flowering shrub or small tree with medium-fine texture and a medium-slow growth rate. Its form is oval to round. Leaves are leathery, thick and glossy, dark green above and a pale, chalky green below. The bark is dark and scaly. Fragrant white to whitish-pink flowers are borne in early March in terminal clusters three inches long. Fruit is a winged, corky drupe, closely resembling buckwheat. The foliage turns reddish-scarlet in winter.

Landscape Uses: Use Black Titi for screening or as a specimen flowering plant. Because it is attractive to bees when flowering, it may be best to plant it away from the public. It prefers moist, acid soils high in organic matter and full sun to light shade.

Size: 15 to 20 feet tall with a spread of 8 to 12 feet

Zones: 7b, 8a, 8b

Habitat: Occurs in areas that are wet during winter months. It is usually found growing with members of the heath family (ericaceous plants).

Native To: Georgia to Florida, west to Louisiana.

Comments: Flowers are an important nectar source for honey bees.

Images: Page 59

Red Basil, Scarlet Calamint / *Clinopodium coccinea* (Syn. *Satureja coccinea*)

Family: Mint/*Lamiaceae*

Characteristics: Red Basil is a small, semi-evergreen shrub with aromatic leaves. Flowers are tubular, brilliant scarlet, and are borne from late summer into fall. It is a striking plant in bloom. Habit is loose, open and erect.

Landscape Uses: Red Basil should be planted on sandhills or sand ridges of the Coastal Plain. It prefers dry sites.

Size: Up to 2½ feet high with a spread of 2 feet

Zones: 8a, 8b

Habitat: Thrives in dry pine barrens, and on sandhills and ridges of the Coastal Plain.

Native To: Georgia to Mississippi.

Comments: Deer shun Red Basil's aromatic foliage. Hummingbirds love its flowers.

Images: Page 60

Georgia Basil / *Clinopodium georgianum* (Syn. *Satureja georgiana*)

Family: Mint/*Lamiaceae*

Characteristics: Georgia Basil is a low, loosely sprawling, freely branched, semi-evergreen shrub. The leaves are opposite and aromatic. Tubular pink to lavender flowers are borne from August to October.

Landscape Uses: Georgia Basil is a good landscape plant for dry soils in full sun. It also naturalizes in deciduous woods as a ground cover in rocky, shaded areas. It often is found growing naturally where little else can survive. Shows potential for naturalizing on harsh, dry sites.

Size: Up to 2 feet tall and the same width

Zones: 7b, 8a, 8b

Habitat: Dry, rocky woods and bluffs, and land adjacent to rock outcrops.

Native To: North Carolina to Florida and west to Mississippi.

Comments: It tends to naturalize in situations that suit it, and it reseeds prolifically. It can easily be pruned back to about half its size. Deer shun its aromatic foliage.

Images: Page 60

Littlehip Hawthorn / *Crataegus spathulata*

Family: Rose/*Rosaceae*

Characteristics: Littlehip Hawthorn is a large shrub or small, deciduous tree. White flowers in a flat cluster emerge from the leaf axils in spring. Individual fruit are ½ inch in size, dull red, and borne in showy clusters. Bark exfoliates with age, exposing an orange-gray-brown inner bark.

Landscape Uses: Use it in a shrub border or for wildlife food along the woodland edge.

Size: 15 to 20 feet tall by 10 to 12 feet wide

Zones: 7a, 7b, 8a, 8b

Habitat: Wet or moist soils, streambanks, swamps and borders of woods.

Native To: Virginia, south to Florida, west to Texas and Missouri.

Comments: A good wildlife plant, especially for birds.

Images: Page 61

Red Titi, Swamp Cyrilla / *Cyrilla racemiflora*

Family: Cyrilla/*Cyrillaceae*

Characteristics: Red Titi is a large shrub or small tree with medium texture and medium growth rate. Form is rounded and low-branching. Foliage is medium-green. It is evergreen in south Georgia and deciduous in northern Georgia. Fall color ranges from orange to scarlet. Fragrant white flowers are borne in summer on slender three- to six-inch-long spikes. They are arranged in a drooping whorl at the base of the current season's growth. Twigs and young stems are angled and slightly winged.

Landscape Uses: Use Red Titi as a flowering specimen plant. It is attractive to bees, so use it away from public areas. It prefers moist soils with good organic content and full sun to light shade. It is not drought tolerant.

Size: 10 to 25 feet tall with a spread of 10 to 20 feet

Zones: 7b, 8a, 8b

Habitat: Wet, swampy areas of the Coastal Plain.

Native To: Virginia to Florida, west to Texas.

Comments: Attractive to bees.

Images: Page 61

Strawberry-Bush / *Euonymus americanus*

Family: Euonymus/*Celastraceae*

Characteristics: Strawberry-Bush is a deciduous shrub having medium texture and medium growth rate. Form is upright with irregular branching. Stems are green. Flowers, borne in May and June, are green and indistinct. Fruit is a warty, dark pink capsule about one inch wide, splitting to reveal scarlet-colored seeds in September and October. It is also commonly called "Hearts-a-Bustin" to describe the colorful, heart-shaped fruit that appears to be exploding from the capsule.

Landscape Uses: Use in group plantings in forested settings or adjacent to water. Moist, well-drained soils and partial shade are preferred. Not for full sun or stressful environments.

Size: 3 to 5 feet tall with a spread of 2 to 3 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Moist, fertile soils in woodlands, along streams and on bluffs.

Native To: New York south to Florida, west to Texas.

Comments: Provides food for variety of wildlife.

Images: Page 62

Dwarf Fothergilla / *Fothergilla gardenii*

Family: Witchhazel/*Hamamelidaceae*

Characteristics: Dwarf Fothergilla is a deciduous flowering shrub with medium-coarse texture, slow growth rate and rounded to spreading habit. White, honey-scented flowers appear in April before the foliage. Blue-green, pest-free foliage turns brilliant orange-scarlet in fall.

Landscape Uses: Dwarf Fothergilla is a good plant for foundation planting or a perennial border. It looks particularly nice in mass plantings or in conjunction with rhododendrons and azaleas. It requires acid soils high in organic matter, good drainage and adequate moisture. It does well in full sun to partial shade. Foliage remains relatively pest free in north Georgia, but in south Georgia a fungal disease may defoliate the plant.

Size: 2 to 3 feet tall with a spread of 2 to 3 feet

Zones: 7a, 7b, 8a, 8b

Habitat: The Coastal Plain on the banks of low, water-filled depressions (pocosins); pine savannahs and around ponds.

Native To: North Carolina to the Florida panhandle; southern Alabama.

Comments: Several cultivars are available.

Images: Page 62

Common Witchhazel / *Hamamelis virginiana*

Family: Witchhazel/*Hamamelidaceae*

Characteristics: Common Witchhazel is a deciduous shrub or small tree with medium texture and a medium growth rate. Yellow, fragrant flowers are borne in November and have four strap-shaped petals. Fruit are capsules having four sharp-curved points on their ends. Seeds are not released until 12 months after flowering. Fall color is usually bright yellow. Stems are smooth gray to grayish-brown.

Landscape Uses: Use Common Witchhazel as a specimen plant in the shrub border. Establish as small plants or as container-grown specimens because of the sparse root system. It prefers moist soils in sun to shade and is not drought tolerant.

Size: 20 to 30 feet tall and 20 to 25 feet wide

Zones: 6b, 7a, 7b, 8a

Habitat: Moist soils in the understory of hardwood forests and sandhills.

Native To: Nova Scotia to Ontario, south to Florida, west to Texas.

Images: Page 63

Oakleaf Hydrangea / *Hydrangea quercifolia*

Family: Hydrangea/*Hydrangeaceae*

Characteristics: Oakleaf Hydrangea is a deciduous flowering shrub with coarse texture and a medium to fast growth rate. Its form is round with many upright branches. Large, fragrant, white, terminal flower clusters (panicles) up to 12 inches in length are borne in May and June on the previous season's growth. Flowers fade to pinkish-white, then light brown. Fall color is excellent and varies from red to purple. Bark on older plants exfoliates. The plant is stoloniferous and spreads outward over time.

Landscape Uses: Use Oakleaf Hydrangea as a specimen plant or in groupings. Plant in moist, well-drained soils and partial shade. Avoid planting in hot, dry sites. Prune after flowering.

Size: 6 to 8 feet tall with a spread of 6 to 8 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Moist, well-drained, acid soils, usually along streams. Found predominantly in the Piedmont.

Native To: Tennessee, the Carolinas, Georgia, Florida, Alabama, Mississippi and Louisiana.

Comments: Several cultivars are available.

Images: Page 63

Gallberry or Inkberry / *Ilex glabra*

Family: Holly/*Aquifoliaceae*

Characteristics: Gallberry, or Inkberry, is a broadleaf evergreen shrub with medium-fine texture, medium growth rate and an upright-oval form. It spreads by stolons that root at their nodes and form new shoots. Flowers are small and indistinct. Fruit are dark berries, appearing in fall.

Landscape Uses: Use Gallberry in mass plantings or as a single specimen. It is often used as a wildlife plant. Plant in sun to shade and moist soils. It will not tolerate drought.

Size: 6 to 8 feet tall with a spread of 4 to 6 feet

Zones: 7a, 7b, 8a, 8b

Habitat: Pine flatwoods, bogs, bays and pocosins.

Native To: Nova Scotia to Florida; west to Missouri, Mississippi and Texas.

Comments: Gallberry is an excellent source of nectar for both native and honey bees. Its abundant fruit is an important food for wildlife. Many cultivars are available.

Images: Page 63

Winterberry / *Ilex verticillata*

Family: Holly/*Aquifoliaceae*

Characteristics: Winterberry is a deciduous shrub prized for its colorful red berries. Flowers are borne on short stalks arising at the leaf axils in April and May. Female and male flowers are borne on separate plants, so both sexes are required to form berries on female plants. Bark is gray and attractive.

Landscape Uses: Use Winterberry as a specimen plant, for screening, hedges or in mixed borders. The showy fruit are striking in the winter landscape and are attractive to birds.

Size: 8 to 10 feet tall with a spread of 4 to 5 feet

Zones: 6b, 7a, 7b, 8a

Habitat: Wet woods, bogs, stream banks and springheads of the Coastal Plain and lower Piedmont.

Native To: Nova Scotia south to Florida, west to eastern Texas, north to Minnesota and Western Ontario.

Comments: There are many cultivars in the trade. It provides an excellent food source for wildlife.

Images: Page 64

Florida Anise-Tree / *Illicium floridanum*

Family: Illicium/*Illiciaceae*

Characteristics: Florida Anise-Tree is a broadleaf, evergreen shrub. It has a variable habit, generally upright and compact, with many branches. Leaves are elliptical, four to six inches long and one to two inches wide. Flowers appear in April and May and are dark red with 20 to 30 petals. Foliage is aromatic when crushed. Fruit are one to 1½ inches wide and star-like in appearance. Young fruit are green, fade to yellow, then to brown. They contain shiny, BB-like brown seeds.

Landscape Uses: Use Florida Anise-Tree as a specimen shrub in shaded, moist areas. It will require pruning to maintain its shape.

Size: 9 to 12 feet tall with a spread of 3 to 5 feet

Zones: 7a, 7b, 8a, 8b

Habitat: Swamps and low hammocks in the Coastal Plain.

Native To: Florida to Louisiana.

Comments: Several cultivars are available.

Images: Page 64

Small Anise-Tree or Yellow Anise-Tree / *Illicium parviflorum*

Family: Illicium/*Illiciaceae*

Characteristics: Small Anise-Tree is a large evergreen shrub or small tree with medium texture and a medium-fast growth rate. Form is upright and pyramidal. The rich, light green aromatic foliage has a pungent scent when crushed. Yellow-green flowers, ½-inch wide, are borne in June and are often hidden among the foliage. Fruit are star-shaped with many points.

Landscape Uses: Use Small Anise-Tree as a specimen plant and for screening or hedges. Some pruning will be necessary. It establishes easily in moist soils in full sun to light shade. Growth is more dense in the sun, and loose and open in the shade.

Size: 8 to 15 feet tall with a spread of 6 to 10 feet

Zones: 7a, 7b, 8a, 8b

Habitat: Sandy, wet areas along streams, bays and hammocks.

Native To: Southern Georgia and Florida.

Comments: This is one of the most rugged of all the *Illicium* species, according to Michael Dirr.

Images: Page 64

Virginia Sweetspire / *Itea virginica*

Family: Currant/*Grossulariaceae*

Characteristics: Virginia Sweetspire, a deciduous, flowering shrub with medium texture and medium growth rate, has a spreading habit with erect, clustered branches. White, fragrant, spike-like flowers are borne in April and May on the previous year's growth. Fall color is spectacular crimson-red.

Landscape Uses: Virginia Sweetspire is attractive when used in mass plantings or as a specimen plant. It prefers moist, fertile soils and full sun to light shade. Areas adjacent to streams or ponds are ideal. It is a vigorous grower when provided good conditions, but its performance will be disappointing on poor sites. It spreads outward by root suckers to form colonies.

Size: 4 to 6 feet tall with a spread of 4 to 8 feet

Zones: 7a, 7b, 8a, 8b

Habitat: Wet, boggy areas and along wooded streams.

Native To: New Jersey to Florida; west to Missouri, Louisiana and East Texas.

Comments: Many cultivars are available.

Images: Page 64

Mountain Laurel / *Kalmia latifolia*

Family: Heath/*Ericaceae*

Characteristics: Mountain Laurel is an evergreen flowering shrub having a medium texture and a slow growth rate. More upright when young, mature specimens have a picturesque, broad-spreading form with irregular branches. Delicate white- to rose-colored, cup-shaped blooms with purple markings on the petals appear in April. The flowers are one inch across and borne in terminal clusters. Bark on old plants is smooth and red-brown.

Landscape Uses: Mountain Laurel can be used as a specimen plant, in mass plantings, or in shrub borders. Young plants transplant best. Plant in moist, well-drained soils with morning sun and afternoon shade. North- or east-facing slopes are preferred. Keep the roots cool by mulching, and protect the plants from afternoon sun.

Size: 15 to 20 feet tall with a spread of 8 to10 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Moist, cool, well-drained stream banks. In mountain valley environments, it can form impenetrable thickets.

Native To: Quebec and New Brunswick, south to Florida, west to Indiana, south to Louisiana.

Comments: Numerous cultivars are available in the nursery trade. Foliage is poisonous.

Images: Page 65

Drooping Leucothoe / *Leucothoe fontanesiana*

Family: Heath/*Ericaceae*

Characteristics: Drooping Leucothoe is an evergreen flowering shrub with medium texture and a medium to slow growth rate. It has arching branches and a vase-shaped habit. Fragrant, urn-shaped, creamy-white flowers are borne on spikes in April and May. The foliage is leathery and glossy green.

Landscape Uses: Nice for mass plantings. It produces a good evergreen backdrop for low-growing plants. To perform well, this plant must have moist soils high in organic matter and light to dense shade. It does not like hot, dry sites. It performs poorly in zone 8.

Size: 3 to 6 feet tall with a spread of 3 to 6 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Moist woodlands and streambanks.

Native To: Virginia to Georgia, Kentucky to Alabama.

Comments: Leafspot, mildew and root-rot can be serious problems. A similar species, Coast Leucothoe (*Leucothoe axillaris*), is found in south Georgia. Several cultivars of both Drooping Leucothoe and Coast Leucothoe are available.

Images: Page 65

Spice-Bush / *Lindera benzoin*

Family: Laurel/*Lauraceae*

Characteristics: Spice-Bush is a deciduous shrub having medium texture and slow to medium growth rate. Honey-scented, yellow flowers appear before the leaves in March. Fruit are shiny, crimson-colored drupes in September. Male and female flowers are borne on different plants (dioecious). The plant is stoloniferous and spreads via suckers arising from the roots. Fall color is golden yellow.

Landscape Uses: Ideal for streambank plantings in shaded areas. The flowers and fruit are somewhat showy.

Size: 3 to 9 feet tall with an equal spread

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Moist woods, streambanks and near springs. Likes basic (alkaline) soils.

Native To: Maine to Ontario and Kansas, south to Florida and Texas.

Comments: Host plant for the spicebush swallowtail butterfly.

Images: Page 65

Fetterbush / *Lyonia lucida*

Family: Heath/*Ericaceae*

Characteristics: Fetterbush is an evergreen, flowering shrub with medium texture and slow growth rate. Habit is upright and spreading. Fragrant, pinkish-white, bell-shaped flowers are borne from April to May. Flower form is similar to *Leucothoe* and *Vaccinium*.

Landscape Uses: Fetterbush is best used in mass plantings and naturalized settings. It needs moist, well-drained soils and partial shade.

Size: 3 to 5 feet tall with a spread of 3 to 5 feet

Zones: 7a, 7b, 8a

Habitat: Typically found in wet, acidic soils of pine flatwoods, savannahs, bays and swampy streams. It also occasionally occurs in dry uplands.

Native To: Virginia to Florida and Louisiana.

Images: Page 65

Southern Wax Myrtle / *Morella cerifera* (Syn: *Myrica cerifera*)

Family: Myrtle/*Myricaceae*

Characteristics: Southern Wax Myrtle is an upright, broadleaf evergreen shrub/small tree. It has a medium texture and medium growth rate. Form is variable but usually is broad-rounded at maturity. It also can be outstanding as a small, multi-stemmed tree. Bark is smooth and light gray. Male and female flowers are borne on separate plants. The foliage and fruit are aromatic. It becomes stoloniferous and can form thickets.

Landscape Uses: Use Southern Wax Myrtle for screening or as a specimen tree or hedge. It is adaptable but prefers adequate moisture and full sun to light shade. It has few pests due to the pungent foliage. Ice storms can be a problem because the plant has weak wood that breaks easily.

Size: 15 to 20 feet tall with a spread of 15 to 20 feet

Zones: 7a, 7b, 8a, 8b

Habitat: Brackish coastal soils; wet depressions and bogs to fairly dry upland sands in pine or pine-oak forests.

Native To: Coastal Plain from southern New Jersey to the Florida Keys, west to east Texas, southeast Oklahoma into Central America.

Comments: Blue-gray berries on female plants were used by early settlers to make scented candles. Many cultivars are available. It attracts birds and bees.

Images: Page 66

Pinckneya, Feverbark / *Pinckneya bracteata*

Family: Madder/*Rubiaceae*

Characteristics: Pinckneya — also called Fever Tree or Feverbark — is a deciduous, flowering small tree or large shrub with medium texture and medium to fast growth rate. Form is oval to round and commonly multi-stemmed. Large pink blooms (actually bracts) are borne in early June. Bloom color ranges from nearly pure white to pink, rose pink or red.

Landscape Uses: Plant Pinckneya as a flowering specimen plant. It prefers filtered shade and acidic, wet, sandy loam soils. Avoid planting in drought-prone sites. Pinckneya is not the easiest plant to grow, but it is well worth the effort.

Size: 12 to 15 feet tall with a spread of 8 to 12 feet

Zones: 7b, 8a, 8b

Habitat: Found mostly in low woods. It also grows in wet, acidic, sandy soils such as bogs and bays; blackwater seepage wetlands; and swampy thickets in the lower Piedmont and Coastal Plain.

Native To: South Carolina to Florida.

Comments: Seeds require no pretreatment, and cuttings root readily. It should be used more.

Images: Page 66

Hoptree, Wafer-Ash / *Ptelea trifoliata*

Family: Rue/*Rutaceae*

Characteristics: Hoptree is a deciduous shrub or small tree with medium-coarse texture and slow to medium growth rate. Habit is low-branched and rounded, and the tree has a suckering tendency. The foliage is mostly trifoliate. This plant's claim to fame is the fruit, which superficially resembles hops. Flowers are fragrant but not conspicuous.

Landscape Uses: Use Hoptree as a specimen plant. It adapts to sun or dense shade and prefers moist, well-drained soils.

Size: 15 to 20 feet tall with a spread of 5 to 15 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Found along streambanks in low areas and as an understory plant in hardwood forests. Typically found near granite outcrops in thin woods.

Native To: Ontario and New York to Florida; west to Minnesota.

Comments: A host plant for butterflies.

Images: Page 66

Needle Palm / *Rhapidophyllum hystrix*

Family: Palm/*Palmaceae*

Characteristics: Needle Palm is said to be the world's most cold-hardy palm. It is an easy-to-grow, clump-forming palm adaptable to all areas of Georgia. Growth rate is slow, particularly when young. Attractive and hardy, it has been known to survive temperatures well below zero.

Landscape Uses: Use Needle Palm as a single specimen or in groups. It looks best when planted in light shade and in soils with adequate moisture. In zone 7 and north, it must have some sun every day to do well. It is a slow grower. Beware of its long, sharp spines along the inner trunk and foul-smelling fruit when deciding where to locate this palm in the landscape.

Size: 10 feet tall and wide

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: River flood plains and moist slopes; often grows under hardwood trees where the water does not flood too deeply in winter. Often grows over limestone. Prefers neutral pH soils.

Native To: South Georgia, Florida, Alabama, Mississippi and South Carolina.

Comment: Rare in some parts of its range.

Images: Page 66

DECIDUOUS AZALEA AND RHODODENDRON SPECIES

Family: Heath/*Ericaceae*

Characteristics: Deciduous azaleas are flowering shrubs with medium-fine texture and a slow rate of growth. Flowers are tubular, arranged in clusters, and are sometimes fragrant, depending on species. There are a wide range of bloom times and colors from which to choose. They begin flowering in March, with some species flowering as late as August.

Landscape Uses: Some deciduous azaleas grow in moist, acid soils high in organic matter, while others grow on upland sites. They bloom best if provided morning sun and afternoon shade. Use them as specimen plants or in flowering borders. They combine well with evergreens, dogwoods and other understory plants.

Size: Up to 15 feet tall with a spread of 4 to 8 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Moist wooded areas and along streams.

The following are descriptions of deciduous azalea species native to Georgia:

Alabama Azalea / *Rhododendron alabamense*

Alabama Azalea grows along dry ridges, steep bluffs, and in flat, moist, sandy areas. Form varies from low-growing and stoloniferous to upright as high as 12 feet. The white flowers have a sweet or musky-sweet fragrance, sometimes with a distinct lemon overtone. Bloom time is from late April to early June.

Images: Page 67

Sweet Azalea / *Rhododendron arborescens*

Sweet Azalea is found along streams in moist mountain coves and is stoloniferous, forming dense colonies of plants growing up to 15 feet tall. The fragrant white flowers sometimes have yellow blotches. Flowers are large, frequently exceeding two inches across, and typically have red pistils and filaments (a distinct characteristic of this species). Bloom time is from May to August.

Images: Page 67

Coastal Azalea / *Rhododendron atlanticum*

Coastal Azalea grows in a wide range of latitudes and soil conditions, and up to 200 miles inland in sandy coastal plains, damp ditches, sandy swamp margins and dry pasture sites. In friable soil, the plant is stoloniferous and will form large colonies. Fragrant white flowers, often blushed pink, open in April and May.

Images: Page 67

Florida Azalea / *Rhododendron austrinum*

Florida Azalea is early flowering and easy to grow, making it one of the most popular species. The fragrant yellow, gold or light orange flowers normally have pink to bright red center tubes and bloom in March and April.

Images: Page 67

Flame Azalea / *Rhododendron calendulaceum*

Flame Azalea is a tall shrub, growing to 12 feet tall, and found from the woody hillsides of the Appalachians to the Piedmont region above the fall line. It is a tetraploid with larger flowers than other species. Flower color ranges from clear yellow to yellowish-orange, orange, reddish-orange or red. The flowers open with or after the leaves and are not fragrant. Plants are non-stoloniferous. Stems have short hairs, and buds are smooth.

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Piedmont Azalea / *Rhododendron canescens*

Piedmont Azalea, the most common species of native azalea, is found growing in a wide variety of habitats, from damp swamp margins to dry upland ridges. It grows to a height of 15 feet. Flowers are pink, occasionally white, with pink center tubes and a sweet to musky-sweet fragrance. Bloom period is from March to early May.

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Oconee Azalea / *Rhododendron flammeum* (Syn. *R. speciosum*)

Oconee Azalea is a low to tall shrub found in open woods and slopes from the lower Piedmont region across central Georgia. Flowers, appearing from mid-April to early May, vary in color from yellow-orange to orange or red. They open with the leaves and are not fragrant. Winter buds are smooth and stems are covered with short hairs. The Oconee Azalea is a low elevation plant and is heat tolerant.

Images: Page 68

Plumleaf Azalea / *Rhododendron prunifolium*

Plumleaf Azalea is a medium to large shrub growing to 15 feet. It is found along shady ravines and stream banks in southwestern Georgia. Reddish-orange to red flowers open after the leaves are fully developed and are not fragrant. This species must be used in partial shade as the flowering period is from July to September. Winter flower buds are smooth and greenish to light brown in color.

Images: Page 68

Hammock Sweet Azalea / *Rhododendron serralatum*

Hammock Sweet Azalea is a large shrub growing to 15 feet or more and found in wooded swamps and hammocks of Georgia's Coastal Plain. It is not stoloniferous. White, occasionally pale pink flowers open in July and August after the leaves are fully developed and have a clove-like fragrance.

Images: Page 69

Swamp Azalea / *Rhododendron viscosum*

Swamp Azalea is a variable small to medium size shrub found from low, marshy areas and along stream banks to high, mixed-forest mountains. Flowers are white, sometimes with a pinkish tinge, appearing in May and June after the leaves have fully developed; they have a spicy fragrance. The Swamp Azalea is generally stoloniferous.

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EVERGREEN RHODODENDRON SPECIES

Family: Heath/*Ericaceae*

Characteristics: Evergreen Rhododendrons are flowering shrubs/small trees with dark green, leathery foliage. Three species are endemic to Georgia. Large, funnel-shaped flower clusters are borne at the branch tips from April through August, depending on the species and habitat. These species are a major component of the forest understory, especially in mountainous regions.

Landscape Uses: All evergreen Rhododendron species require moist, well-drained, acidic soil, high in organic matter. All flower best if provided with filtered morning sun and afternoon shade. Foliage will scorch if exposed to summer afternoon sun. Use them as specimen plants in shady flowering borders. Rhododendrons mix well with other evergreens, deciduous azaleas and dogwoods.

Size: 5 to 20 feet tall with a spread of 6 to 10 feet, depending on species

Zones: 6b, 7a, 7b

Habitat: Moist wooded areas and along streams.

The following are descriptions of evergreen species native to Georgia:

Catawba Rosebay / *Rhododendron catawbiense*

A shrub found at higher elevations on mountain ridges, heath balds and upland woods, it typically grows about six feet in height. Catawba Rosebay flowers from May to June, and the rose, lilac-purple, pink or white flowers are borne in terminal clusters having eight to 20 individual flowers. The leaves are three to six inches long, shiny, and olive-green above and lighter green below.

Images: Page 69

Great Laurel / *Rhododendron maximum*

This shrub is mostly found in mountain valleys in wet, wooded areas and along shaded streams. It typically grows in dense thickets and can reach eight to 10 feet in height. Great Laurel flowers from May to August, and coloration ranges from white to pink, light rose or purple. Flowers are borne in terminal clusters consisting of 12 to 30 individual flowers. The top sides of the four- to eight-inch leaves are shiny and dark or olive-green; the undersides have a thin layer of hairs. Leaves are slightly curled. During drought or extreme cold, they will roll into tight cylinders.

Images: Page 69

Piedmont Rhododendron / *Rhododendron minus*

Piedmont Rhododendron is found along stream banks and wooded slopes in the lower mountains and Piedmont and the upper Coastal Plain. It is a compact plant, typically about six feet in height. Flowers occur from May to June, and range from pink to white. They are borne in terminal clusters of four to 12 individual flowers. The top sides of the two- to four-inch-long leaves are dark or pale green, and the undersides are brown and scaly.

Images: Page 69

Winged Sumac / *Rhus copallina* (syn. *Rhus copallinum*)

Family: Sumac/*Anacardiaceae*

Characteristics: Winged Sumac is a large, deciduous, flowering shrub with coarse texture and a fast growth rate. Form is upright with a flat crown. Suckers arising from the roots form dense thickets. Foliage is glossy green above and whitish below. The leaves are pinnately compound. Greenish-yellow flowers are borne in dense pyramidal clusters in June and July. Flowers are followed by showy red fruit. The plant's best feature is its brilliant crimson red fall color.

Landscape Uses: Winged Sumac is best used in mass plantings or roadside plantings. With training, it can be grown as a specimen tree. It is useful for stabilizing erodible soils. Full sun and well-drained soils are preferred. It is drought-tolerant and easy to transplant. Winged Sumac is a good shrub for highway medians.

Size: 8 to 20 feet tall with a spread of 5 to 15 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: A pioneer species in open fields and meadows; also grows well on dry, infertile soils.

Native To: Maine to Ontario and Minnesota; south to Florida and west to Texas.

Comments: Many birds eat the seeds. There are several other native sumacs.

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Dwarf Palmetto (Bluestem Palmetto) / *Sabal minor*

Family: Palm/*Palmaceae*

Characteristics: Dwarf Palmetto is an evergreen palm with large leaves and coarse texture. This palm is often confused with Saw Palmetto (*Serenoa repens*). Unlike Saw Palmetto, the Dwarf Palmetto does not have spiny leaf-stems and does not spread over a large area. Leaves also differ from other native dwarf palms by having a split "V" in the middle. Sometimes described as a clumping palm, it is actually a single-trunk palm, but its trunk is either very short or below ground and it will seldom appear tree-like.

Landscape Uses: Dwarf Palmetto looks best in groups, but it also can be effective as a single specimen. It is a tough plant that lends a bold, tropical look to the landscape. It tolerates salt spray, so it would be a good choice for coastal areas. Moist, sunny locations along a creek or lake would be ideal planting sites. Growth and blue color are best in full sun. Dwarf Palmetto will grow in any soil, provided it is given adequate moisture.

Size: 4 to 5 feet tall with an equal spread

Zones: 7a, 7b, 8a, 8b

Habitat: Coastal Plain lowlands such as swamps, bottomlands, maritime forests, marsh borders, and moist or mesic hammocks.

Native To: North and South Carolina, Georgia, Florida, Alabama, Mississippi, Arkansas, Louisiana, Texas and Oklahoma.

Comment: Much more numerous and widespread than needle palm.

Images: Page 70

Saw Palmetto / *Serenoa repens*

Family: Palm/*Palmaceae*

Characteristics: Saw Palmetto is a common understory plant, often found growing thicket-like in southern Georgia and the Florida peninsula. It is a low, spreading palm with stiff leaves and spiny leaf stems. A single plant may have several trunks that creep along the ground, rooting and branching as they grow. With age, it will sometimes form an upright trunk. In coastal regions, it is an aggressive spreader. It is the only native palm with spiny leaf stems.

Landscape Uses: Although it is often thought of as a spiny nuisance, scrub palm, and a habitat for rodents and snakes, Saw Palmetto can be an attractive groundcover and an effective hedge or barrier plant in the landscape. It is tolerant of salt spray and drought, and is an excellent choice for coastal landscapes. Full sun and well-drained soils are preferred.

Size: 5 feet tall and sprawling as it roots along its horizontal stems

Zones: 8a and 8b

Habitat: Dry upland sites to moist sites, including pine flatwoods, hammocks and coastal dunes. It usually grows on higher and drier sites than the Needle Palm and Dwarf Palmetto. Saw Palmetto thrives in areas subject to disturbances, such as areas that have been clear cut, burned by fire or subjected to salt spray.

Native To: Coastal areas of the Southeast and most of Florida.

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American Bladdernut / *Staphylea trifolia*

Family: Bladdernut/*Staphyleaceae*

Characteristics: Bladdernut is a small deciduous tree or large shrub. Leaves have long petioles, are opposite and consist of three leaflets. Each compound leaf is six to nine inches long and pubescent underneath. The leaflets' edges are finely serrated. The bark is smooth, gray and often white-striped when young. Flowers are white, bell-shaped, and held in drooping clusters. Bark and flowers are attractive, but it is the fruit capsule that makes this tree distinctive. The fruit capsules look like Japanese lanterns and are conspicuous all summer and into late fall.

Landscape Uses: For best effect, use Bladdernut at the edge of natural, moist woodland settings. It is easy to transplant.

Size: 20 to 25 feet tall and 10 to15 feet wide

Zones: 7b, 8a, 8b

Habitat: Rich, moist, deciduous bottomlands and mesic forests, shaded slopes and ravines, and over calcareous rocks.

Native To: Minnesota to Georgia and Alabama; does not extend into the Coastal Plain.

Comments: The hard seeds are a favorite food of woodland mice. It can be mistaken for Wafer Ash or Boxelder when young.

Images: Page 71

Mountain Stewartia / *Stewartia ovata*

Family: Tea/*Theaceae*

Characteristics: Mountain Stewartia is a large, deciduous, flowering shrub or small tree with medium texture and a slow growth rate. Habit is round and spreading, somewhat bushy in appearance. Glossy, dark green summer foliage turns orange to scarlet in fall. Attractive white flowers, three inches across, are borne in June and July. Bark is mottled and exfoliating.

Landscape Uses: Use Mountain Stewartia as a flowering or specimen plant. Plant it in moist, acid, high-organic soils, and full sun to partial shade. It should have protection and irrigation during hot, dry weather. It is a temperamental plant; somewhat difficult to grow.

Size: 10 to 15 feet tall and wide

Zones: 6b, 7a, 7b

Habitat: Rich, moist ravines and slopes, mesic forests, and acidic forest understories in the Blue Ridge.

Native To: North Carolina to Tennessee and Florida.

Comments: There is a Coastal Plain Stewartia (*Stewartia malacodendron*), also called Silky Stewartia and Silky Camellia, that is equally beautiful.

Images: Page 71

American Snowbell / *Styrax americanus*

Family: Storax/*Styracaceae*

Characteristics: American Snowbell is a deciduous flowering shrub or small tree with medium texture and a medium to fast growth rate. It has an upright form with loose, ascending branches. White, fragrant flowers are borne in April. The bark is dark and handsome.

Landscape Uses: Use American Snowbell as a specimen or patio tree. It is also nice when used as an understory plant. It prefers moist, acid, sandy soils and full sun to light shade. Adequate moisture is required during dry weather.

Zones: 7a, 7b, 8a, 8b

Size: 6 to 10 feet tall and 5 to 8 feet wide

Habitat: Moist to wet acidic, sandy soils of floodplains.

Native To: Missouri to Ohio, Virginia to Florida, west to eastern Texas and Oklahoma.

Comments: American Snowbell is easy to root from cuttings taken in June and July. Another species, Bigleaf Snowbell (*S. grandiflora*), is a small tree commonly found growing as an understory plant in wooded upland sites.

Images: Page 71

Horse-Sugar, Sweetleaf / *Symplocos tinctoria*

Family: Sweetleaf/*Symplocaceae*

Characteristics: Horse-Sugar, or Sweetleaf, is a small, semi-evergreen shrub with medium texture and medium growth rate. It has glossy, evergreen foliage in the Deep South and is deciduous farther north. On open sites, it has a rounded, spreading form. In early spring, fragrant yellow blooms are borne in dense clusters along the stems. Fruit mature in early fall and are an orange-brown color.

Landscape Uses: Horse-Sugar can be used as a flowering or specimen shrub, for naturalizing on thin wooded bluffs, or in a mixed-shrub border. It prefers loose soils and sun to partial shade.

Size: 20 to 30 feet tall by 15 to 20 feet wide

Zones: 7a, 7b, 8a, 8b

Habitat: Found mostly in moist to wet soils. It also grows on dry uplands in the Appalachians.

Native To: Delaware to Florida and Louisiana.

Comments: Leaves are sweet to the taste and are eaten by wildlife. The bark and leaves yield a yellow dye. It is a butterfly larva host plant.

Images: Page 71

VACCINIUM SPECIES

Family: Heath/*Ericaceae*

Vacciniums, or blueberries, are dominant shrubs statewide on the acidic soils of Georgia. The Carolinas, Virginia and Georgia are home to 20 species of *Vaccinium* and have a greater diversity of *Vaccinium* than any other comparably-sized area in North America, according to Alan Weakley, author of *The Flora of the Carolinas, Virginia and Georgia*. Blueberries are an important food source for wildlife. Within these species, five are evergreen across their range; at least two more are partially evergreen in the southern part of their range. All are shrubs. The species with mature heights of about three feet or less are generally known as "lowbush blueberries." Most of the taller ones are called "highbush blueberries."

Sparkleberry / *Vaccinium arboreum*

Family: Heath/*Ericaceae*

Characteristics: Sparkleberry, also called Farkleberry, is a semi-deciduous shrub with glossy green foliage, medium-fine texture, a slow growth rate and an oval-rounded form. Clusters of delicate, white bell-shaped flowers (¼-inch long) bloom in May. The black fruit are visible for an extended period in the fall and winter. Fall leaf color is deep red to maroon. Older plants have exfoliating bark that reveals an orange-brown inner bark. With age, the plant has a very picturesque branching habit.

Landscape Uses: Use Sparkleberry as a flowering or specimen shrub in full sun to partial shade. It adapts to both moist and dry soils. Drought tolerance is good once the plant is established. Small plants transplant best.

Size: 15 to 20 feet tall with a canopy spread of 12 to 15 feet

Zones: 7a, 7b, 8a, 8

Habitat: Sandy and rocky dry uplands, in pine and hardwood forest understories, and in clearings.

Native To: Kansas to Virginia, south to Florida, west to Texas.

Comments: *Vacciniums* are one of the most common native shrubs.

Images: Page 72

Rabbiteye Blueberry Cultivars / *Vaccinium virgatum* (Syn. *Vaccinium ashei*)

Family: Heath/*Ericaceae*

Characteristics: Rabbiteye Blueberry cultivars are similar in many ways to Highbush blueberries but are more adapted to cultivation in the southern states. They were developed from native southern *Vaccinium* species, mainly of the Coastal Plain. Many selections with superior fruiting characteristics have been made. The foliage is blue-green and attractive. They begin blooming in late March in the Piedmont but earlier in the Coastal Plain. They make outstanding landscape shrubs that produce delicious fruit. Their growth habit is similar to that of the Southern Highbush Blueberry (*V. corymbosum*), one of the species that went into their development.

Landscape Uses: Use Rabbiteye Blueberries as fruiting plants or in sunny shrub borders. Blueberries thrive in acidic, well-drained soils that have been enriched with organic matter. They prefer full sun to light shade.

Size: 6 to 8 feet tall and 4 to 5 wide, depending on whether or not root suckers are pruned

Zones: 7a, 7b, 8a, 8b

Habitat: Acid, well-drained soils.

Native To: Georgia and the Southeast.

Comments: Many cultivars are available. For good cross pollination, plant two or more cultivars. Check with Georgia Cooperative Extension for a list of the best plants for your area. The main pollinator for many native species is the Southeastern Blueberry Bee, which starts flying when the earliest native blueberries begin blooming.

Images: Page 72

Southern Highbush Blueberry / *Vaccinium corymbosum*

Family: Heath/*Ericaceae*

Characteristics: Southern Highbush Blueberry is an upright, multi-stemmed shrub having a rounded, dense, compact form and a medium texture. Flowers are small, bell-shaped, white tinged with pink, and appear in March. Fruit are sweet tasting and dark blue with a white bloom. They ripen in June and July, and humans and wildlife relish them. The leaves are frequently blue-green, turning a brilliant fall color of yellow, bronze, orange, scarlet and crimson combinations.

Landscape Uses: Southern Highbush Blueberry is a good hedge plant for screening or for a mixed shrub border.

Size: 6 to 12 feet tall with a 6-foot canopy

Zones: 7a, 7b, 8a, 8b

Habitat: Open swamps, sandy lakeshores, upland woods and ravines.

Native To: Maine to Minnesota, south to Florida and Louisiana.

Comments: Southern Highbush Blueberry (*V. corymbosum*) was used in developing cultivars for berry production.

Images: Page 72

Darrow's Blueberry or Glaucous Blueberry / *Vaccinium darrowii*

Family: Heath/*Ericaceae*

Characteristics: Darrow's Blueberry is a small evergreen shrub, rarely more than 24 inches tall. It is bushy with blue-green, slightly revolute (rolled back on the margins) foliage. Flowers are white to pink, and fruit are about 1/3-inch in diameter. Both leaves and fruit have a glaucous (grayish or whitish powdery-looking) appearance.

Landscape Uses: Use Darrow's Blueberry as a foundation planting or groundcover on Coastal Plain flatwood sites with good drainage, sandy acid soils and shade to partial sun.

Size: Reaches up to 24 inches tall and wide

Zones: 8a, 8b

Habitat: Acid, sandy, seasonally wet to dry flatwoods, pinelands and scrub.

Native To: The Coastal Plain from Georgia to Florida and west to Texas.

Comments: A good wildlife plant; cultivars are available.

Images: Page 73

Mayberry / *Vaccinium elliottii*

Family: Heath/*Ericaceae*

Characteristics: Mayberry is the earliest blueberry to bloom in Georgia, often blooming in late February with white, bell-shaped flowers tinged with pink. Fruit are ½-inch in diameter, black and glossy. Growth habit is bushy, branched and six to eight feet tall. Foliage is glossy green. The green, zigzag twigs are a distinguishing feature of this plant. The leaves are semi-evergreen, and some plants have scarlet fall color.

Landscape Uses: Mayberry is useful for screening in partial shade. This shrub grows well and flowers in pine-oak forests; it is one of the most common shrubs on acidic pinelands in the Piedmont.

Size: 6 to 8 feet tall and 6 feet wide (can grow to 15 feet tall)

Zones: 7a, 7b, 8a, 8b

Habitat: Occurs in moist sand near riverbanks and on higher ground in swamps and floodplains as well as in sandy pinelands, thin hardwood forests or at forest edges.

Native To: Southeastern Virginia to north Florida, westward to east Texas and Arkansas.

Comments: Not yet available in the nursery trade.

Images: Page 73

Hillside Blueberry or Blue Ridge Blueberry / *Vaccinium pallidum*

Family: Heath/*Ericaceae*

Characteristics: Hillside Blueberry is a low-growing, deciduous shrub occurring in small to large open colonies. It spreads by rhizomes. Flowers bloom in March and are white to pink. Leaves are pale to dark blue-green and lighter underneath.

Landscape Uses: Use Hillside Blueberry as a hillside groundcover in dry, open, oak-pine woodlands.

Size: Up to 2 feet tall, with a spread of several feet

Zones: 7a, 7b, 8a

Habitat: Acidic dry soil, oak-pine forests and, occasionally, on moister slopes in the interior of the Southeast.

Native To: Minnesota to Maine, south to Florida; west to Mississippi, Arkansas, Oklahoma and Kansas.

Comments: A common shrub in dry upland woods.

Images: Page 73

Deerberry / *Vaccinium stamineum*

Family: Heath/*Ericaceae*

Characteristics: Deerberry is a multi-stemmed deciduous shrub with a fern-like branching pattern. It sometimes forms colonies from its suckering root system. Showy white, pendulous flowers have leafy bracts. The bracts are smaller than the leaves. Flowering occurs after the early-blooming blueberries and before Sparkleberry.

Landscape Uses: Use Deerberry in a mixed-shrub border with azaleas or along a woodland edge.

Size: 6 to 12 feet tall

Zones: 7a, 7b, 8a, 8b

Habitat: Occurs in a variety of habitats from high Appalachian elevations to dry or moist woodlands; extends into coastal forests.

Native To: New York to Missouri, south to Florida and west to Louisiana.

Comments: Adapted to dry soils, Deerberry deserves to be grown in southern gardens and xeric landscapes. The highly glaucous forms have not yet been exploited by the nursery industry.

Images: Page 74

Mapleleaf Viburnum / *Viburnum acerifolium*

Family: Honeysuckle/*Caprifoliaceae*

Characteristics: Mapleleaf Viburnum is an attractive, loosely branched, deciduous, low-growing shrub. Yellow-white flowers appear in a flat head in April. Leaves are palmate and three-lobed. Fruit are black. The plant is stoloniferous and forms colonies. Fall color is variable but usually colorful.

Landscape Uses: Mapleleaf Viburnum prefers dense shade and moist, well-drained soils. It develops large, loose colonies when planted in the understory.

Size: 6 feet tall and up to 10 feet wide

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: An understory plant of moist and rocky woodlands.

Native To: New Brunswick to Minnesota, south to North Carolina and Georgia.

Comments: Migrating birds eat the fruit in the fall.

Images: Page 74

Arrowwood Viburnum / *Viburnum dentatum*

Family: Honeysuckle/*Caprifoliaceae*

Characteristics: Arrowwood Viburnum is a deciduous flowering shrub with medium texture and medium growth rate. Upright branches form a spreading crown. Creamy-white flower clusters are borne in a flat head in May. Fall color ranges from yellow to red or purple. The leaves are a glossy, dark green.

Landscape Uses: Use Arrowwood Viburnum for hedges, group plantings or screening. It prefers moist, sandy-loam soils and full sun to partial shade. Shows good site tolerance and will grow in heavy soils. Fruit color, which changes as the season progresses, adds interest to the landscape.

Size: 6 to 15 feet tall and wide

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Typically grows in wet soils near water — in bottomlands, streambeds and bogs.

Native To: New Brunswick to Minnesota, south to Georgia.

Comments: Fruit are attractive to birds.

Images: Page 74

Swamp-Haw / *Viburnum nudum*

Family: Honeysuckle/*Caprifoliaceae*

Characteristics: Swamp-Haw is a deciduous shrub bearing white blooms in flat heads in May. Fruit change color from green to pink to dark blue and are covered in a waxy bloom. Arching branches often take root and spread.

Landscape Uses: Use Swamp-Haw in groups for massing or in a shrub border. It prefers moist soils, but it may adapt to sun if irrigated. Fruit color changes as the season progresses, which adds interest to the landscape.

Size: Up to 20 feet tall with variable spread

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: River bottoms, streambeds, bogs.

Native To: Maine to Florida, west to Texas; north to Arkansas, Illinois, Wisconsin.

Comments: Fruit are attractive to birds.

Images: Page 74

Blackhaw Viburnum / *Viburnum prunifolium*

Family: Honeysuckle/*Caprifoliaceae*

Characteristics: Blackhaw Viburnum is a deciduous, multi-stemmed, flowering shrub or small tree with medium texture, slow to medium growth rate, and rounded form. Creamy-white flowers are borne in flat heads in May. Fruit are bluish-black drupes in fall. Dark green foliage in summer turns beautiful red-bronze in fall. The rigid horizontal branches and spur-like twigs give it the name Blackhaw.

Landscape Uses: Use Blackhaw Viburnum as a specimen tree. It is adaptable to many sites from sun to partial shade and shows good drought tolerance. It transplants easily.

Size: 12 to 20 feet tall and 8 to 15 feet wide

Zones: 6a, 7a, 7b, 8a, 8b

Habitat: A wide variety of woodlands and forest edges, roadsides and fencerows.

Native To: Connecticut to Florida, west to Michigan and Texas.

Comments: Birds enjoy the fruit.

Images: Page 75

Rusty Blackhaw / *Viburnum rufidulum*

Family: Honeysuckle/*Caprifoliaceae*

Charcteristics: Rusty Blackhaw is a deciduous shrub with leathery, pubescent foliage. Flowers are creamy white and borne in flat heads in April and May. Fruit are dark blue and have a waxy bloom. The undersides of leaves and buds have short, dense, rusty-red hairs that are useful in identifying this species. Fall color is burgundy red.

Landscape Uses: Use Rusty Blackhaw as an understory plant in partial shade or as a specimen plant in full sun. It grows more densely when planted in full sun. It has excellent drought and cold tolerance.

Size: 6 to 10 feet tall with an equal spread

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: A variety of upland wooded habitats; most common in calcareous or dry habitats.

Native To: Virginia to Florida, west to Illinois and Texas.

Comments: Birds enjoy the fruit.

Images: Page 75

Yellow-Root / *Xanthorhiza simplicissima*

Family: Buttercup or Crowfoot/*Ranunculaceae*

Characteristics: Yellow-Root is a low-growing, erect shrub that spreads and forms colonies via root suckers. The leaves are deciduous and alternate, and consist of five leaflets. Flowers are brown-purple, less than ¼-inch across, and appear in early spring. The bark and roots are bitter and bright yellow, and yield a yellow dye.

Landscape Uses: Yellow-Root is not often seen in the landscape, except in natural settings and along stream banks. However, it would make a good ground cover plant along a shady foundation where there are no gutters. It also could be used on a pond or lake edge under deciduous trees and shrubs, or to hold a wet, shaded ditch area. Yellow-Root is an excellent choice for naturalizing in boggy soil.

Size: 1 to 2½ feet tall and spreading

Zone: 6b, 7a, 7b, 8a, 8b

Habitat: Moist soils along shaded streambanks or on wet, rocky ledges.

Native To: New England to Florida, Ohio to Mississippi, and west to Texas.

Images: Page 76

Adam's Needle, Beargrass, Spanish Bayonet, Curly Leaf Yucca / *Yucca filamentosa*

Family: Agave/*Agavaceae*

Characteristics: Adam's Needle, also called Beargrass, Spanish Bayonet and Curly Leaf Yucca, is an evergreen shrub with coarse texture and a medium growth rate. It usually grows as a multi-stemmed shrub with a bold, erect, upright appearance. White, showy flowers are borne in terminal clusters in May and June. Flowers are pollinated by only one insect — the yucca moth.

Landscape Uses: Use Adam's Needle as an accent plant. The sharp, terminal spines are potentially dangerous. Avoid using the plant in pedestrian areas. This is a tough plant for hot, dry to moist sites in full sun. It does not tolerate shade or wet conditions.

Size: 4 to 10 feet tall and 5 to 15 feet wide

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Hot, dry, rocky areas in the lower south.

Native To: South Carolina to Mississippi and Florida.

Images: Page 76

Honeycup / *Zenobia pulverulenta*

Family: Heath/*Ericaceae*

Characteristics: Honeycup, or Zenobia, is a medium-size, stoloniferous shrub. Leaves are deciduous or semi-evergreen, alternate, leathery, pale green to bluish-white. The underside of the leaf is whitish and smooth. Flowers are white, showy, fragrant, nodding downward in clusters at leaf axils of the previous year's growth. Fruit are globose, five-valved capsules with a white bloom.

Landscape Uses: Use Honeycup as a specimen plant or in a mixed-foundation planting near a downspout. It is a showy shrub with handsome, fragrant flowers and bluish-white leaves. It requires moist, acid soil, good drainage, and afternoon shade.

Size: 3 to 6 feet tall by 4 feet wide

Zones: 7b, 8a, 8b

Habitat: Bogs, bays, wet savannahs and swamps in the Coastal Plain.

Native To: Virginia to Georgia.

Comment: This species is rare in Georgia.

Images: Page 76

Woody Vines

Crossvine / *Bignonia capreolata*

Family: Bignonia/*Bignoniaceae*

Characteristics: Crossvine is a semi-evergreen to evergreen vine, medium in texture, with a fast growth rate. It climbs by twining and tendrils or grows along the ground. The foliage is dark green in summer with a purplish cast in winter. Trumpet-shaped orange-red flowers are borne from April to June. Its common name refers to the cross pattern seen when the stem is cut.

Landscape Uses: Crossvine is a good plant for quickly covering trellises and fences. It is easy to grow when provided with adequate moisture and full sun to light shade. Crossvine is a tough plant that will tolerate environmental extremes. It needs training for the first few years after transplanting.

Size: A climbing vine growing to 30 to 50 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Moist, forested areas.

Native To: Maryland, Virginia and southern Illinois; south to Florida and Louisiana.

Comments: A good hummingbird plant. Cultivars are available.

Images: Page 77

Trumpetcreeper / *Campsis radicans*

Family: Bignonia/*Bignoniaceae*

Characteristics: Trumpetcreeper is a deciduous vine with medium texture and a fast growth rate. It is a twining, clinging and climbing vine; it will also spread along the ground. The leaf is compound, and flowers are trumpet-shaped, orange to red. They bloom from June to August in clusters of four to 12 flowers. The fruit is an elongated capsule bearing numerous seeds.

Landscape Uses: Trumpetcreeper is easy to grow and useful for quickly covering fences or trellises, particularly when a deciduous vine is needed to allow for winter sun. It does well in almost any situation, from wet to dry, full sun to partial shade. Full sun is best. Trumpetcreeper is aggressive and will climb poles or other plants, so plant it where it will not become a pest. It will require pruning.

Size: A climbing vine reaching 30 to 40 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Upland wooded areas, fencerows.

Native To: Pennsylvania to Missouri, south to Florida and Texas.

Comments: A good hummingbird plant.

Images: Page 77

Climbing Hydrangea / *Decumaria barbara*

Family: Hydrangea/*Hydrangeaceae*

Characteristics: Climbing Hydrangea is a deciduous vine with medium-coarse texture and a medium growth rate. It climbs by aerial root-like holdfasts. Fragrant, small white flowers are borne in terminal clusters from May to June. The unusual fruit is a capsule shaped like a small urn.

Landscape Uses: Climbing Hydrangea does best when planted in moist soils with good drainage and partial shade. Fertilize regularly for best growth. It does not do well in dry, poor soils. It will climb trees and masonry structures but is not overly aggressive.

Size: A climbing vine growing 30 to 40 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Moist, fertile woodlands and along sandy streams.

Native To: Virginia to Florida, west to Louisiana.

Images: Page 77

Carolina Yellow Jessamine / *Gelsemium sempervirens*

Family: Logania/*Loganiaceae*

Characteristics: Carolina Yellow Jessamine is an evergreen vine with fine texture and a fast growth rate. Fragrant, yellow, trumpet-shaped flowers are borne in February and March. It climbs by twining around branches of other plants.

Landscape Uses: Use Carolina Yellow Jessamine on trellises, fences, mailboxes, etc. It may need training. It prefers moist, well-drained soils in full sun or partial shade. It can be used as a groundcover in full sun, but flowering will be sparse. It will look spindly in shade.

Size: Climbing vine growing 10 to 20 feet. It also can be allowed to ramble on the ground.

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Moist, wooded, deciduous forests.

Native To: Virginia to Florida, west to Arkansas and Texas; south to Central America.

Comments: Attractive to hummingbirds and songbirds. Other species, such as the popular, repeat-blooming Swamp Jessamine (*Gelsemium rankinii*) are available. Swamp Jessamine flowers are not fragrant.

Images: Page 78

Trumpet Honeysuckle / *Lonicera sempervirens*

Family: Honeysuckle/*Caprifoliaceae*

Chacteristics: Trumpet Honeysuckle is an evergreen vine with medium texture and a medium growth rate. It climbs by twining. Two-inch-long, orange to scarlet trumpet-shaped flowers are borne in March and April. Fruit are red and moderately showy.

Landscape Uses: Use Trumpet Honeysuckle on arbors, trellises, fences and walls. It does best when planted in moist, fertile soils in full sun. It is not aggressive and can be kept within bounds with regular pruning. For best flowering, do not over-fertilize.

Size: Climbing vine growing 10 to 20 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Roadsides, fencerows and forest margins in moist, fertile soil.

Native To: Connecticut to Florida, west to Nebraska and Texas.

Comments: Birds eat the fruit, and hummingbirds enjoy the flowers, which are pollinated by birds, not bees. Trumpet Honeysuckle is a good choice for people allergic to bee stings. Several cultivars are available.

Images: Page 78

Virginia Creeper / *Parthenocissus quinquefolia*

Family: Grape/*Vitaceae*

Characteristics: Virginia Creeper is a deciduous vine with palmate compound leaves, medium texture and a fast growth rate. It climbs by branched tendrils (slender, curling extensions along the stems) that have adhesive-like tips that attach to a structure. Blue berries are borne in fall. Autumn leaf color is scarlet red.

Landscape Uses: Virginia Creeper is a good plant for quickly covering fences, walls and arbors. It is easy to grow and is tolerant of most sites and soil conditions. In nature, it may be somewhat invasive. For landscapes, it is a low-maintenance vine with excellent fall color.

Size: A climbing vine growing 30 to 50 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Bottomlands and oak hickory forests in moist shade.

Native To: New England to Florida and Mexico; west to Ohio, Illinois and Missouri.

Comments: Birds eat the seeds.

Images: Page 78

Dwarf Smilax (Sarsaparilla Vine) / *Smilax pumila*

Family: *Smilacaceae*

Characteristics: Dwarf Smilax is a thornless, broadleaf evergreen vine with medium texture and a slow growth rate. It is a ground cover plant rather than a climbing vine. It spreads by underground stems. Foliage is a lustrous, dark green. It bears bright-red berries in fall through winter.

Landscape Uses: Use Dwarf Smilax as a ground cover plant. It looks particularly nice when combined with flowering bulbs or perennials. It requires adequate moisture

and some shade for best performance. It does not like hot, dry, exposed locations. It can be established by division or from container-grown plants.

Size: 6 to 8 inches tall and slowly spreading

Zones: 8a, 8b

Habitat: An understory plant on hardwood forest slopes with good moisture and sandy soils.

Native To: Coastal Plain from Georgia to Texas.

Comments: Birds eat the berries.

Images: Page 78

Lanceleaf Smilax, Sweet-Scented Smilax / *Smilax smallii*

Family: *Smilacaceae*

Characteristics: Lanceleaf Smilax is a climbing evergreen vine with spineless stems. The leaves are lance-shaped, two to three inches long and about one inch wide. Male and female flowers appear in April and May and are borne in umbels at the leaf axils. The female flowers produce berries about ¼-inch in diameter; they change from white to orange, then to black by late summer.

Landscape Uses: Lanceleaf Smilax will complement arbors, trellises and fences in full sun to partial shade. Plant in well-drained soils.

Size: 8 to 10 feet

Zones: 6b, 7a, 7b, 8a, 8b

Habitat: Usually found in sandy, floodplain forests.

Native To: Virginia to Florida; west to Texas, Oklahoma and Arkansas.

Comments: The cut vines hold up well and are used by florists. The plant is a good food source for wildlife.

Images: Page 79

American Wisteria / *Wisteria frutescens*

Family: Pea/*Fabaceae*

Characteristics: American Wisteria is a twining, deciduous, woody vine that bears light lavender flowers in spring. The flowers are pea-like and borne in two- to four-inch-long clusters, called racemes. Leaves are pinnately compound with five to seven pairs of leaflets. Seeds are borne in a legume-like pod.

Landscape Uses: Use American Wisteria on arbors, trellises, fences and walls. It is not nearly as aggressive or invasive as the exotic wisterias, and it is a much better choice for the landscape. It performs best in moist, fertile soil.

Size: A climbing vine growing 15 to 30 feet

Zones: 7b, 8a, 8b

Habitat: Along stream banks of creeks and rivers, and at woodland borders in the Coastal Plain and Piedmont.

Native To: Virginia to Florida and Texas.

Comments: Cultivars such as “Amethyst Falls” are available.

Images: Page 79

Glossary

Glossary of Terms Used in this Publication

Acute: Terminating with a sharp or well-defined angle.

Anther: The organ at the upper end of a stamen that secretes and discharges pollen. The male part of a flower.

Appressed: Lying flat or pressed closely against.

Axil: The angle between a stem and the upper side of a leaf.

Bipinnately Compound: A compound leaf arrangement whereby several side leaflets are arranged along the central leaf axis, called a rachis, and these leaflets are again divided into several leaflets.

Bluff: A steep headland, promontory, river bank or cliff.

Calcareous: Containing calcium carbonate, calcium or limestone; chalky.

Capsule: A fruit that contains two or more seeds, and that dries and splits open.

Colonial: Forming colonies by means of underground rhizomes, stolons, etc.

Compound Leaf: A leaf divided into two or more leaflets.

Conifer: A predominately evergreen, cone-bearing tree.

Deciduous: Descriptive of a plant that sheds its leaves at the end of the growing season.

Dioecious: Male and female flowers borne on separate plants, as in hollies.

Dunes: Ridges or hills of wind-blown sand.

Ecotype: A plant adapted to a specific environment that has not undergone sufficient genetic change to be considered a separate species or sub-species.

Elliptic: Narrow at the ends and broad near the center.

Fascicle: A close bundle or cluster.

Glabrous: Smooth.

Glaucous: Grayish green or bluish green due to a fine, whitish, powdery coating.

Hammock (syn. Hummock): A low mound or ridge of earth.

Lance-shaped: Elongate in shape, broadest below the middle, and gradually pointed toward the tip.

Lobe: A subdivision distinguishable by some structural boundary.

Mesic: Moderately moist.

Midden: A refuse heap.

Obovate: Egg-shaped, with the narrow end attached to the stalk.

Palmate: Describes a leaf that is radially lobed, like the spokes of a wheel. Imagine a leaf shaped like the palm of the hand, with lobes radiating outward from one central point.

Panicles: Loose, irregularly-compound inflorescence flowers borne on short stems or pedicels.

Pedicel: A flower stalk; the support of a single flower.

Pinnately Compound: With leaflets arranged in two rows along an axis.

Pioneer species: A species that establishes itself in a previously barren environment.

Pistil: The seed-bearing organ of a flower, including the stigma, style and ovary.

Pistillate: Describes a flower bearing only female parts (stigma, style, ovary) and no stamens (filament, anther).

Pocosins: Depressions in open areas of pine savannahs and seepage slopes near streams.

Pubescence: A covering of soft, short hairs.

Raceme: An elongate cluster of flowers along the main stem in which the flowers at the base open first.

Revolute: Rolled backward from the margins or apex.

Rhizome: An underground stem that is usually horizontal in position and frequently woody or fleshy.

Samara: A dry, one-seeded, winged fruit that remains closed and does not split open at maturity (indehiscent).

Serrated: With many small protrusions or teeth along the margins.

Stamen: The male reproductive part of a flower, usually consisting of a slender threadlike filament and the pollen-bearing anther.

Staminate: A flower lacking female parts, having only stamens (male parts).

Stigma: The tip of a pistil, usually expanded and sticky, that receives pollen.

Stolon: An elongated horizontal stem creeping along the surface of the ground and rooting at the tip and nodes to produce a new plant.

Stoloniferous: Describes plants that produce slender, above-ground stems that spread outward, rooting and forming new shoots at nodes. Strawberry is a stoloniferous plant.

Succession: Gradual changes in species populations culminating in a climax characteristic of a particular geographic region.

Thicket: A dense growth of shrubs or undergrowth.

Trifoliate: Having three leaflets.

Umbel: A flower cluster, usually rounded or flat-topped, with all stems springing from the same point.

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FERNS

BULLETIN 987-2

By Gary Wade, Elaine Nash, Ed McDowell,
Brenda Beckham, and Sharlys Crisafulli

"A thing is right if it tends to preserve the beauty, integrity and stability of the biotic community; it is wrong when it tends otherwise."

Aldo Leopold
"The Land Ethic," *A Sand County Almanac*

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Natural History of Ferns

Ferns first appeared in the fossil record more than 350 million years ago. At that time, what is now temperate Europe and North America had climate conditions that favored year-round growth; the land was low and covered by swamps and shallow seas. For millions of years, the earth was dominated by cycads, ginkgos, conifers and seedless vascular plants, including ferns, lycophytes (lycopodias and selaginellas), and bryophytes (mosses and liverworts). These plants laid down the deep coal beds we now mine for energy.

Most of the dominant tropical coal-swamp plants became extinct over time. Only the ferns and herbaceous relatives of the lycophytes -- clubmosses, selaginellas and horsetails -- continued to flourish and evolve. Today, many of these plants appear untouched by evolution and look much like they did millions of years ago. Ferns also inhabit all of the continents except frozen Antarctica.

Having been on earth prior to the Carboniferous Period (280 to 345 million years ago), ferns have survived and evolved through a long, turbulent history of time and space; a time when continental land masses were splitting and colliding, oceans were expanding and shrinking, and phenomenal climate changes were occurring.

Ferns did not arise as a single monolithic family, but as several families or groups. The royal ferns (*Osmundaceae*) and the filmy ferns (*Hymenophyllaceae*) existed 210 million years ago, according to fossil records. Interrupted fern (*Osmunda claytoniana*), which currently grows only in eastern North America, is known to have existed 206 million years ago. Other families, including the spleenworts (*Aspleniaceae*), chain ferns (*Blechnaceae*), wood ferns (*Dryopteridaceae*) and polypodies (*Polypodiaceae*) are much younger, with fossilized records dating to the Cretaceous Period, about 75 million years ago. Sensitive fern (*Onoclea sensibilis*), found in eastern North America and eastern Asia, existed during the early Tertiary Period, about 55 million years ago. Many other fern families are no more than 2 to 3 million years old, and a few species, like log fern (*Dryopteris celsa*), are of recent origin – only 18,000 years old (see Figure 1).

Some closely related fern species are widely distributed around the earth, yet great distances separate them. One explanation for this is the continental drift that occurred at least once during the past 150 million years. As land masses separated and collided, fern species colonized new areas. A second explanation for this widespread distribution is long-distance spore dispersal. Ferns produce millions of spores that, when ripe, are ejected or catapulted into the surrounding air. Their dust-like particle size can be easily picked up by the wind and transported enormous distances in the earth's upper atmosphere and jet stream. Experiments have shown that fern spores can tolerate the cold temperatures and intense ultraviolet radiation present in the upper earth's atmosphere.

There are about 12,000 species of ferns in the world today. Most are found in the tropics. Currently, Georgia is home to 36 genera, 119 species and 12 hybrid ferns. The list is constantly expanding as new plants are found.

Fern Allies

Lycophytes, horsetails and whisk ferns are often referred to as "fern allies," because they generally don't resemble ferns, but do have some similarities. Lycophytes, which include Quillworts (*Isoetes*), Spikemosses (*Selaginella*) and Clubmosses (*Lycopodium*), are less closely related to ferns and are more closely related to an ancestral plant that is not shared by the ferns. Ferns and seed plants are more closely related to each other than either is to the lycophytes (see Figure 1).

On the other hand, fossil records and DNA analysis have revealed that horsetails (*Equisetum*) and whisk ferns (*Psilotum* and *Tmesipteris*) ARE ferns, even though they don't resemble ferns. Whisk ferns consist of leafless branches and slender, creeping rhizomes, but no roots. They are one of the simplest and most unique vascular plants on earth.

Ten species of clubmosses, seven species of spikemosses, two species of horsetails and one species of whiskfern are native to Georgia. However, they are difficult to grow and are not good candidates for culture by the average gardener. Therefore, they are not described in this publication.

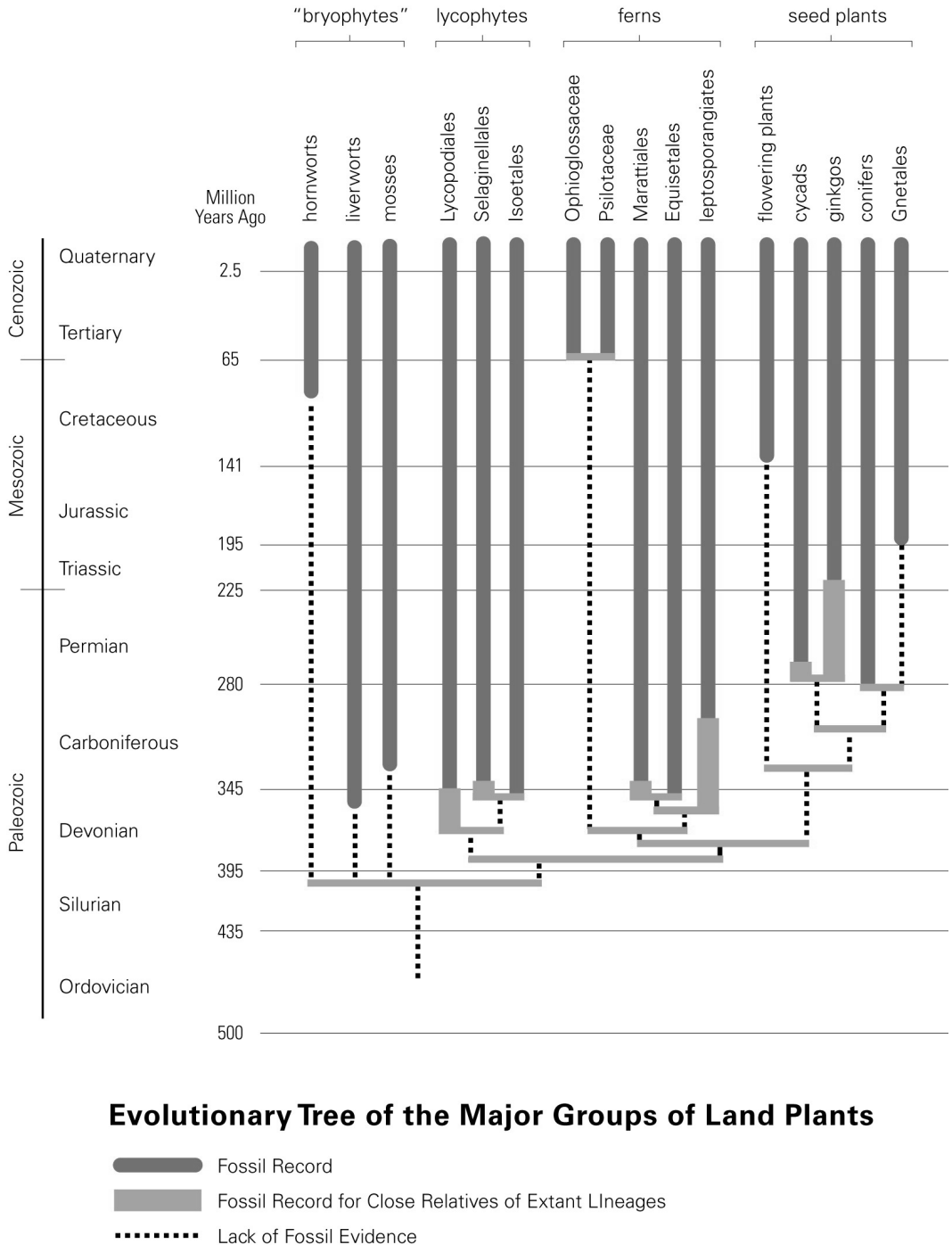


Figure 1. From R. Moran, 2004. *A Natural History of Ferns*.
(Redrawn by Angela Rowell, UGA, CAES Office of Communications)

Fern Life Cycle

The fern life cycle involves two distinctly different stages: the **sporophyte stage** and the **gametophyte stage** (see Figure 2). The sporophyte stage begins with a **zygote**. In the sporophyte stage, the young sporophyte has roots, stems and leaves like other vascular plants. The spore-bearing fertile fronds are called **sporophylls**. On their underside are borne clusters of sporangia, called **sori**. The cells within the walls of the sporangia become **spore mother cells**. These cells undergo a genetic process called **reduction division** with each spore mother cell splitting into four meiospores. When mature, the sporangia burst open and the spores are shot into the air. A single fern can release millions of dust-like spores that may be carried some distance by air currents before landing. If the environment where a spore lands is favorable, a spore will germinate and grow into a small heart-shaped gametophyte plant that is usually less than ¼-inch across. The leaf-like game-

tophyte contains chlorophyll and makes its own food. On the underside of the gametophyte, hair-like growths aid in absorption. Near the point in the heart-shaped gametophyte are borne **antheridia** (male parts), and near the notch in the gametophyte are clusters of **archegonia** (female parts). Fertilization occurs when a sperm from an antheridium unites with an egg from an archigonium to form a zygote. The zygote germinates and grows into a young fern plant, and the life cycle starts again.

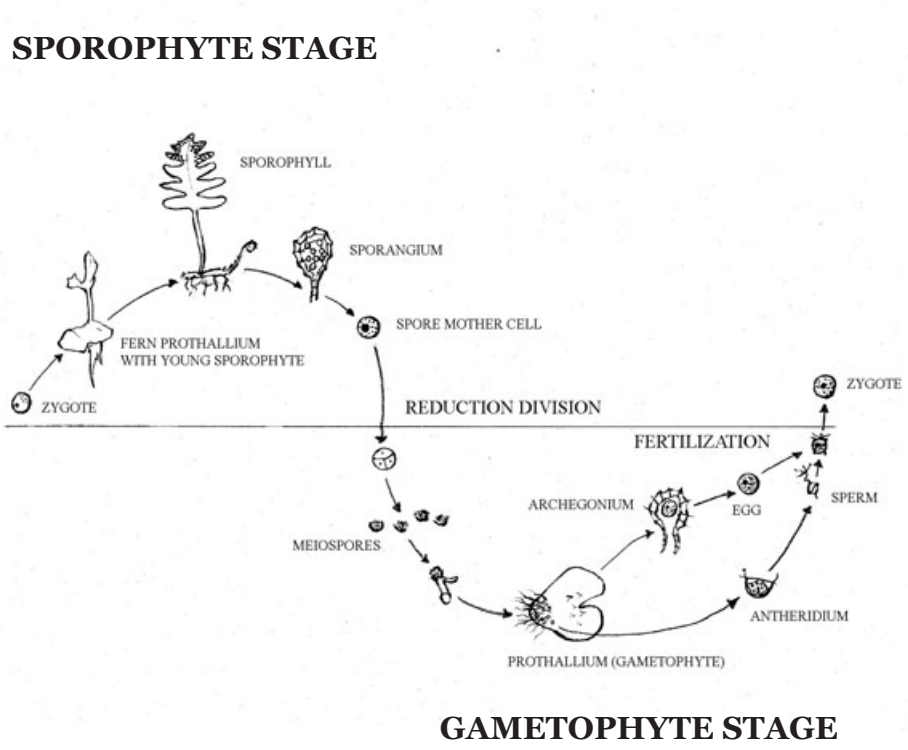


Figure 2. Fern life cycle
(Redrawn by Jonathan Bowman, from Greulach, *Botany Made Simple*)

Identifying Ferns

Unlike many other vascular plants, ferns do not have aerial stems. The leaves arise from an underground stem, called a **rhizome**. The entire fern leaf is called a frond. The frond consists of the **stipe** and the **blade**. The continuation of the stipe to which the leaves are attached is called the **rachis**. A leaflet is called a **pinna** (plural, **pinnae**). A division of a pinna is called a **pinnule**. See Figure 3 and the glossary for more detailed descriptions.

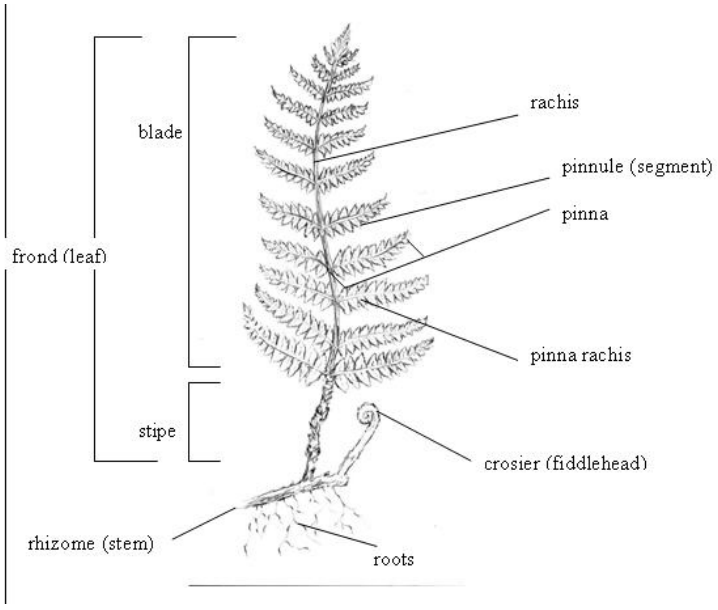


Figure 3. Parts of a fern
(Redrawn by Jonathan Bowman, from Mickel, *Ferns for American Gardens*)

One characteristic used to identify ferns is the structure of the frond, and the level to which a frond is divided (See Figure 4). Frond structure ranges from simple (the blade is undivided) to compound (the blade is divided into smaller parts). A common blade structure, called **pinnate**, produces **pinnae** (singular **pinna**) that are attached to an elongated rachis. Each pinna may be again divided to become **bipinnate** or **tripinnate**. Leaf blades that are deeply lobed but not fully divided into individual segments are said to be **pinnatifid**. When the first level of blade arrangement is pinnate and the second pinnatifid, the leaf is called **pinnate-pinnatifid**. When both levels of blade arrangement are pinnatifid, the frond structure is called **bipinnatifid**.

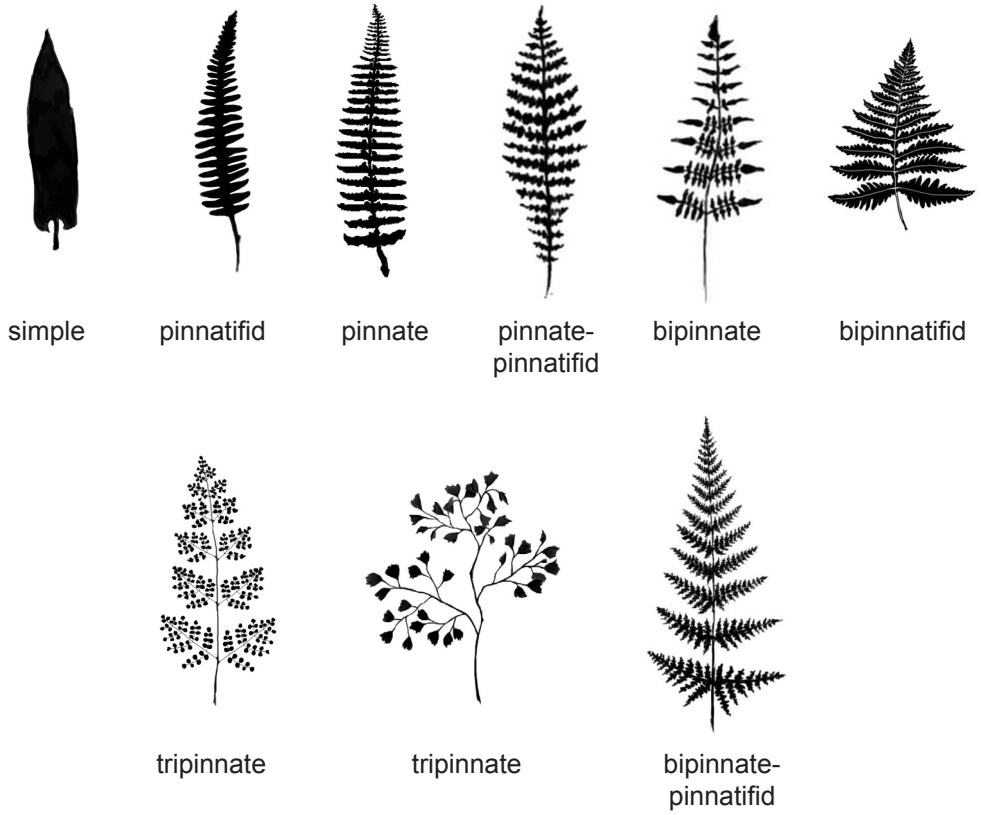


Figure 4. Fern frond structures
(Redrawn by Jonathan Bowman, from Mickel, *Ferns for American Gardens*)

In some ferns, the sterile and fertile fronds may appear distinctly different. Others have fronds that are **dimorphic**, which means they have two different leaf forms on the same frond (Figure 5). These are other characteristics used to describe and identify ferns.

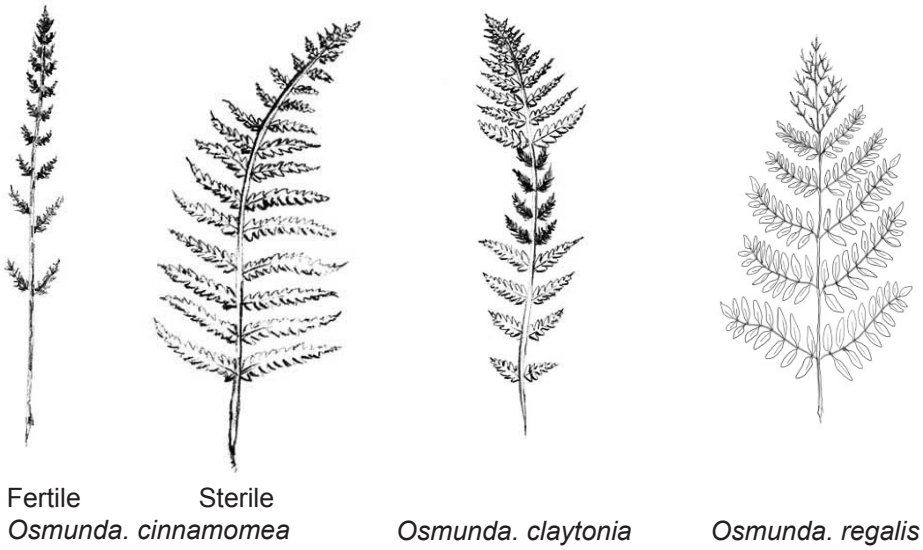


Figure 5. Examples of dimorphic fern fronds
(Redrawn by Jonathan Bowman, from Mickel, *Ferns for American Gardens*)

Ferns are further described according to the habit of their rhizome (Figure 6). Some ferns have a **long-creeping rhizome**, others a **short-creeping rhizome**, and still others an **ascending rhizome**.

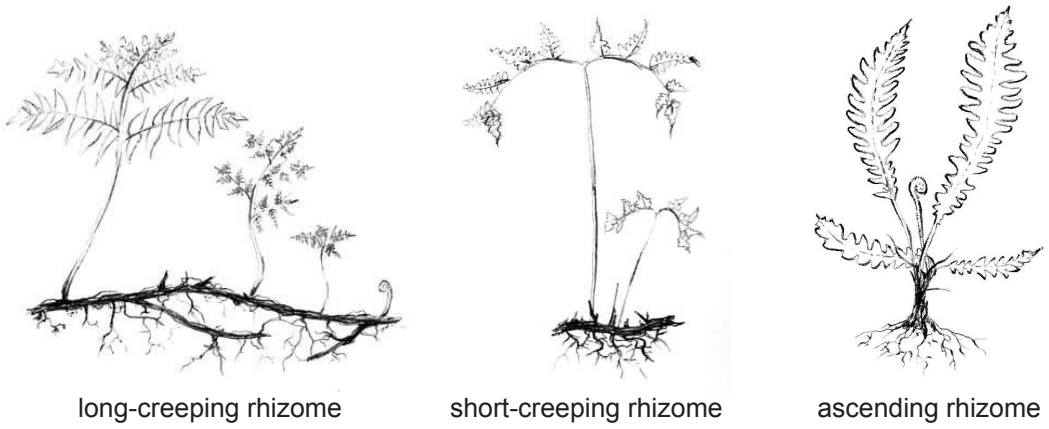


Figure 6. Rhizome habits
(Redrawn by Jonathan Bowman, from Mickel, *Ferns for American Gardens*)

Fertile fronds contain spore-bearing sporangia arranged in clusters called **sori** (singular **sorus**). In many ferns, each sorus is covered by a thin membrane called an **indusium** (plural **indusia**). In others, an indusium is not present. There are some fern species in which the sori are not covered by a true indusium but have their sori located beneath in-rolled margins of the fronds. This is called a **false indusium**. The presence or absence of indusia and the structure of the indusia are further characteristics used to identify and describe ferns.

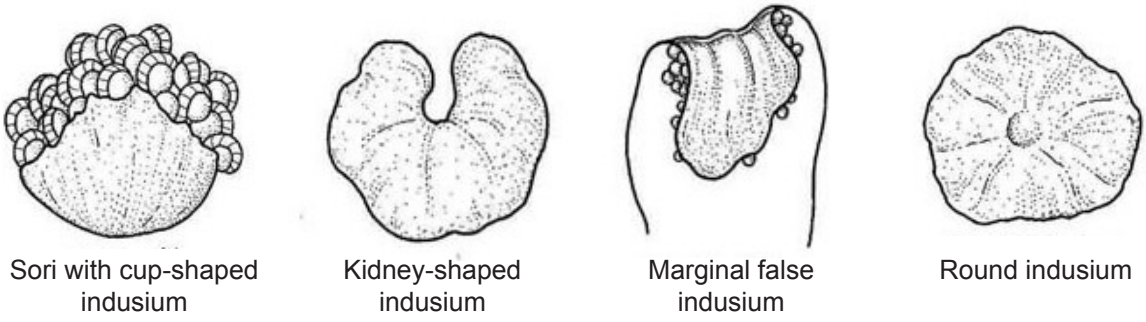


Figure 7. Examples of indusia
(Drawings by Anna Stone from *Hawaii's Ferns and Fern Allies*, Daniel D. Palmer, 2003)

Gardening with Ferns in Georgia

To grow ferns successfully, it is important to match the site characteristics and growing environment with the native requirements of the fern species you intend to grow. Even if a fern is native to Georgia, it may not be native to the area of the state where you live. In order to successfully grow ferns outside their native habitat, you must try to simulate the soil conditions and climate in which they are found in nature. The vast majority of native ferns need soils high in organic matter with moderate moisture retention. Except for rugged areas in the mountains and perennial wetlands, most land in Georgia has been farmed, making the soils and growing environment less suitable for ferns.

Native ferns offer a wide diversity of sizes, growth habits, forms and niches for gardens. They provide a unifying element to the woodland garden, weaving their green fronds over the forest floor. In late summer, their rich green fronds add life to the forest as other plants fade and drop their leaves. A woodland garden looks incomplete without ferns.

Most ferns have three basic growing requirements: **shade**, **moisture**, and loose, well-drained **soil** high in organic matter.

Shade
Nearly all ferns prefer filtered shade -- the type cast by tall trees with pruned limbs. Filtered shade can also be obtained by planting on the northeast side of a building where shade is cast by the building most of the day or in courtyards shaded by surrounding buildings. North-facing slopes, as well as walls and fences with north/south orientations that cast shade during the afternoon also offer filtered shade. Protection from the hot afternoon sun and drying winds is essential. Ferns generally do not like dense shade created by thick forest canopies where little light reaches the forest floor. In the wild, ferns thrive in an open forest or near the edges of forests where light penetrates, but is filtered by foliage.

Moisture
In the wild, ferns are found in a variety of habitats, most of which are moist. Adding organic matter to the planting area, planting in depressions where moisture drains, or providing drip irrigation are ways to make the growing environment more suitable for ferns. A natural way to trap moisture in an area is to allow large woody debris, like logs or large limbs, to rot in place when they fall. As they decompose, they act as natural water reservoirs, trapping rain and holding onto it like a sponge.

Newly planted ferns need to be watered thoroughly and repeatedly during establishment to maintain an adequate moisture level. The root system may take up to two years to get fully established, so supplemental moisture may be needed during periods of limited rainfall. Tree roots compete with ferns for water and nutrients, so when ferns are planted under trees, supplemental irrigation will be necessary.

Soil
Ferns need well-drained soil enriched with organic matter like compost. Heavy clay soils, or soils with little organic matter, do not have adequate pore space for sufficient root growth. Clay soil is not suitable unless it is amended with compost, rotted wood chips, and/or some type of aggregate to improve its structure and texture.

Ferns have a wide preference for soil pH (a measure of the soil acidity or alkalinity level). Soil pH can be determined by a soil test -- available for a nominal fee through your local county Extension office (http://aesl.ces.uga.edu/soil/Georgia.htm). Some species are restricted to acid soil (pH 4.7 - 5.5), some prefer a more neutral pH (pH 6.6 - 7.2), while others grow over a wide range (pH 4.7 - 7.2). A few ferns that require an alkaline pH (above 7.0) and need calcium grow on limestone rocks or in soils amended with lime. Some ferns must grow on rocks or boulders that provide a cool, moist surface and crevices for their rhizomes (creeping underground roots).

Ferns to Avoid
Japanese climbing fern (*Lygodium japonicum*), old world climbing fern (*Lygodium macrophyllum*) and Marianna maiden fern (*Macrothelypteris torressiana*) are non-native ferns that have escaped cultivation and become invasive. Avoid planting these ferns. In this publication, Carolina mosquitofern (*Azolla caroliniana*) and bracken fern (*Pteridium aquilinum*) are described because they are native ferns; however, Carolina mosquitofern is invasive in aquatic environments and bracken fern is poisonous, so neither fern is recommended for culture.

Guide to Plant Descriptions

The native ferns described in this publication may not all be worthy of landscape culture, but most are. Some are described for the historical role they played in agriculture. Others with known invasive or other undesirable qualities are described for information purposes only. Still others may be difficult to cultivate without precise simulation of their native growing environment, but they are of botanical interest. Some ferns may be difficult to find in the nursery trade, but descriptions of their qualities may prompt a few astute growers to begin growing them and offering them for sale. Rare or endangered species of ferns are not described, and collecting them from the wild, except during organized plant rescues, is discouraged.

Ferns in this publication are grouped according to family and alphabetized, by scientific name, within the family. The description of each fern follows this format:

Common name(s) / Botanical name: Generally accepted scientific and common names used by specialists in the field. The ancient ancestry and evolution of ferns has resulted in a great deal of disagreement among botanists as to the family and genus to which many ferns belong. In this publication, *Flora of the Carolinas, Virginia, Georgia, northern Florida, and Surrounding Areas* by Alan S. Weakley was used as the authority on fern classification. http://www.herbarium.unc.edu/WeakleyFlora_2008-Apr.pdf

Characteristics: This category provides identifying characteristics, including information about the frond shape, the size, shape and arrangement of the pinnae, stipe shape and length, as well as the size and shape of the sori and indusia. To become familiar with these terms, review figures 3 through 7 and the glossary at the end of this publication.

Landscape uses: Suggestions are made for using the plant effectively in the landscape. To grow native ferns successfully, it is important to simulate their native growing environment and to follow appropriate cultural management practices to provide their growing requirements.

Size: This is an indication of mature plant size, not the size of an individual frond. Some ferns grow in colonies with spreading rhizomes, so plant size will vary with plant age and is influenced by the growing environment.

Zones: This refers to the U.S. cold-hardiness zones to which the fern is adapted or found growing in its native habitat. The average winter temperature of the region in which they are to be grown influences which ferns can be grown successfully in your area. Figure 8 shows the Cold-Hardiness Zones for Georgia taken from the 1990 USDA Cold-Hardiness Zone Map.

Habitat: A description of the type of growing environment where the fern is found in the wild.

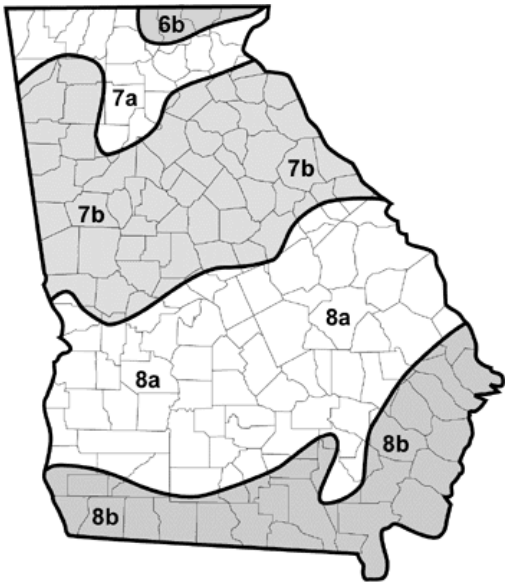
Native to: The broad geographic area where the plant naturally occurs. Georgia has three geographical regions: Mountains, Piedmont and Coastal Plain. Plant distribution is sometimes described in terms of these geographical regions.

Comments: Additional noteworthy information about the plant.

Images: Page showing images of the plant.

Average annual minimum temperature ranges	
Zone	**Range in degrees Fahrenheit**
6b	-5 to 0
7a	0 to 5
7b	5 to 10
8a	10 to 15
8b	15 to 20

Figure 8. Cold-Hardiness Zones in Georgia



The Spleenwort Family - *Aspleniaceae*

The Spleenworts are a large genus of small, culturally challenging, promiscuous ferns, mostly suited for moist, shaded rock gardens. While most are tropical epiphytes in this hemisphere, the temperate species grow mostly in sandstone, limestone or granite rock crevices.

Fifteen Spleenwort species and several hybrids are native to Georgia. Most are either rare or endangered. Four of the most common species in Georgia are described below.

Mountain Spleenwort / *Asplenium montanum*

Characteristics: Fronds are numerous, drooping, delicate, bluish-green and evergreen. There are four to seven pairs of pinnae on short stalks. They are pinnate at the base of the rachis, and pinnatifid at the top of the rachis. The rachis is broad, green, flat and winged at the apex. The rhizome is short-creeping, dark and wiry, often obscured by old stipe bases. The stipe is ¾-inch to 2 inches long, brown below and green above.

Landscape uses: Mountain Spleenwort is always associated with rocks, growing next to or tucked tightly into non-calcareous rock crevices. Use this small, delicate plant in a shaded rock garden.

Size: 3 to 5 inches high

Zones: 4 to 7

Habitat: Acidic soils in shaded, non-calcareous rock crevices.

Native to: North Georgia Mountains, northward into Ohio and Massachusetts.

Comments: Slugs can be a problem. Mountain Spleenwort is somewhat difficult to cultivate due to its requirement for a rocky environment.

Images: Page 16

Ebony Spleenwort / *Asplenium platyneuron*

Characteristics: Slender, pinnate fronds are either fertile or sterile. Fertile fronds arise from the center of the plant. They are erect and remain green late into the season. The arching, evergreen sterile fronds are shorter than the fertile fronds, and are spreading, flat and have light-green pinnae. The stipe and rachis are deep reddish brown to black. The rootstock is short-creeping.

Landscape uses: Ebony Spleenwort is the most adaptable and easy to cultivate of this genus, growing equally well on red clay banks, disturbed or open woodlands, dry forests or in rock crevices. It is adaptable to either acidic or calcareous soils, provided they are well-drained.

Size: 10 to 18 inches high and slowly spreading to a 6-inch clump

Zones: 4 to 8

Habitat: Disturbed or open woodlands and rock crevices.

Native to: All of Georgia, except the southeastern Coastal Plain. It ranges from Maine to Michigan, south to Texas and Florida.

Comments: One of the most widely available spleenworts in the trade. It is sensitive to overwatering. Slugs can be a problem.

Images: Page 16

Black-stemmed Spleenwort / *Asplenium resiliens*

Characteristics: Fronds are slender, leathery and dark green, with a short stipe. Pinnae are opposite, oblong in shape with blunt tips and smooth margins. The stipe and rachis are black and shiny.

Landscape uses: Use this fern in a shady, moist, calcium-rich environment. Tuck it into pockets between limestone slabs or rocks.

Size: 6 to 12 inches high and 6 inches wide

Zones: 6 to 9

Habitat: Crevices in shaded calcareous rocks.

Native to: Subtropical America, northward to Arizona, east to Missouri and southern Pennsylvania. Found in limestone valleys of northwestern Georgia and also in the Coastal Plain.

Comments: Black-stemmed Spleenwort resembles Maidenhair Spleenwort (*A. trichomanes*) in appearance, but is slightly larger. Slugs can be a problem.

Images: Page 17

Maidenhair Spleenwort / *Asplenium trichomanes*

Characteristics: Narrow, arching, evergreen fronds are in scale with the size of the plant, and the combination of medium green pinnae with a dark red rachis create a delicate contrast. Pinnae are small (1/4-inch long), rounded to oblong in shape, and have wavy margins.

Landscape uses: This small fern is a great addition to a moist, shaded rock garden. Plant it in rock crevices.

Size: 3 to 5 inches high and 3 to 6 inches wide

Zones: 2 to 8

Habitat: Shaded, damp rock crevices.

Native to: Newfoundland to Ontario, south to Oklahoma, Louisiana, Tennessee and the Piedmont and mountain areas of Georgia.

Comments: Somewhat difficult to cultivate since it prefers rock crevices.

Images: Page 17

The Mosquito Fern Family - *Azollaceae*

Carolina Mosquitofern / *Azolla caroliniana*

Carolina Mosquitofern has had an enormous economic impact on agriculture due to its relationship to rice culture. A blue-green alga, capable of fixing nitrogen, grows between its leaves. The rice industry has depended on this fern for the algae that provide nutrients that allow rice to grow. However, Mosquitofern has invasive potential in aquatic environments and is not recommended for culture. It is included in this publication because it is native, and because it has played an historical role in American agriculture.

Images: Page 17

The Chain Fern Family - *Blechnaceae*

Genus *Woodwardia* – Chain Ferns

The common name "chain fern" refers to the characteristic elongated sori arranged like links in a broken chain along the pinnule or segment midveins (see line drawing on page 18). Two species occur in Georgia: Netted Chain Fern and Virginia Chain Fern, both of which appreciate a moist, shaded habitat.

Netted Chain Fern / *Woodwardia areolata*

Characteristics: This fern has both sterile and fertile fronds. The sterile fronds have wide pinnae that are fused at the winged rachis. The pinnae alternate along the rachis. The veins within the pinnae are conspicuously netted (see line drawing p. 18). Fertile fronds are taller and emerge in late summer. Their pinnae are linear, alternate and widely spaced. The sori fill the underside of the pinnae and are arranged in long chains. The rhizome is long-creeping and branching.

Landscape uses: Netted Chain Fern forms new growth constantly from its rhizome. It pops up quickly in the spring. It is a good choice for a moist, partially shaded garden. It spreads slowly and is easy to keep within bounds.

Size: 12 to 28 inches high and 2 to 3 feet wide

Zones: 5 to 9

Habitat: Wet to moderately dry soils. Also found in acidic soils of swampy woods, along streams, or near wet, shaded rocks.

Native to: Southeastern North America, especially coastal areas. It is one of the most widespread ferns in Georgia, with good distribution throughout the state.

Comments: Netted Chain Fern can be confused with the more aggressive Sensitive Fern (*Onoclea sensibilis*). Sensitive Fern has wavy blade margins, while Netted Chain Fern has tiny teeth along its margins. Also, Sensitive Fern frond segments are opposite along the rachis while those of Netted Chain Fern tend to be alternate.

Images: Page 18

Virginia Chain Fern / *Woodwardia virginica*

Characteristics: Fronds are 18 to 48 inches long. They emerge in rows from a long-creeping rhizome. Fronds are coarse, lustrous, leathery and deciduous. Fertile fronds appear in summer and have a shiny dark brown stipe. The blade is pinnate-pinnatifid, widest at the base with alternate pinnae. The sori are chainlike, linear and arranged parallel to the frond's mid-vein.

Landscape uses: In deep shade, this fern has a rambling nature, with arching fronds in rows about 1 foot apart. In a sunny location, the fronds become more clustered, erect and stiff. It orients its foliage toward the prevailing light. Plant it in wet areas.

Size: 2 to 3 feet long and 3 to 4 feet wide

Zones: 4 to 9

Habitat: Moist to wet, acidic, organic soils like bogs, blackwater bottomlands, pocosins and flooded coastal depression ponds.

Native to: Nova Scotia west to Michigan and Illinois, south to Texas and Florida. In Georgia, it is common in the Coastal Plain and occurs sporadically above the fall line.

Comments: Moderately easy to cultivate under the right conditions.

Images: Page 18

The Bracken Family – *Dennstaedtiaceae*

Eastern Hay-scented Fern / *Dennstaedtia punctilobula*

Characteristics: Airy fronds are bipinnate to bipinnate-pinnatifid, oval-oblong in outline, yellow-green in color and thin-textured. The stipe is 4 to 12 inches long, shiny and reddish-brown to brown. The sori are cylindrical in shape and borne in distinctive cup-like indusia at the leaf margins. Dense rhizomes spread rapidly and out-compete other plants where there is some disturbance.

Landscape uses: Hay-scented fern is aggressive, so use it with caution. It does not make a good companion planting for other herbaceous plants, because it out-competes them for space. It tends to spread too rapidly for use in smaller gardens, but it is attractive and requires little care in large gardens where there is plenty of room. Use it adjacent to large rocks where it softens their harsh lines and fills in vacant spaces.

Size: 15 to 24 inches long and 3 to 4 feet wide

Zones: 3 to 8

Habitat: Uplands and hillsides in moderate shade and along edges of woods and streams.

Native to: Eastern North America, southward to Arkansas and northern Georgia. It is common in the northern Georgia mountains, and is found as far south as Fulton and DeKalb counties.

Comments: The common name refers to the smell of new-mown hay released when the fronds are crushed or bruised. Deer avoid Hay-scented Fern, probably because of its odor.

Images: Page 19

Bracken Fern / *Pteridium aquilinum*

Bracken Fern is included here because it is one of the most widespread ferns in North America. In the U.S., only Nebraska lacks populations of Bracken Fern. It also grows throughout tropical America, Eurasia, Australia and parts of Africa. However, it is invasive and poisonous to humans and livestock, so it is not recommended for culture.

Images: Page 19

The Wood Fern Family - *Dryopteridaceae*

Genus *Dryopteris* – Wood Ferns

Wood Fern species are numerous in Georgia. Wherever two or more Dryopteris species are growing together, there is a good chance hybrids will be present; therefore, there is a great deal of taxonomic confusion within this genus. Eight species are found in Virginia, North and South Carolina, and Georgia

The Wood Fern family includes many garden-worthy ferns. They are strong clumpers and moderately slow growers, sending up one flush of new fronds each year. They have few problems in a garden when provided with moist, rich, well-drained woodland soil.

Log Fern / *Dryopteris celsa*

Characteristics: Fronds are 3 to 4 feet long with an oblong blade, slightly narrowed at the base and gradually tapering at the tip. Sori are round, located near the midveins and have kidney-shaped indusia.

Landscape uses: Log Fern is a vigorous and easy fern to grow. It needs consistent moisture, especially when grown in sunny areas. Woody debris or a rotted log make good planting substrates.

Size: 2 to 4 feet high and 2 to 3 feet wide

Zones: 5 to 9

Habitat: Wet slopes, hammocks and swamps with calcareous soils.

Native to: New Jersey, Pennsylvania to Kentucky, Missouri, south to Louisiana, Alabama, South Carolina and northwestern Georgia.

Comments: This fern is a hybrid resulting from a cross between Goldie's Wood Fern (*D. goldiana*) and Southern Wood Fern (*D. ludoviviana)*.

Images: Page 19

Crested Wood Fern / *Dryopteris cristata*

Characteristics: Fronds are narrowly oblong and pinnate-pinnatifid, 15 to 30 inches long. The pinnae are narrowly triangular, broadest near the rachis. Erect fertile fronds have pinnae turned at right angles to the plane of the frond, like an open venetian blind. The shorter, sterile fronds are evergreen, bluish-green and arching. The rootstock and stipe are clothed in light brown scales.

Landscape uses: Plant Crested Wood Fern in moist soil, rich in organic matter. Planting it on a moist bottomland site adjacent to a stream or pond is ideal. It needs plenty of moisture, particularly when grown in sun.

Size: 16 to 30 inches high and 6 to 12 inches wide

Zones: 3 to 7

Habitat: Marshes, bogs and swamps. It prefers acidic soils.

Native to: Northeastern North America, Alabama, Tennessee, North Carolina and one Georgia county (Fulton).

Comments: Georgia is at the southern limit of its growing range. Crested Wood Fern is rare in Georgia, but it is included here because it is worthy of landscape culture.

Images: Page 20

Goldie's Wood Fern, Giant Wood Fern / *Dryopteris goldiana*

Characteristics: A large, imposing specimen with broad, bipinnate, lustrous, golden-green fronds supported by stout stipes that are thickly covered in rusty brown hair-like scales. The fronds are 12 to 48 inches long. Pinnae are alternate, with fine marginal teeth. Sori are in two rows, close to the midvein.

Landscape uses: Goldie's Wood Fern is a slow growing, clumping fern for woodland plantings. It looks good rising above groundcovers, such as goldenseal or wildflowers.

Size: 3 to 4 feet high and 28 to 38 inches wide

Zones: 3 to 7

Habitat: Rich woods and ravines.

Native to: New Brunswick to Quebec to Minnesota, south through the Appalachians to Alabama, Georgia and North Carolina. In Georgia it is found in four northeastern mountain counties.

Comments: John Goldie, a nineteenth century British traveler, discovered this plant near Montreal. It was subsequently named in his honor. Goldie's Wood Fern is the largest of our native *Dryopteris* species.

Images: Page 20

Evergreen Wood Fern, Fancy Fern / *Dryopteris intermedia*

Characteristics: Fronds are finely dissected, lacy, dark green and glossy, 15 to 36 inches long. They are oval to narrowly triangular and bipinnate-pinnatifid to tripinnate. The stipe is covered with light brown scales. Sori are round and covered by kidney-shaped indusia.

Landscape uses: Use Fancy Wood Fern as a single specimen or in a mass planting. It does well in a moist, shady, woodland garden with acid to neutral soil.

Size: 18 to 36 inches high.

Zones: 3 to 8

Habitat: Rocky areas within cove forests.

Native to: Newfoundland west to Minnesota, south to north Georgia and Alabama.

Comments: Its large, lacy fronds make a dramatic statement in the landscape.

Images: Page 20

Southern Wood Fern / *Dryopteris ludoviciana*

Characteristics: Long, evergreen fronds are dark green, lustrous and leathery. Fertile pinnae are much narrower than sterile pinnae. Prominent veins run to the edges of tooth pinnules. Round sori, covered by kidney-shaped indusia, are borne on the upper half of the fertile blade.

Landscape uses: Southern Wood Fern makes an impressive sight in a shady fern garden with its tall, slender, glossy, dark-green fronds. The rhizomes branch readily, so a single plant will become 2 to 3 feet wide in several years.

Size: 3 to 4 feet high and 2 to 3 feet wide

Zones: 6 to 9

Habitat: Swamps and hammocks, damp woods, shaded limestone outcrops and edges of cypress swamps in the Coastal Plain.

Native to: North Carolina, southward and westward along the Coastal Plain to central Florida, Georgia, Alabama, Arkansas, Louisiana and Texas. In Georgia, it is found south of the fall line, mainly in southwestern counties.

Comments: The species name *ludoviciana* means "of Louisiana," where it was first discovered in the early 1800s.

Images: Page 21

Marginal Woodfern / *Dryopteris marginalis*

Characteristics: Evergreen fronds are lance-shaped, bipinnate-pinnatifid, leathery and bluish-green. The Marginal Woodfern rhizome is a low, broad, erect crown, densely covered with light brown scales. It tends to form a large, single-crowned specimen. Sori are prominent at the blade margins.

Landscape uses: This is the most drought-tolerant of the Wood Ferns. Plant it in shady areas, with its roots under a rock.

Size: 16 to 24 inches high and 18 to 24 inches wide

Zones: 2 to 7

Habitat: Rocky shaded ledges, rocky wooded slopes and rich, moist woodlands.

Native to: Ontario to Michigan, south to Oklahoma and northern Georgia. In Georgia, Marginal Woodfern is found in most of north Georgia, and as far south as Panola Mountain State Park in Rockdale County.

Comments: This tough plant is easy to cultivate.

Images: Page 21

DIxie Wood Fern, Hybrid Wood Fern / *Dryopteris X australis*

Characteristics: Fronds are dark green, slender, leathery and lustrous. They are widest in the middle and taper toward both ends. The stipe is covered with brown scales. The sori are arranged in rows parallel to the mid-vein.

Landscape Uses: Dixie Wood Fern should do well in average garden soil and shade but needs moist, rich humus to attain its full potential.

Size: 3 to 4 feet high and 2 to 3 feet wide

Zones: 5 to 9

Habitat: Swamps, hammocks and moist woodlands.

Native to: New York to Virginia, and south to Georgia and Louisiana.

Comments: Dixie Wood Fern is a sterile hybrid between Log Fern (*D. celsa*) and Southern Wood Fern (*D. lucoviciana*).

Image: Page 21

Genus *Polystichum* – Christmas Fern

Christmas Fern / *Polystichum acrostichoides*

Characteristics: Fronds are 12 to 28 inches long and lustrous green. The sterile fronds are shorter than the fertile fronds. The blade is lanceolate, pinnate and widest above the base. Pinnae are ½-inch wide, short-stalked, with bristle-toothed margins. Fertile pinnae are much narrower and smaller than sterile pinnae. Sori are round, usually in rows on each side of the midvein.

Landscape uses: Christmas Fern is very adaptable and does well in moist woodland gardens, among rocks and on shady red clay slopes. The rhizome can be dug and carefully divided to create more plants. Good drainage is essential, especially in the winter. It is easy to cultivate.

Size: 8 to 16 inches high and 14 to 24 inches wide

Zones: 3 to 10

Habitat: Moist woodlands, shaded slopes and ravines.

Native to: Abundant throughout eastern North America. It is one of the most common ferns in Georgia, except in the pine flatwoods of the southeastern part of the state.

Comments: Early New England settlers used this fern for Christmas decorations.

Images: Page 21

Genus *Woodsia* – Cliff Ferns

Common Woodsia, Blunt-lobed Woodsia, Cliff Fern / *Woodsia obtusa*

Characteristics: Fronds are clustered, gray-green and delicate. Fertile fronds are deciduous, while sterile fronds are evergreen. The stipe is 4 to 8 inches long and has conspicuous scales. The blade is widest near the middle. The rootstock is short-creeping. Sori are round and located at the leaf margins. Indusia are split and have a star-like appearance.

Landscape uses: This fern is easily grown in a mixed garden or rock garden in sun to partial shade with well-drained to slightly acid soil. The blades are more upright and thicker in sun than in shade. Dead fronds can be carefully clipped if the plants look untidy.

Size: 3 to 8 inches high and 3 to 6 inches wide

Zones: 3 to 9

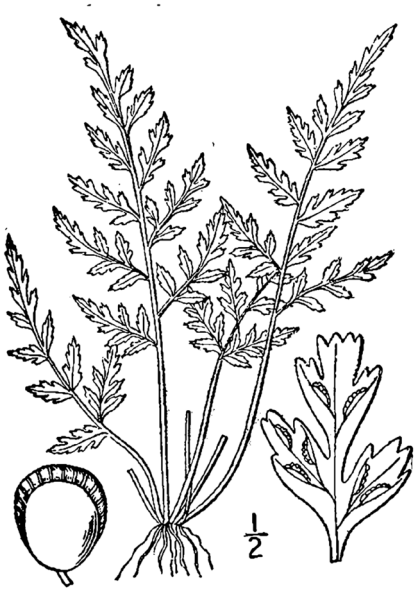
Habitat: Acidic or calcareous cliffs, granite outcrop edges, and well-drained rocky slopes in shaded woodlands.

Native to: Maine to Quebec and Ontario to Minnesota, south to Texas and Florida. It is found throughout Georgia, especially in the northern part of the state.

Comments: Relatively easy to cultivate.

Images: Page 22

Mountain Spleenwort / *Asplenium montanum*

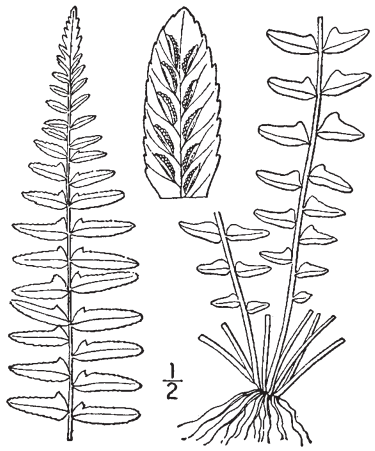


N.L. Britton and A. Brown
USDA-NRCS PLANTS Database

Tom Goforth

Troy Evans
Eastern Kentucky University,
Bugwood.org

Ebony Spleenwort / *Asplenium platyneuron*



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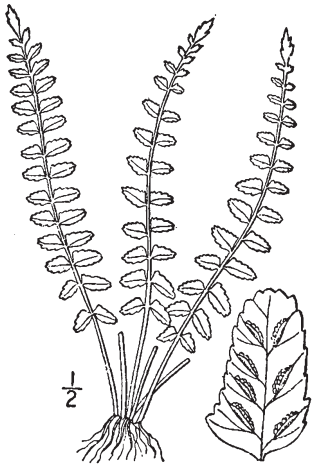
Ted Bodner
Southern Weed Science Society
Bugwood.org

Tom Goforth

Ed McDowell

Sori on fertile frond
Patrick J. Alexander
USDA-NRCS PLANTS Database

Black-stemmed Spleenwort / *Asplenium resiliens*



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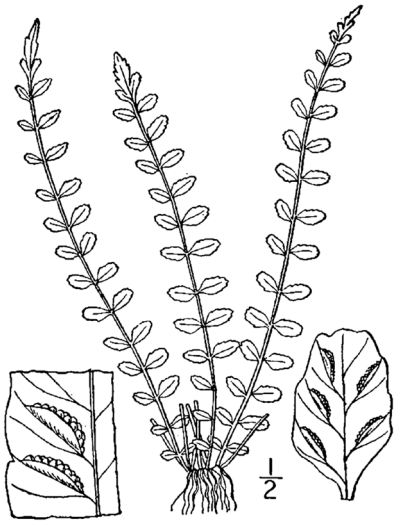
Sori
Patrick J. Alexander
USDA-NRCS PLANTS Database

Maidenhair Spleenwort / *Asplenium trichomanes*



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Thomas G. Barnes
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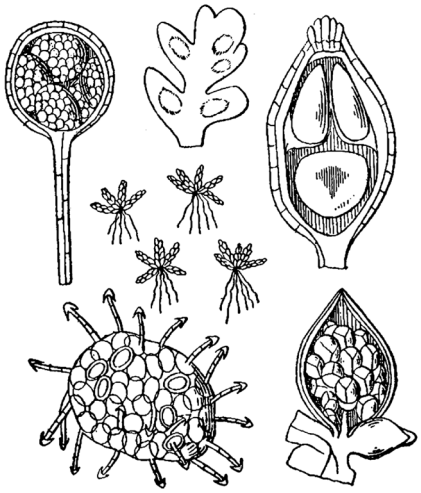
Close-up of leaf with sori
Patrick J. Alexander
USDA-NRCS PLANTS Database

Carolina Mosquitofern / *Azolla caroliniana*



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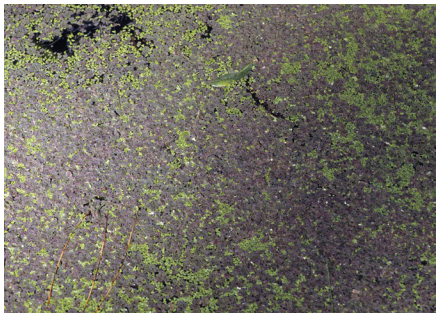
USDA-NRCS PLANTS Database



Gil Nelson

Gil Nelson

Netted Chain Fern / *Woodwardia areolata*

N.L. Britton and A. Brown
USDA-NRCS PLANTS Database

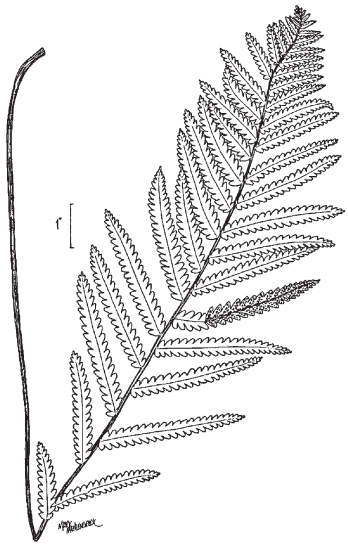
Fertile frond with sori
Robert H. Mohlenbrock
USDA-NRCS PLANTS Database

Tom Goforth

Chris Evans
River to River CWMA, Bugwood.org

Robert H. Mohlenbrock
USDA-NRCS PLANTS Database

Virginia Chain Fern / *Woodwardia virginica*



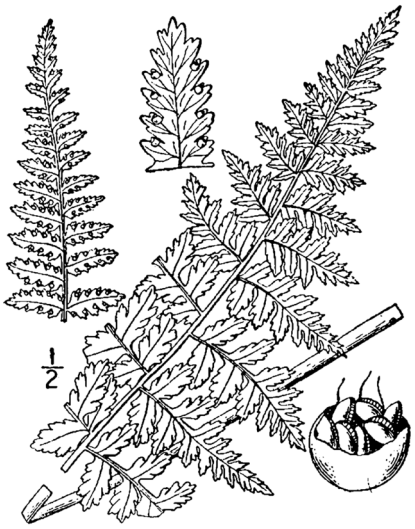
USDA-NRCS PLANTS Database

Gil Nelson

Gil Nelson

Chris Evans
River to River CWMA, Bugwood.org

Eastern Hay-scented Fern / *Dennstaedtia punctilobula*



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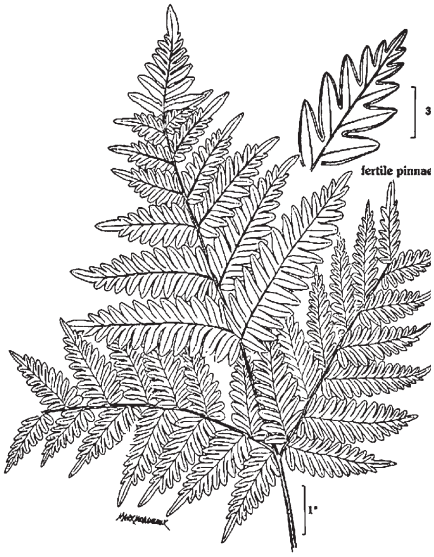
Bracken Fern / *Pteridium aquilinum*



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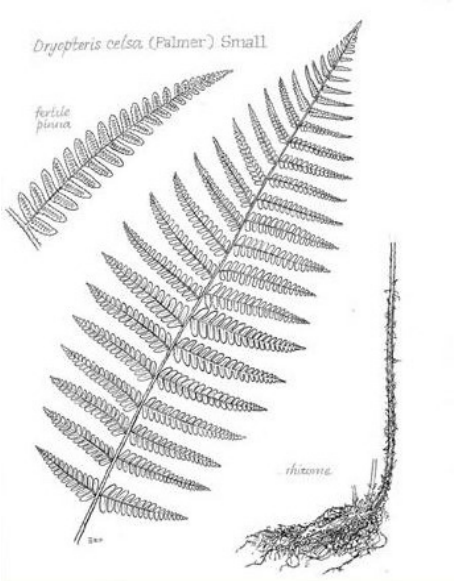
Tom Goforth

Log Fern / *Dryopteris celsa*



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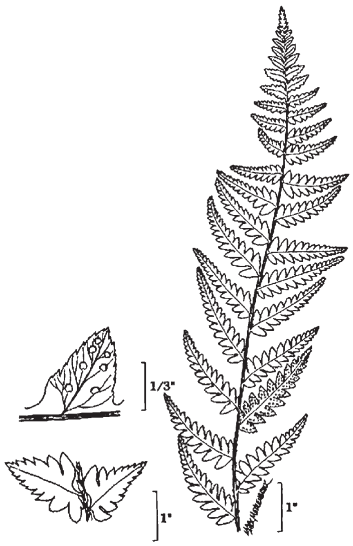
Crested Wood Fern / *Dryopteris cristata*



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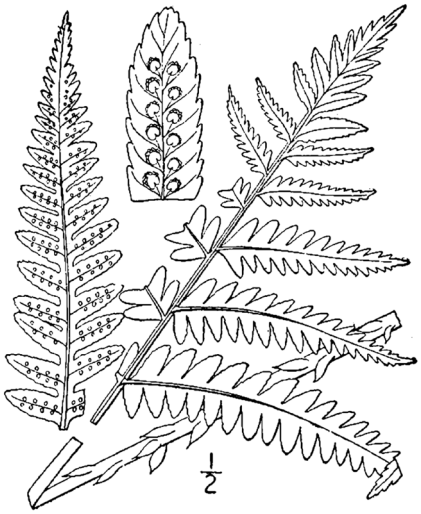
Goldie's Wood Fern, Giant Wood Fern / *Dryopteris goldiana*



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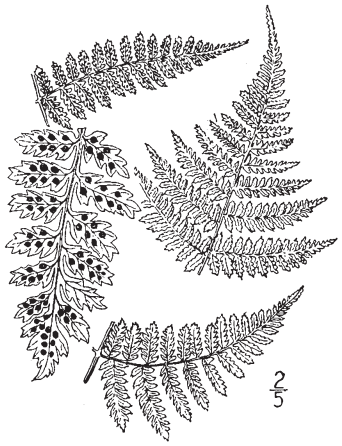
Evergreen Wood Fern, Fancy Fern / *Dryopteris intermedia*



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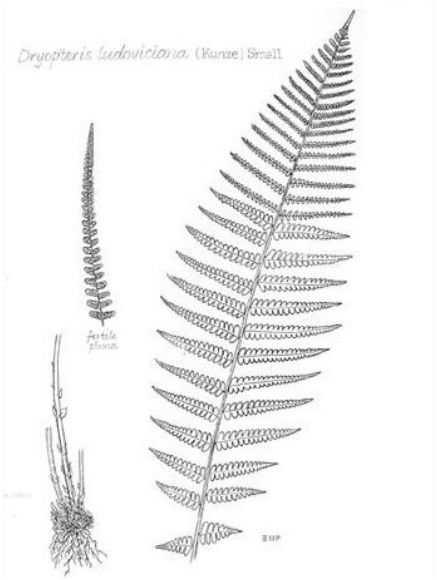
Southern Wood Fern / *Dryopteris ludoviciana*



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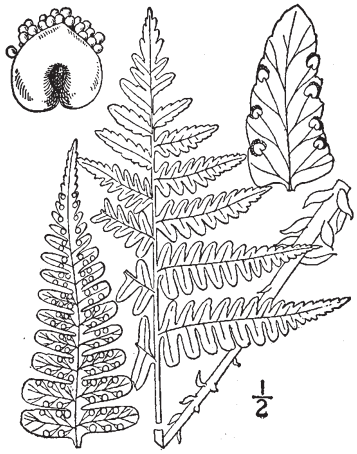
Gil Nelson

Gil Nelson

Marginal Woodfern / *Dryopteris marginalis*



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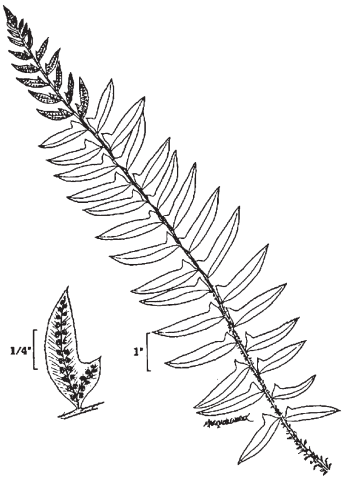
Chris Evans
River to River CWMA, Bugwood.org

Dixie Wood Fern, Hybrid Wood Fern / *Dryopteris X australis*

Ed McDowell

Christmas Fern / *Polystichum acrostichoides*



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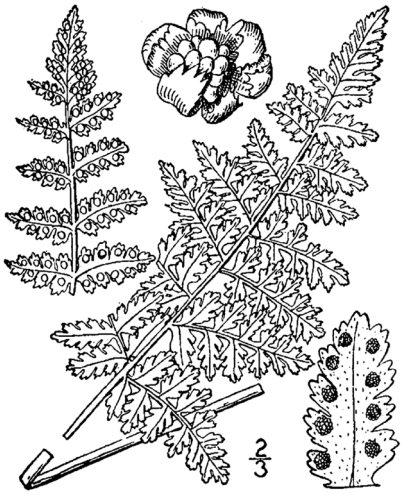
Ed McDowell

James H. Miller
USDA Forest Service, Bugwood.org

Common Woodsia, Blunt-lobed Woodsia, Cliff Fern / *Woodsia obtusa*



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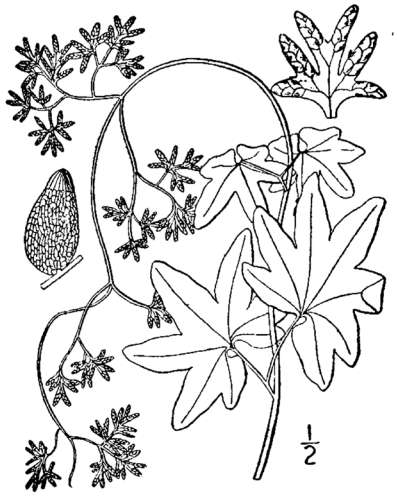
Ed McDowell

Climbing Fern, Hartford Fern / *Lygodium palmatum*



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Troy Evans
Eastern Kentucky University
Bugwood.org

Tom Goforth

Thomas G. Barnes
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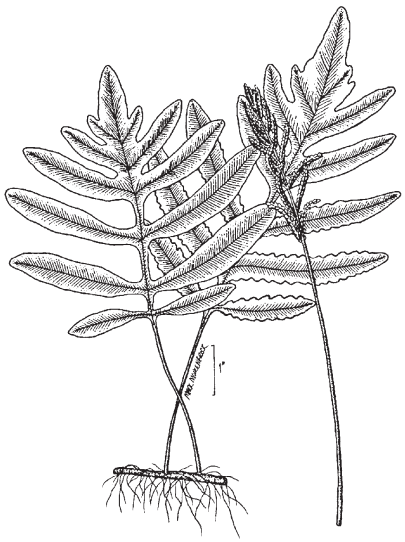
Ed McDowell

Sensitive Fern / *Onoclea sensibilis*



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Robert H. Mohlenbrock
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River to River CWMA, Bugwood.org

Rattlesnake Fern / *Botrypus virginianum*

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Patrick J. Alexander
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Chris Evans
River to River CWMA, Bugwood.org

Tom Goforth

Southern Grapefern / *Sceptridium biternatum* (Syn. *Botrychium biternatum*)

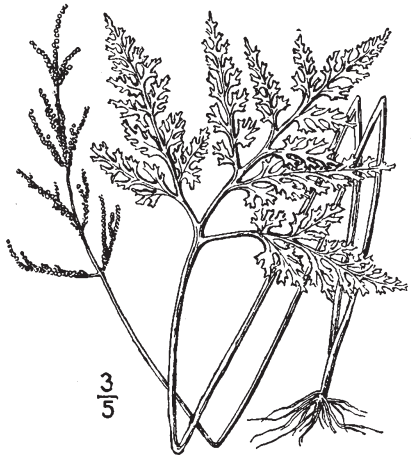
Hugh Nourse

Alabama Grapefern / *Sceptridium jenmanii* (Syn. *Botrychium jenmanii*)

A. Murray Evans and
B. Eugene Wofford
UTK Herbarium

A. Murray Evans and
B. Eugene Wofford
UTK Herbarium

Cut-leaf Grapefern or Dissected Grapefern / *Sceptridium dissectum* (Syn. *Botrychium dissectum*)



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USDA-NRCS PLANTS Database

Gil Nelson

Ed McDowell

Thomas G. Barnes
USDA-NRCS PLANTS Database

Winter Grapefern / *Sceptridium lunarioides* (Syn. *Botrychium lunarioides*)

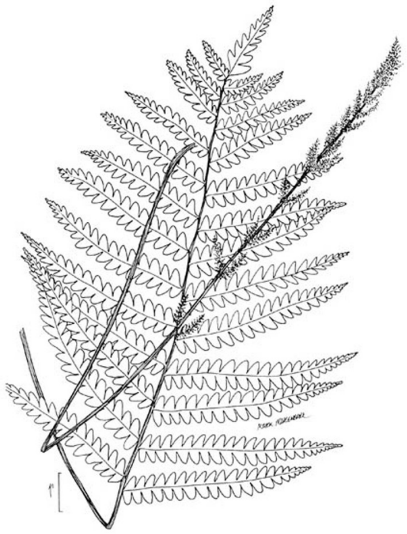
Warren D. Hauk
Department of Biology,
Denison University

Genus *Ophioglossum* – Adders-tongue Ferns

Common Adders-tongue Fern, *Ophioglossum vulgatum* (Syn. *O. pyncnostichum*)
Hugh Nourse

Bulbous Adders-tongue Fern, *Ophioglossum crotalophoroides*
Gil Nelson

Cinnamon Fern / *Osmunda cinnamomea*



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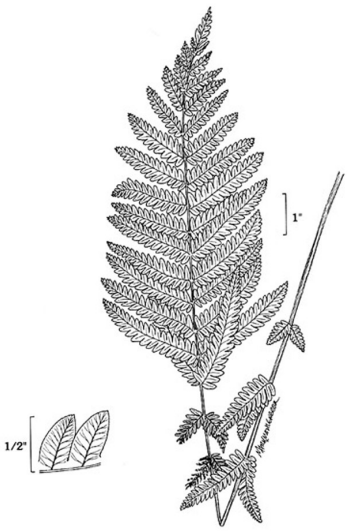
R.A. Howard
USDA-NRCS PLANTS Database

Tom Goforth

Interrupted Fern / *Osmunda claytoniana*



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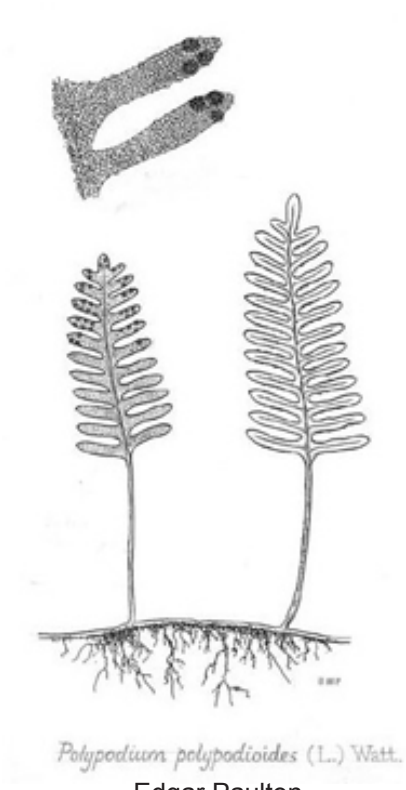
Royal Fern / *Osmunda regalis*

Chris Evans
River to River CWMA, Bugwood.org

Troy Evans
Eastern Kentucky University
Bugwood.org

Jeff McMillian
USDA-NRCS PLANTS Database

Resurrection Fern / *Pleopeltis polypodioides*



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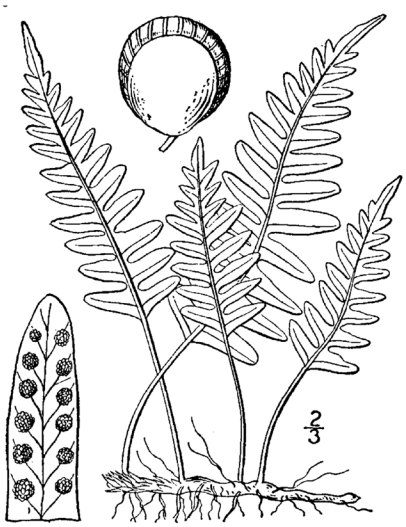
Tom Goforth

Common Rockcap Fern, Rock Polypody / *Polypodium virginianum*



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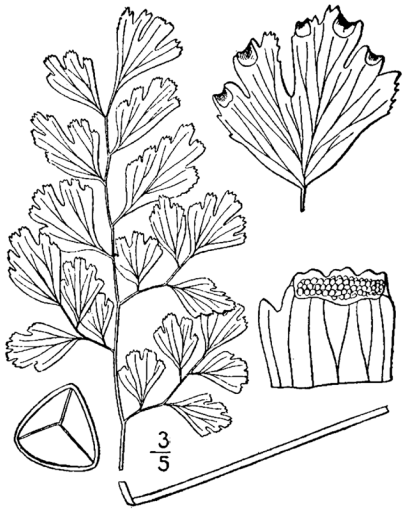
Southern Maidenhair Fern, Venus Hair Fern / *Adiantum capillus-veneris*



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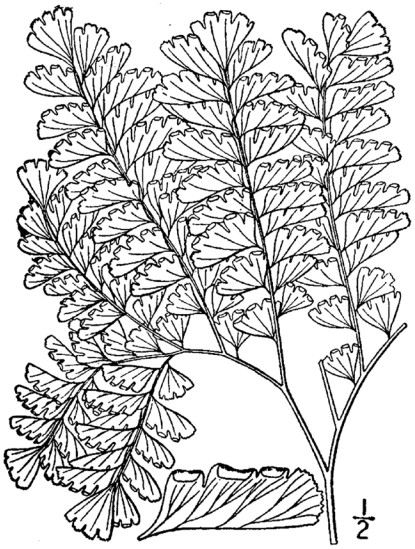
Gil Nelson

Ogden Archive

Northern Maidenhair Fern, Five-finger Fern / *Adiantum pedatum*



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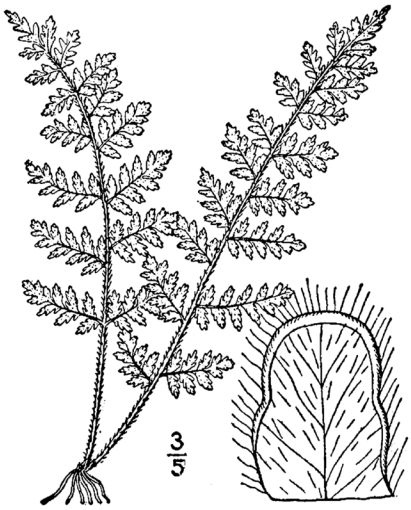
Hairy Lip-fern / *Cheilanthes lanosa*



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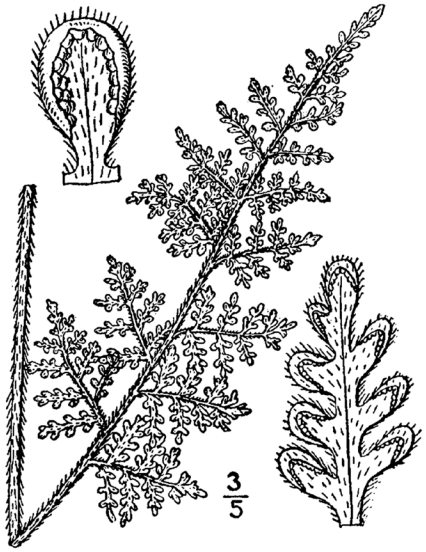
Woolly Lip-fern / *Cheilanthes tomentosa*



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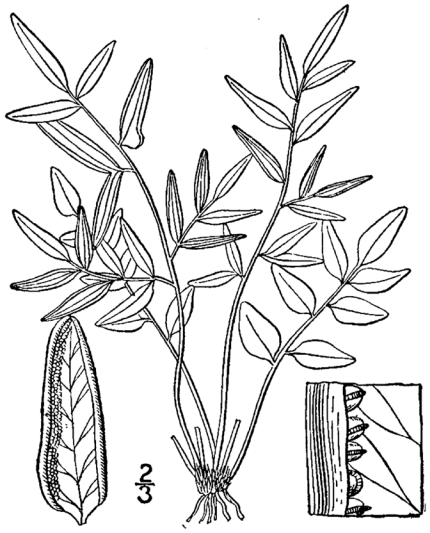
Purple Cliff-brake Fern / *Pellaea atropurpurea*



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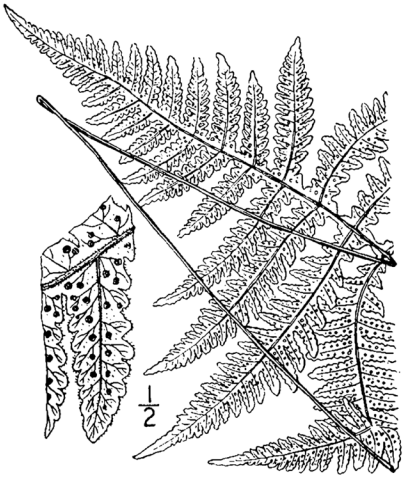
Broad Beech Fern / *Phegopteris hexagonoptera*



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Tom Goforth

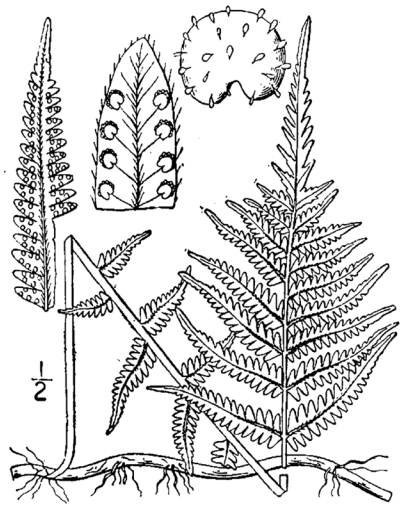
John Triana
Regional Water Authority, Bugwood.org

Southern Maiden Fern / *Thelypteris kunthii*

Gil Nelson

Sori
Gil Nelson

New York Fern / *Thelypteris noveboracensis* (syn. *Parathelypteris noveboracensis*)



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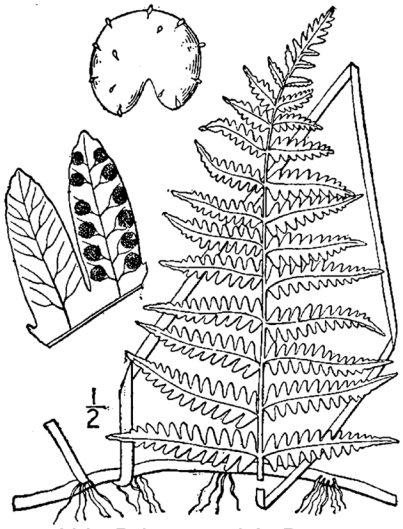
Marsh Fern / *Thelypteris palustris* var. *pubescens*



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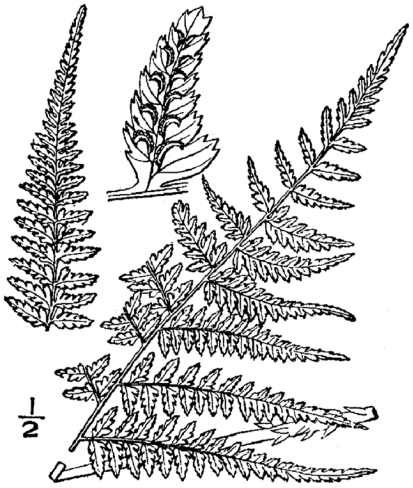
Gil Nelson

Gil Nelson

Ovate Maiden Fern / *Thelypteris ovata* var. *ovata* (syn. *Cristella ovata*, var. *ovata*)

Gil Nelson

Southern Lady Fern / *Athyrium asplenioides* (syn. *A. felix-femina* var. *asplenioides*)



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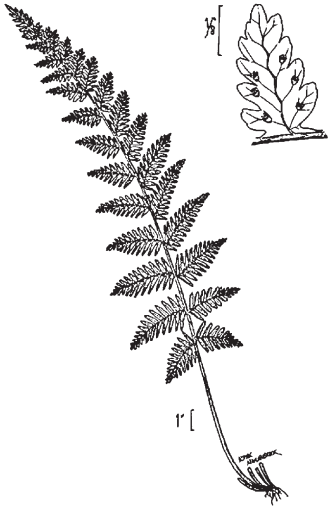
River to River CWMA, Bugwood.org

Ed McDowell

Tom Goforth

Sori
Ed McDowell

Bulblet Bladder Fern / *Cystopteris bulbifera*



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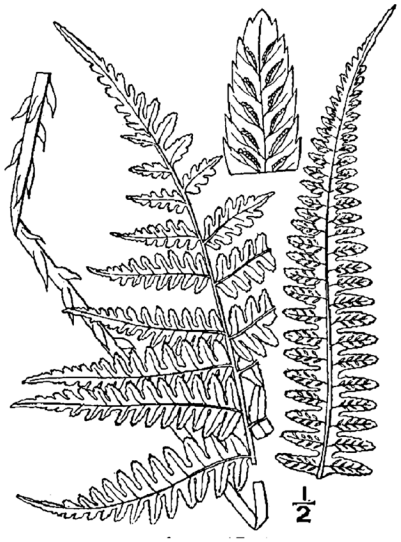
Woodland Fragile Fern, Lowland Brittle Fern / *Cystopteris protrusa*

V. Fulford
hardyfernlibrary.com

Tom Goforth

Silvery Spleenwort / *Deparia acrostichoides*



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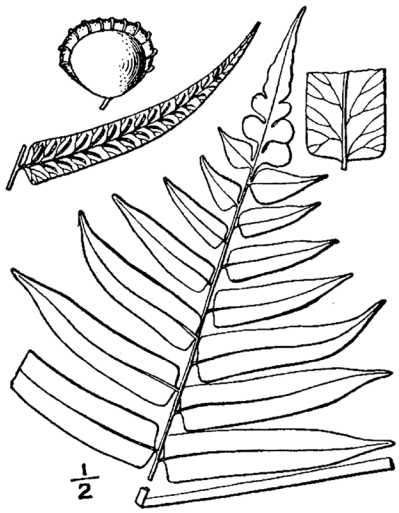
Glade Fern / *Diplazium pycnocarpon* (syn. *Athyrium pycnocarpon*)



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Troy Evans
Eastern Kentucky University
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The Climbing Fern Family – *Lygodiaceae*

Genus *Lygodium* – Climbing Ferns

There are two subtropical ferns in this genus, Japanese Climbing Fern (*Lygodium japonicum*) and Old World Climbing Fern (*L. microphyllum*), that have become serious invaders in Florida and the Gulf Coast states, as well as in Georgia. The shipment of pine straw out of Florida's infested areas is rapidly spreading these exotic pests. The native climbing fern (*Lygodium palmatum*) is not invasive like the subtropical species.

Climbing Fern, Hartford Fern / *Lygodium palmatum*

Characteristics: Fronds have pinnae every few inches that fork into two hand-shaped leaflets, each with three to seven fingers. The fronds are trailing and twining, attaching to supports. Those that fail to find a support bend over and creep along the ground. The spreading divisions of the sterile pinnules look like fingers of a hand. The fertile pinnae are smaller than the sterile pinnae and are on the upper part of the frond. The stipe is wiry and brownish-green, and the rachis is straw-colored.

Landscape uses: Climbing fern is a slow grower and difficult to cultivate or transplant. It needs moisture, physical support and abundant light.

Size: 3 to 4 feet high and 2 to 3 feet wide

Zones: 3 to 9

Habitat: Moist woodlands and thickets, wet slopes, sandy bogs with acidic soils rich in humus.

Native to: New Hampshire to New York, south to Louisiana and Georgia. In Georgia, it is only found in the northern part of the state, and populations are limited.

Comments: The genus name *Lygodium* comes from a Greek word meaning flexible and refers to the twining leaf-rachis. This is the only temperate member of this genus and our only native climbing fern. Climbing Fern was ruthlessly exploited during the nineteenth century for Christmas greenery and almost became extinct where it was once abundant. William Bartram, in his travels through Georgia, is thought to have seen climbing fern not far from Athens, Ga., between the Broad and Oconee rivers.

Images: Page 22

The Sensitive Fern Family - *Onocleaceae*

Sensitive Fern / *Onoclea sensibilis*

Characteristics: Sterile fronds have green or reddish stipes with pinnae opening to resemble a cupped hand. Fully expanded fronds are triangular. By late summer, fertile fronds arise from the light green mass of fine-textured sterile fronds. Sori are contained in bead-like structures on the ends of the fertile fronds.

Landscape uses: Use Sensitive Fern either as a specimen in a mass planting or as a groundcover around water or in wet areas. It grows in many locations, but it prefers wet soils and partial sun. It can be aggressive.

Size: 10 to 24 inches high and 2 to 3 feet wide

Zones: 2 to 10

Habitat: Roadside ditches, wet meadows or openings, swamp margins, wet, low woods and forests.

Native to: Newfoundland to Manitoba south to Texas and Florida. In Georgia, it is found throughout the state, but less frequently in the southeastern Coastal Plain.

Comments: The common name for this fern stems from the fact that it is sensitive to frost. The sterile fronds closely resemble those of Netted Chain Fern (*Woodwardia areolata*). However, Sensitive Fern fronds have smooth margins while those of Netted Chain Fern are finely toothed.

Images: Page 23

The Adder's Tongue Family – *Ophioglossaceae*

Genus *Botrypus* – Rattlesnake Ferns

Rattlesnake Fern / *Botrypus virginianum*

Characteristics: Usually, there are two distinct fronds: an arching divided sterile frond and an erect fertile frond. Fertile fronds arise from the base of the sterile fronds. The rhizome is subterranean, erect and fleshy, with thick, fleshy roots. Clusters of sporangia on the fertile fronds look like rattles on a snake. The fern is deciduous and disappears in the winter.

Landscape uses: Rattlesnake Fern does best in moist organic soils and filtered shade. Clip back woody vegetation regularly to keep it under control.

Size: 5 to12 inches tall and 8 to 18 inches wide

Zones: 4 to 9

Habitat: Moist deciduous woodlands.

Native to: Much of North America, Europe and Asia. In Georgia, it is found mostly in the northern half of the state and sporadically in southwestern and south central areas.

Comments: Slugs and snails are very fond of this fern. Cultivation is difficult. Rattlesnake Fern shares the same peculiar life cycle as the *Sceptridiums*, and is therefore difficult to cultivate or transplant.

Images: Page 23

Genus *Sceptridium* – Grapeferns

While most ferns are easily recognizable, the Grapeferns (*Sceptridium*) don't look like ferns when encountered for the first time. Although they are peculiar looking, they are ferns with an ancient lineage. Grapeferns get their name from the clustered sporangia on the fertile fronds, which resemble a cluster of grapes.

Grapeferns are difficult to cultivate by division or spores. The spores germinate only in a dark underground environment in the presence of a specific (unidentified) mycorrhizal fungus. Any attempt at transplantation will not succeed if the soil does not harbor the right mycorrhizal fungus. Therefore, they are listed below without cultural information.

Three Grapefern species and one fertile hybrid are native to Georgia: Southern Grapefern, Alabama Grapefern, Cut-leaf Grapefern and Winter Grapefern.

Southern Grapefern / *Sceptridium biternatum* (Syn. *Botrychium biternatum*) is found in moist forests, clearings and old fields. Fronds appear from August to October.

Images: Page 23

Alabama Grapefern / *Sceptridium jenmanii* (Syn. *Botrychium jenmanii*) is found in moist and dry forests and disturbed areas. Fronds appear from August to October. This species probably arose as a hybrid between *B. biternatum* and *B. lunarioides*.

Images: Page 24

Cut-leaf Grapefern or Dissected Grapefern / *Sceptridium dissectum* (Syn. *Botrychium dissectum*) is found in moist forests, clearings and old fields. Fronds appear from August to October.

Images: Page 24

Winter Grapefern / *Sceptridium lunarioides* (Syn. *Botrychium lunarioides*) is found in northern Georgia in scattered locations in old fields, pastures and young forests. Fronds appear from January to April.

Comments: The way to differentiate Rattlesnake Ferns from Grapeferns is that the fertile frond of Rattlesnake Fern emerges from the base of the blade, while the fertile frond of Grapefern originates from the base of the plant.

Image: Page 24

Genus *Ophioglossum* – Adders-tongue Ferns

Five species of Adders-tongue Ferns are found in Georgia. They are not likely garden plants but they are of botanical interest. They share the same ancient lineage as the Grapeferns, with the same peculiar life cycle. Most of the species are difficult to establish, cultivate or transplant due to a required association with mycorrhiza (soil-borne fungi). Therefore, it's best to observe them in the wild and not attempt landscape culture.

The rhizome is subterranean, fleshy, short and upright. The sterile frond is oval to lance-shaped. A fertile spike arises from the base of the sterile frond with two vertical rows of large sporangia.

Adders-tongue ferns are easy to overlook in moist meadows, ditches and other disturbed grassy habitats in the open or light shade. The most likely time to spot them is in late winter. Cemeteries are a good place to look for them.

Images: Page 25

The Royal Fern Family – *Osmundaceae*

The Royal Fern family is notable for its long, successful journey through time. Fossilized specimens, resembling today's species, date from the late Triassic Period (220 million years ago).

Cinnamon Fern / *Osmunda cinnamomea*

Characteristics: Large cinnamon-colored fertile fronds arch from the central rhizome-like palm fronds. As the fiddleheads emerge in the spring, they are covered by silvery-white hairs that turn bronze with maturity. Fertile fronds bear masses of green sporangia. They shed their spores, turn brown and collapse by midsummer. The medium green, pinnate-pinnatifid sterile leaves last well through the summer before turning yellow or bronze in fall. The pinnae are lance-shaped and deeply lobed. The stipe is densely hairy when young.

Landscape uses: Use in wetland areas. It likes its roots in water, either at a lake or pond edge, or in other areas where water naturally collects. When provided these conditions, it is easy to cultivate.

Size: 2 to 5 feet high and 2 to 4 feet wide

Zones: 3 to 10

Habitat: Wet, acidic soils, swamps, sphagnum bogs, wet woods and along streams.

Native to: North America; it is found throughout Georgia.

Comments: Hummingbirds collect the soft down from the hairy stipes to line their nests. *Osmunda* fiber, a fibrous mass of dried fern roots and stipe tissue, is used as a potting medium for orchids and epiphytes.

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Interrupted Fern / *Osmunda claytoniana*

Characteristics: Fronds are pinnate-pinnatifid with distinct sporangia borne on several pairs of pinnae in the middle of the fronds. The clusters of sporangia on the fertile fronds look like miniature clusters of grapes. These fertile pinnae, with vegetative pinnae above and below them, give an "interrupted" effect to the appearance of the frond.

Landscape uses: This fern is best used only at higher elevations in north Georgia. Use it along fences, walls and foundations. It prefers slightly acidic soil, even moisture and cool temperatures.

Size: 2 to 4 feet high and 3 to 4 feet wide

Zones: 3 to 7

Habitat: Damp woodlands, roadsides and meadows at high elevations.

Native to: Newfoundland, Ontario and Minnesota, south to northern Georgia and northern South Carolina.

Comments: Interrupted fern is a poor choice for areas with hot summers and elevated night temperatures. Given the right growing environment, it can be a majestic specimen.

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Royal Fern / *Osmunda regalis*

Characteristics: The sterile fronds are broadly triangular and strongly bipinnate, with the pinnae getting progressively smaller as they alternate up the rachis. New, green-colored fertile fronds turn tawny brown as the season progresses. The stipe is smooth and straw-colored. The rachis is green with scattered hairs.

Landscape uses: Plant Royal Fern on fertile, wet soils at a pond edge or lakeside. It needs several years to mature into a full-size specimen. When it does, it becomes a focal point in a woodland garden.

Size: 2 to 4 feet high and 2 to 3 feet wide (6 feet high under ideal cultural conditions)

Zones: 3 to 9

Habitat: Wet woods, cypress and creek swamps, and spongy depressions with acidic soil.

Native to: Widespread throughout eastern North America, including all of Georgia.

Comments: This is a large plant with handsome fronds. It is easy to cultivate when provided with the right environment. The species name, *regalis*, means royal, referring to its bold, elegant fronds.

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The Polypody Family – *Polypodiaceae*

Genus *Pleopeltis* – Resurrection Fern

Resurrection Fern / *Pleopeltis polypodioides*

Characteristics: Evergreen fronds are lance-shaped with 8 to 14 pairs of pinnae. The pinnae are densely scaled on the lower surface and smooth on the upper surface. Older fronds wither and die at the base of the plant, acting like a net to trap nutrient-rich debris and rain. New fronds appear in spring and sometimes in the fall. The long-creeping, fuzzy rhizome sends out short, wiry roots to anchor the plant and to absorb water and nutrients.

Landscape uses: Use Resurrection Fern as an accent plant in the shaded rock or woodland garden. It is a tough plant, once established. However, getting this epiphyte started on a tree trunk, a mossy boulder or a rotten log is a challenge that requires ingenuity, patience, attention to water requirements, and luck.

Size: 3 to 6 inches high and 6 to 12 inches wide

Zones: 6 to 10

Habitat: Rock outcrops, tree trunks and limbs, rotten logs, moss-covered rocks and old shingled roofs.

Native to: Maryland to southern Kansas, south to Texas and Florida. Resurrection Fern is one of the more common ferns found throughout Georgia, especially in the coastal area.

Comments: The common name, Resurrection Fern, arises from the fact that the fronds curl up tightly from lack of moisture and appear dead until they are revived and “resurrected” by rain.

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Common Rockcap Fern, Rock Polypody / *Polypodium virginianum*

Characteristics: Fronds are evergreen. The blade is 3 to 8 inches long and ½- to 2½ inches wide, thick textured, bright green above, light green below and smooth on both sides. Fronds have 11 to 18 pairs of oblong-shaped pinnae with rounded tips. The sori are large and arranged in rows on each side of the mid-vein. They are yellowish when young, turning dark brown with age.

Landscape uses: Rockcap Fern presents the gardener with the same cultural challenges as Resurrection Fern. Plant it in the crevices of rocks or on rotted logs in moist, shaded sites.

Size: 3 to 10 inches high and 8 to 16 inches wide

Zones: 2 to 8

Habitat: Shaded cliffs, mossy boulders and lower trunks of trees. It is most often found growing on rocks. Although it may appear to grow on bare rock, the rhizomes and roots trap leaves and other debris to build up a thin layer of organic soil in which the fern grows.

Native to: Newfoundland to northern Alberta, south to Arkansas and northern Georgia. The southernmost sites in Georgia are rocky bluffs in Clarke County, Sope Creek in Cobb County, and Carroll County.

Comment: Rockcap Fern resulted from a cross between two other species, *P. appalachianum* and *P. sibiricum*.

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The Maidenhair Fern Family – *Pteridaceae*

Genus *Adiatum* – Maidenhair Ferns

Few ferns match the arresting beauty of the two Georgia-native *Adiantum* fern species: Southern Maidenhair and Northern Maidenhair. The genus name comes from a Greek word, *adiantos*, which means "unwetted," and refers to the way the leaves of these ferns shed rain, at least when the fronds are young. These delicate-looking ferns are relatively easy to cultivate when properly sited in the garden.

Southern Maidenhair Fern, Venus Hair Fern / *Adiantum capillus-veneris*

Characteristics: Arching, bright green, evergreen fronds are bipinnate to tripinnate with fan-shaped pinnules held on shiny black or brown stipes. One sorus develops on the underside of each lobe of the pinnules. A spreading rootstock creeps through the soil to form compact colonies.

Landscape uses: Easily cultivated in damp, sheltered spots in filtered shade. It needs moist, alkaline soil.

Size: 10 to 20 inches high and 12 inches wide

Zones: 7 to 10

Habitat: Wet limestone rocks, moist cliffs, limestone sinks and bluffs, and wet, rocky, river banks.

Native to: Southern and western North America, northward to South Dakota. In Georgia, it occurs in southwestern counties and a few Piedmont counties that have suitable soil.

Comments: Southern Maidenhair Fern is one of the most beautiful native ferns. Careful attention must be paid to watering the first season after planting to prevent drying out until new roots become established. After establishment, it is moderately drought tolerant, going dormant but recovering with rainfall.

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Northern Maidenhair Fern, Five-finger Fern / *Adiantum pedatum*

Characteristics: The main rachis of the frond forks in half and the two parts curve outward, each with three to five finger-like divisions bearing 12 to 20 pairs of delicate segments. The peculiar branching pinnae give the fronds a fan-like appearance. A short-creeping rhizome forms colonies. The sori are oblong and are on the margin of each pinnule segment. The plant is deciduous.

Landscape uses: This fern does well under a variety of garden situations if provided well-drained, alkaline to slightly acidic soil enriched with humus. It forms large clumps in filtered shade. Mature clumps can be divided to establish new colonies.

Size: 1 to 2 feet high and 2 feet wide

Zones: 2 to 8

Habitat: Shaded woodland slopes with moist, alkaline to slightly acidic soil.

Native to: Nova Scotia and Prince Edward Island to Minnesota, south to Oklahoma. In Georgia, Northern Maidenhair Fern is found mainly in mountain and southern piedmont counties.

Comments: Newly-planted ferns need irrigation during establishment.

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Genus *Cheilanthes* – Lip-ferns

The Lip-ferns are well adapted to dry habitats and deserve to be more widely cultivated in sunny rock gardens. The name *Cheilanthes* comes from the Greek word meaning “lip” and describes the way the sori near the blade margins are in-rolled and look like lips.

Several species within this genus are native to the southwestern states and Mexico. In the eastern United States, Lip-ferns are found mainly on outcrops and ledges in the Appalachians and other rocky areas. Two of the most common species in Georgia are described here: Hairy Lip-fern and Wooly Lip-fern.

Hairy Lip-fern / *Cheilanthes lanosa*

Characteristics: Fronds are 8 to 15 inches long, dark green and evergreen. They curl up when dry, but they revive with rain. Fertile fronds may break off in winter, while the shorter sterile fronds remain evergreen. The rachis is dark brown and hairy. The blade is oblong, lanceolate and broadest near the middle. Sori are borne along the edges of the pinnae and are covered by the reflexed leaf margins. The short-creeping rootstock is slender and covered with brown, narrow, toothed scales.

Landscape uses: Plant Hairy Lip-fern in rock crevices or between large stones. Good drainage is essential. Use a mixture of humus with abundant coarse sand, grit or gravel. Overwatering can rot the crown. Once established, this fern will survive long dry periods, especially if its roots are kept cool among large rocks.

Size: 7 to 8 inches high by 6 to 8 inches wide

Zones: 5 to 9

Habitat: Non-calcareous rocky slopes, outcrops, ledges, cliffs and rocky locations exposed to sun and wind.

Native to: Common in Georgia from the granite region of the Piedmont northward to the mountains.

Comments: Plants may be hard to locate; however, this fern can be grown easily from spores.

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Woolly Lip-fern / *Cheilanthes tomentosa*

Characteristics: Fronds are tufted, bright green and evergreen. The pinnae are oblong to linear, with white curly hairs above and densely matted hairs below. The hairs are silvery white on young ferns and become light brown with age. They are most evident when the fronds are expanding. The stipe is brown and covered with tan hairs and narrow scales. The sori are marginal and covered by a reflexed leaf margin.

Landscape uses: Use Woolly Lip-fern in rock crevices and between stones. Plant it in a humus/sand medium. Once established, it can survive dry periods.

Size: 10 to 20 inches high and 10 inches wide

Zones: 6 to 9

Habitat: Well-drained sunny sites on rocky outcrops and cliffs of granite, sandstone and/or calcareous rocks.

Native to: West Virginia to Missouri, west to Arizona and south to Texas and Georgia. In Georgia, it is found on rocky, exposed sites in northern counties.

Comments: Woolly Lip-fern is somewhat larger than Hairy Lip-fern.

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Genus *Pellaea* – Cliff-brake Ferns

Purple Cliff-brake Fern / *Pellaea atropurpurea*

Characteristics: Evergreen fronds are closely bunched, gray-green and leathery. Fertile fronds are larger than the sterile fronds. Both stipe and rachis are dark purple and hairy. The sori are at the leaf margins, and the leaf margins curve inward to protect the sporangia.

Landscape uses: Use Purple Cliff-brake as a specimen plant in partial shade within a rock garden. It requires good drainage and calcareous rocks, so amending with limestone gravel is recommended. A soil mixture of equal parts limestone gravel, sand and topsoil with a handful of compost should provide a good growing medium.

Size: 3 to 10 inches high and 6 to 10 inches wide

Zones: 4 to 9

Habitat: Calcareous cliffs, rocks crevices, and ledges.

Native to: Widely distributed in temperate North America and Mexico. In Georgia, Purple Cliff-brake is found mainly in the Ridge and Valley counties and in a few locations in the Chattahoochee/Flint/Ocmulgee drainage area.

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The Marsh Fern Family – *Thelypteridaceae*

Genus *Phegopteris* – Beech Fern

Broad Beech Fern / *Phegopteris hexagonoptera*

Characteristics: Sterile fronds are deciduous and muted green in mid- to late spring. The rachis is green and winged with six angles. Fronds are bipinnatifid, broadly triangular and broadest at the base. Lower surfaces have fine hairs. The segments are connected to each other by wings on the rachis. Fertile fronds are few, appearing late in the season. Sori are round, marginal and lack indusia. The slender rootstock is long-creeping.

Landscape uses: Broad Beech Fern is best used for massing as a deciduous ground cover in moist, shady woodlands. Fronds sprout throughout the growing season, creating a canopy so dense it hides the ground and stifles weeds; however, it does not overpower other companion plants such as hosta. The shallow rhizomes can be easily dug if the plant gets out of bounds.

Size: 12 to 26 inches high and 3 feet wide

Zones: 4 to 9

Habitat: Moist, humus-rich, well-drained woodlands and cool, shaded slopes.

Native to: Maine and southern Quebec to Minnesota, south to Texas and Florida. Broad Beech Fern is common throughout northern Georgia, and is sometimes found in southwestern Georgia.

Comments: Slugs can be a problem.

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Genus *Thelypteris* – Marsh Ferns

The Marsh Ferns comprise one of the largest genera of ferns, most of which are native to tropical rainforests. Just a few species are found in the temperate zone. The genus has undergone taxonomic revision in the past and is still being debated by taxonomists.

Southern Maiden Fern / *Thelypteris kunthii*

Characteristics: Long, light-green fronds emerge from a short-creeping rhizome, which results in clumps of fronds not far from the mother colony. The blade is pinnate-pinnatifid, lanceolate, with a long tapering tip. It is hairy on both the upper and lower surface. The rachis is straw colored. Sori are kidney shaped.

Landscape uses: Use this fern for massing or as a specimen in a woodland garden. It prefers moist soil, but will tolerate clay soil and summer drought fairly well. In time, it will spread to become a large colony.

Size: 28 to 40 inches high and 3 to 4 feet wide

Zones: 7 to 10

Habitat: Grows in wet calcareous soils, as well as moderately dry, somewhat acidic soils. It can be found in rock crevices, swampy woods, stream banks, drainage ditches and under bridges.

Native to: South Carolina to Texas and northward to southern Arkansas. It is common in southern Georgia, ranging northward to Putnam County.

Comments: Southern Maiden Fern is one of the best large ferns for the Deep South. It is easy to cultivate.

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New York Fern / *Thelypteris noveboracensis* (syn. *Parathelypteris noveboracensis*)

Characteristics: Fronds are deciduous and light yellow-green. Fertile fronds are slightly larger than sterile fronds. The blade is pinnate-pinnatifid, ellipitical and tapering at both ends. The lowest pinnae are winged and stretch to the ground. Sori are small, circular and found near the margins of the pinnae. The rootstock is slender and long-creeping.

Landscape uses: Use for massing along streams and ponds in shade or filtered sun. It can be aggressive and difficult to confine.

Size: 12 to 24 inches tall and 2 to 3 feet wide

Zones: 4 to 8

Habitat: Wet to moist soils and stream floodplains in partial sun to shade.

Native to: Newfoundland to Ontario to southern Louisiana and Georgia. Common in northern Georgia, and ranging southward to Harris and Oglethorpe counties.

Comments: Easy to cultivate and an aggressive grower.

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Ovate Maiden Fern / *Thelypteris ovata* var. *ovata* (syn. *Cristella ovata*, var. *ovata*)

Characteristics: Fronds are pinnate-pinnatifid, broad at the base and tapering toward the tip. The pinnae are alternate, hairy below and smooth above. They have deeply cut lobes. The rachis is straw colored. Sori are small and round with kidney shaped indusia.

Landscape uses: Use Ovate Maiden Fern in moist woodland gardens. It makes a bold statement in the landscape when provided with the right environment.

Size: 16 to 40 inches high and 2 to 3 feet wide

Zones: 8 to 10

Habitat: Wet, calcareous soils, hammocks and moist woods in the Coastal Plain.

Native to: South Carolina, south to southern Florida, west to south Alabama.

Comments: In size and description, this fern is similar to Southern Maiden Fern (*Thelypteris kunthii*). However, Ovate Maiden Fern has slightly longer blades than Southern Maiden Fern and its pinnae are hairy only on the lower surface, whereas the pinnae of Southern Maiden Fern are hairy on both the upper and lower surfaces. It is easy to cultivate.

Image: Page 29

Marsh Fern / *Thelypteris palustris* var. *pubescens*

Characteristics: Fronds are 18 to 36 inches long, delicate, dull green, deciduous and arise from a black, wide-creeping rootstock. The rachis is green and hairy. The pinnae stop abruptly and do not taper toward the base of the blade. The stipe is 9 to 15 inches long. Sori are round, located near the mid-vein and partially concealed by curled margins.

Landscape uses: Marsh Fern can be attractive in cultivation when given the right growing conditions. The long-creeping rhizome can be aggressive, but when kept in a pure stand or mixed with flowering plants, such as iris, it can create an attractive picture. Because of its large size, use it as a background plant on a moist, shaded site.

Size: 1 to 3 feet high and 2 to 3 feet wide

Zones: 2 to 10

Habitat: Bogs, marshes (including freshwater tidal marshes) and bottomland forests.

Native to: Newfoundland and Manitoba, south to Florida and Texas.

Comments: Linnaeus described Marsh Fern in 1753. The species name "*palustris*" means "of marshes," where it commonly grows. The fronds tend to face toward the prevailing light. It is easy to cultivate.

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The Lady Fern Family – *Woodsiaceae*

Genus *Athyrium* – Lady Ferns

Southern Lady Fern / *Athyrium asplenioides* (syn. *A. felix-femina* var. *asplenioides*)

Characteristics: Fronds are finely divided, delicate and broadest near their base. Pinnae are alternate along the rachis. Frond color ranges from yellowish-green to medium green. They are deciduous. The stipe is yellowish green or reddish and the rachis is yellowish green to reddish, smooth, flat or slightly grooved in front. A short-creeping rootstock produces a diffuse crown of fronds.

Landscape uses: Use Southern Lady Fern as a specimen or in groups in a woodland garden, under shrubs or next to foundations. It has brittle stipes that tend to break, so do not plant it in windy areas, directly under roof overhangs where rain cascades, or where animals and children may run through it. It is moderately drought tolerant, going dormant during drought and then re-sprouting when rains return. It transplants easily if given sufficient water until established.

Size: 20 to 30 inches high by 2 feet wide

Zones: 4 to 10

Habitat: Moist woods, roadside banks, along streams, and swamp margins.

Native to: Northern Florida, west to Texas and northward to Missouri and Massachusetts. It is found throughout most of Georgia, except the pine flatwoods in the southeastern part of the state.

Comments: There are several species of Lady Ferns found in North America, Central and South America, and Eurasia, but only this species is native to Georgia.

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Genus *Cystopteris* – Bladder Ferns

Bulblet Bladder Fern / *Cystopteris bulbifera*

Characteristics: Fronds are 10 to 20 inches, delicate, pale green and deciduous. The rachis is smooth and straw-colored. The blade is widest at or near the base, tapering gradually to a very long apex. Pinnules are oblong and toothed. The rootstock is short-creeping.

Landscape uses: Bulblet Bladder Fern is easy to cultivate. It needs partial sun to shade and moist, well-drained soil. It is one of the earliest ferns to emerge in spring. By July it starts to die back.

Size: 1 to 2 feet high and 1 to 2 feet wide

Zones: 3 to 9

Habitat: Shaded calcareous cliffs where water drips after rain.

Native to: Newfoundland to Quebec, south to Arkansas and northern Georgia. In Georgia, it is restricted to a few mountainous sites in the northwest corner of the state.

Comments: This fern has an interesting an unusual asexual reproduction method. It produces small, green fleshy bulblets on the underside of fronds near the axils of pinnae. hey drop off and when the environment is suitable, sprout and grow into new plants. It also reproduces from spores.

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Woodland Fragile Fern, Lowland Brittle Fern / *Cystopteris protrusa*

Characteristics: Loosely clustered fronds are delicate and lacy. They are dark green above and light green below. They appear in early spring, disappear during summer, and reappear in the fall. The stipe is light green or tan with a darkened base. It is smooth, brittle and grooved on the upper surface. Sori are round and located near the margins of the pinnae. The spreading rootstock grows up to 10 inches wide.

Landscape uses: Woodland Fragile Fern likes moist, organic soils with a neutral pH. It is a strong grower. The rhizome branches freely to form colonies that are easily divided. It often turns brown in midsummer, but sends it up new fronds in fall that last until frost.

Size: 6 to10 inches high and 10 inches wide

Zones: 5 to 9

Habitat: Moist humus-rich woodland soils, along streams, and on moist, sheltered ledges.

Native to: From New York to Minnesota to the southeastern states. In Georgia, it grows in a number of northern counties as far south as Fulton county.

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Genus *Deparia* – Spleenworts

Silvery Spleenwort / *Deparia acrostichoides*

Characteristics: Fronds are green and deciduous. They are brittle and easily broken. The stipe is light green above, dark green below, and covered with narrow scales and fine hairs. The sori are silvery white and are arranged in rows on each side of the pinnae mid-veins. The rhizome is slender-creeping.

Landscape uses: Silvery Spleenwort is easy to grow in moist, fertile soils. It should not be allowed to dry out in summer. It makes a good companion for woodland wildflowers. Since it is deciduous, it fades away in the winter landscape.

Size: 18 to 30 inches high by 2 to 3 feet wide

Zones: 4 to 8

Habitat: Moist, fertile woods, with ample humus, along stream banks.

Native to: Asia as well as the eastern United States and Canada, ranging south to northern Georgia and west to Louisiana.

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Genus *Diplazium* – Glade Ferns

Glade Fern / *Diplazium pycnocarpon* (syn. *Athyrium pycnocarpon*)

Characteristics: Fronds are deciduous, 24 to 30 inches long and wide. It is dimorphic, with sterile and fertile fronds on the same plant. Sterile fronds are slightly arching and shorter than fertile fronds. The fertile fronds appear in late summer and have long, straight sori arranged in a herringbone pattern on the lower surface of the pinnae.

Landscape uses: Glade fern likes calcareous soils. If mature fronds appear pale green, apply dolomite lime to make the soil more alkaline. It will survive short dry periods, although it does best in moist, fertile soil.

Size: 1½ to 3½ feet tall and 2 to 3 feet wide

Zones: 4 to 9

Habitat: Shady, moist woods and rocky slopes with alkaline soil.

Native to: New Hampshire to Minnesota, south to northwestern Louisiana and northern Florida. In Georgia, it is found in a few northern counties.

Comments: This fern is a dense clumper and will spread to form a large stand over time.

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Glossary

Antheridium (*pl.* antheridia): a sperm-producing structure that may be multicellular or unicellular.

Apogamous: producing diploid spores.

Appressed: pressed close to or flat against a surface.

Archegonium (*pl.* archegonia): a multicellular structure in which a single egg is produced; found in mosses, ferns and some vascular plants.

Bipinnate: once divided.

Bipinnate-pinnatifid: twice divided with the second division broadly attached.

Bipinnatifid: once divided, broadly attached.

Blade: the broad part of a leaf.

Circumneutral: close to neutral, a pH between 6.5 and 7.5.

Crosier: a fiddlehead; the coiled developing leaf of a fern.

Dimorphic: occurring in two distinct forms. In some ferns, the sterile and fertile fronds have a markedly different appearance.

Disjunct: geographically separated.

Epiphite (*adj.* epiphytic): a plant that grows on another plant for support, but does not derive nourishment from the supporting plant.

Frond: the leaf (usually compound) of a fern; a large compound leaf of another plant, as a palm, or leaf-like structures of some seaweeds or lichens.

Gametophyte: in plants, such as ferns, that have an alternation of generations, this is the gamete-producing generation.

Glabrous: bald, naked, hairless.

Glandular: having an organ, or layer of cells, that produces and secretes some substance.

Hammock or hummock: a low mound or ridge of earth.

Indusium (*pl.* indusia): a small membrane or flap covering the sorus in ferns.

Lanceolate: narrow and tapering at each end.

Lax: scattered; widely spaced.

Lithophyte: a plant that grows on rocks.

Mafic rock: magnesium-, iron- and calcium-containing rock.

Meiospore: One of four spores arising from the spore mother cell.

Mycorrhizal fungus: a fungus that has a symbiotic association with another plant.

Oblanceolate: broad and rounded at the tip and tapering at the base.

Once-pinnate: once divided into pinnae.

Palmate: divided from a central area, like the fingers of a hand.

Peltate: supported, umbrella-like, on a central stalk rather than at or near the margin.

Pinna (*pl.* pinnae): a primary division or leaflet of a divided leaf or frond.

Pinna rachis: the midrib of the pinna.

Pinnate: feather-like in structure, with the parts (leaflets) arranged on both sides of a center line (midrib or midvein).

Pinnatifid: divided or sectioned, but not all the way to the midrib or midvein; broadly attached.

Pinnule: a secondary division of a fern leaf; a division of a pinna that is narrowed at the base.

Pocosin: an upland swamp of the Coastal Plain of the southeastern United States.

Polyploidy: referring to an organism, tissue or cell with more than two complete sets of chromosomes.

Promiscuous: hybridizing freely.

Prothallium (syn. prothallus (*pl.* prothalli)): the small, green, heart-shaped structure (gametophyte) of a fern that produces both male and female sex cells. The prothallium forms from a spore. After fertilization, a young sporophyte plant develops.

Rachis: a continuation of the stipe that extends to the tip of the frond.

Reduction Division: the process by which a spore mother cell divides into four meiospores.

Rhizoid: root hair-like structures in liverworts, mosses and some vascular plants that occur on free-living gametophytes.

Rhizome: in ferns, a (usually) horizontal creeping stem from which the stipe and roots develop.

Simple: a fern frond that is not divided into pinnae.

Sorus (*pl.* sori): a cluster of sporangia.

Specific epithet: the second part of a scientific name. The genus name, followed by the specific epithet, designates the species.

Sporangium (*pl.* sporangia): a case in which spores are produced.

Sporophyte: the spore-producing phase in the fern life cycle.

Sporophyll: a modified leaf or leaf-like organ that bears sporangia.

Stipe: the stalk of a frond. The stipe supports the blade and continues as the rachis.

Subopposite: nearly opposite.

Talus: a sloping mass of debris accumulated at the base of a cliff.

Taxon (*pl.* taxa): a group of organisms sharing common characteristics in varying degrees, such as a family, genus or species.

Tripinnate: three times divided.

Zygote: a cell resulting from the fusion of male and female gametes.

Guide to Selecting Ferns

Fern Name	Shade	Partial Shade	Sun	Moist Soil	Wet Soil	Well-drained Soil	Humus-enriched	Alkaline Soil	Acid Soil	Among Rocks	Moderately Drought Tolerant	Easy to Grow	Difficult to Grow	Aggressive
Black-stemmed Spleenwort	•			•				•		•				
Broad Beech Fern	•	•		•		•								•
Bulblet Bladder Fern	•	•		•		•		•				•		
Christmas Fern	•	•		•		•				•		•		
Cinnamon Fern					•		•		•			•		
Climbing Fern, Hartford Fern		•	•	•					•				•	
Common Rockcap Fern, Rock Polypody	•	•								•				
Common Woodsia, Blunt-lobed Woodsia	•	•	•	•		•		•	•	•		•		
Crested Wood Fern				•	•		•		•					
Dixie Wood Fern	•			•	•		•							
Eastern Hay-scented Fern		•		•		•				•				•
Ebony Spleenwort		•				•		•	•	•		•		
Glade Fern	•			•				•		•	•			
Goldie's Wood Fern		•					•							
Hairy Lip-fern			•			•	•		•	•	•			
Interrupted Fern		•		•		•			•					
Log Fern	•	•	•	•	•			•				•		
Maidenhair Spleenwort	•			•						•			•	
Marginal Woodfern	•			•						•	•	•		

Guide to Selecting Ferns

Fern Name	Shade	Partial Shade	Sun	Moist Soil	Wet Soil	Well-drained Soil	Humus-enriched	Alkaline Soil	Acid Soil	Among Rocks	Moderately Drought Tolerant	Easy to Grow	Difficult to Grow	Aggressive
Marsh Fern	•			•								•		•
Mountain Spleenwort	•								•	•			•	
Netted Chainfern		•		•	•				•	•				
New York Fern	•	•		•	•							•		•
Northern Maidenhair Fern, Five-finger Fern		•				•	•	•	•					
Ovate Maiden Fern		•		•	•			•						
Purple Cliff-brake Fern		•				•	•	•		•				
Rattlesnake Fern		•		•			•						•	
Resurrection Fern	•	•								•	•		•	
Royal Fern		•			•				•			•	•	
Sensitive Fern		•			•									•
Silvery Spleenwort				•			•					•		
Southern Lady Fern		•		•							•	•		
Southern Maiden Fern		•		•	•	•		•	•		•	•		
Southern Maidenhair Fern, Venus Hair Fern		•		•	•			•			•			
Southern Wood Fern	•			•	•			•						
Virginia Chain Fern	•	•	•	•	•		•		•			•		
Wood Fern, Fancy Fern	•	•		•					•	•				
Woodland Fragile Fern				•			•					•		
Wooly Lip-fern			•			•	•	•		•	•			

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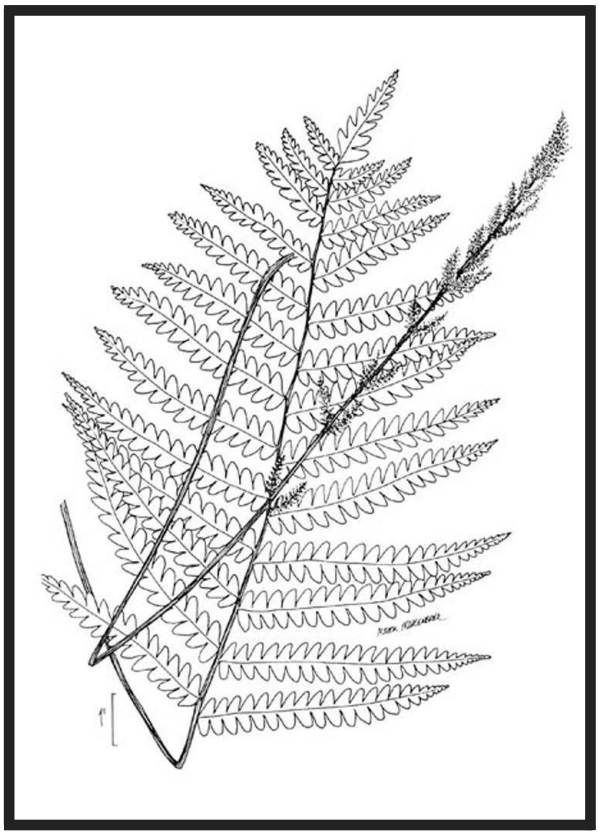

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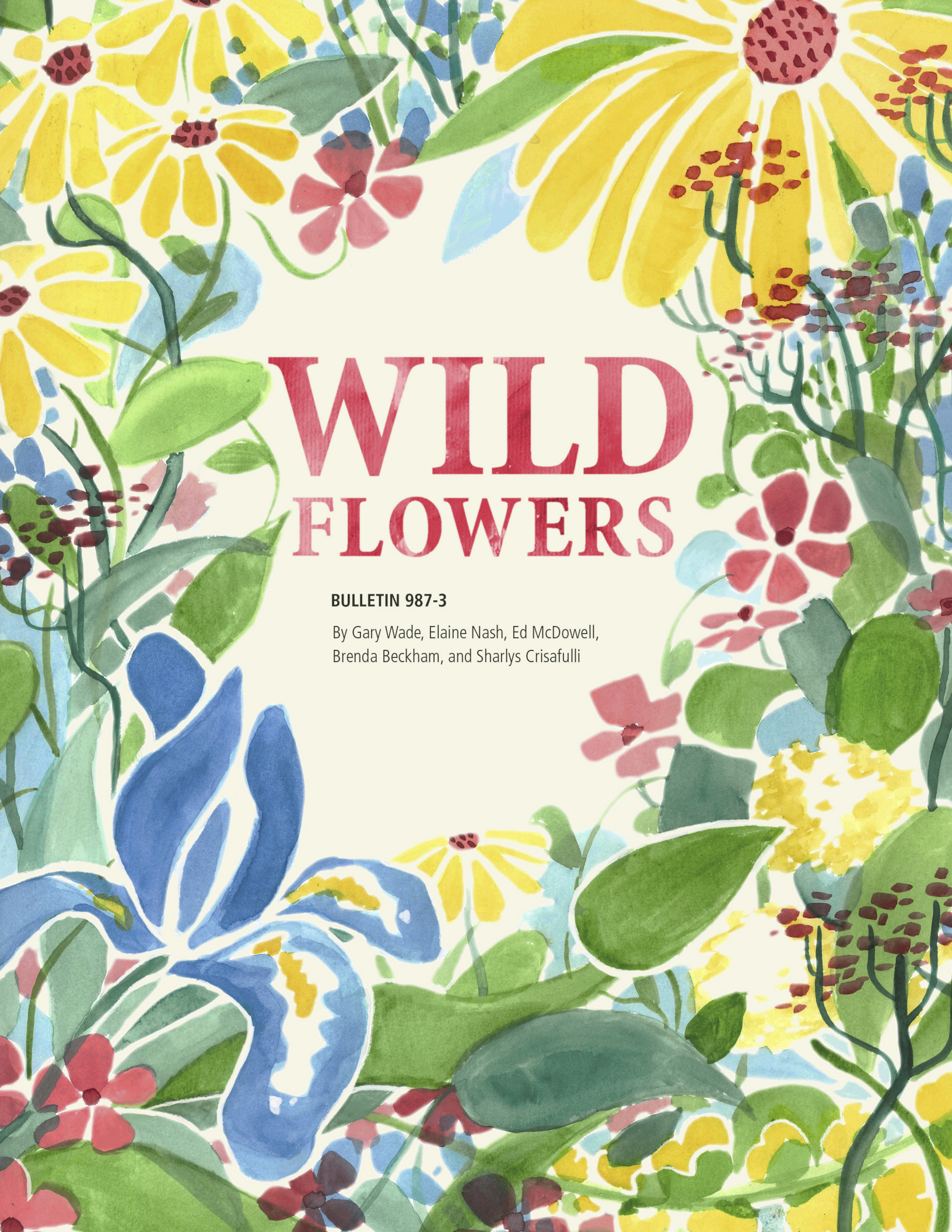

WILD FLOWERS

BULLETIN 987-3

By Gary Wade, Elaine Nash, Ed McDowell,
Brenda Beckham, and Sharlys Crisafulli

Appreciation is expressed to the following individuals, websites and organizations for providing images for this publication:

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This publication is dedicated to Will Corley, former faculty member in the Department of Horticulture, who spent a large part of his career developing a wildflower mix for the Southeast and helping beautify Georgia's public parks and highways.

For generations, long before there was a nursery industry, people planted and enjoyed wildflowers. They harvested seeds, cuttings and plants from the wild, experimented with various propagation techniques and incorporated their favorite plants into their landscapes. Many of these plants were valued not only for their ornamental qualities but also for their culinary or medicinal uses. Those that were proven performers and adapted well to domestication became "passalong" plants that were shared with friends, relatives and neighbors.

As the nursery industry evolved in the 1800s, exotic plants were imported from foreign lands. Soon native plants became diluted with exotic plants in the product mix. The buying public generally became more interested in the dazzling qualities of new plants than in whether plants were native or imported from another country. As a result, approximately 80 percent of the plants in the nursery trade today are non-native exotics.

Today, there is renewed interest in "going native" and restoring diversity to our landscapes by planting native plants. The reasons for this are many and varied. Planting a native plant lends a historical sense of pride to a gardener who grows a plant that early pioneers or even Native American Indians may have planted. Furthermore, regionally-adapted native plants have developed a natural resistance to pests and a tolerance to drought, ice storms and other environmental extremes common to the area.

Some native plants provide food or shelter for wildlife and create "watchable wildlife habitats." In his book *Bringing Nature Home*, Douglas Tallamy explains "the unbreakable link between native plant species and native wildlife," especially the native insect populations that form the broad base of the food chain. "When native plants disappear or are replaced by exotic species, native insects disappear, thereby impoverishing the food sources for birds and other animals," he says. The loss or decline of native plant populations through urban development and habitat destruction or by encroachment from invasive exotic species changes the whole biology and balance of an ecosystem.

What are Native Wildflowers?

The term "wildflower" in this publication is a general term used to define both annual and perennial native herbaceous plants with showy flowers that have evolved with an ecosystem and grow naturally without either direct or indirect human intervention. Although native grasses and sedges are included in this definition, they are described separately in Part IV of this native plant publication series.

Many native plant enthusiasts question whether improved cultivars of native wildflowers resulting from hybrid crosses of two native species are still native plants. In the book *Armitage's Native Plants for North American Gardens*, Allan Armitage humorously refers to these plants as "nativars." In this publication, cultivars of native plants will be mentioned when they have qualities different from those of the native species and when they are widely available in the nursery trade.

Growing Wildflowers Successfully

To grow wildflowers successfully, one must carefully simulate their native growing environments, giving special consideration to sunlight requirements, soil types and moisture levels. Some wildflowers are "generalists" and grow well in a variety of habitats, while others require very specific growing conditions. Some prefer wet conditions and are best used in bog gardens or on the edges of ponds or streams. Many prefer dry, sunny sites and adapt well to perennial borders, cottage gardens or meadows. Still others prefer dry woodland settings with filtered shade, while some like shaded woodlands adjacent to streams or seepage areas where soils are moist and high in organic matter.

A few wildflowers are aggressive and spread by creeping underground stems, called rhizomes, or by above-ground runners, called stolons. Others spread by dispersing seeds and establishing new colonies of seedling plants. These aggressive plants are best planted either in wildflower meadows where they can freely compete with other aggressive plants or in confined areas where their spread can be managed.

Many wildflowers are not self-fertile; therefore, to produce fertile seeds, several seedlings need to be planted in close proximity in order to cross. If plants are propagated vegetatively from the same parent, the seeds produced usually will be sterile.

Before planting wildflowers, consider whether they are cool-season or warm-season plants. Cool-season wildflowers, also called spring ephemerals, like Trillium, Wild Ginger, Bloodroot and May-apple, bloom in late winter or spring. In their native habitat, these plants are found on the floor of deciduous hardwood forests where changing light patterns govern their life cycle. They grow rapidly and flower from March to May before the leaves on the canopy trees are fully expanded and when light levels reaching the forest floor are highest. Then, as the leaves of the canopy trees mature and light levels at ground level decrease, cool-season wildflowers go dormant or disappear until the following spring. On the other hand, warm-season wildflowers like *Baptisia*, Partridge Pea, Blazing Star and Goldenrod produce their strongest growth

when night-time temperatures reach 70 degrees Fahrenheit. They bloom in summer and fall then go dormant if they are a perennial or re-seed and die if they are an annual. In their native habitat, these plants are found along forest edges and in meadows and will not grow well in dense shade. By planting a combination of cool-season and warm-season plants or seeds, gardeners can attain at least nine months of color.

It is a common misconception that wildflowers are maintenance-free plants when grown in garden habitats. Whenever a plant's environment is altered by taking it from its native habitat to a cultivated landscape, it will require maintenance, particularly during the first year or two while it is getting established and adapting to a new location. Some wildflowers are pruned back after flowering to encourage more compact growth or repeat flowering. Others that spread aggressively from seed are pruned after flowering to prevent seed production. Wildflowers used for roadside beautification are often mowed late in the season to scatter seeds that will germinate and produce new plants for motorists to enjoy the following year.

Obtaining Plants and Learning about Native Wildflowers

Always obtain wildflower plants or seeds from reputable sources. Most of the common wildflowers or their cultivars can be found in nurseries, garden centers, mail-order catalogs or their online equivalents. There are several Native Plant Societies throughout the Southeast, and most have an annual native plant sale.

Beware of "Meadows in a Can" or other wildflower seed mixes that are formulated for other regions of the country, such as the Pacific Northwest or the Northeast. Many of these mixes contain non-native species as well as species not well suited for the heat and humidity of the Southeast. For best results, look for seed mixes formulated for the Southeast.

Transplanting wildflowers from their native habitats to cultivated landscapes is discouraged. It is prohibited if the plants are rare or endangered, or if they are located on land owned by the state or federal government. It also is illegal to collect plants from private land without permission from the landowner. Some organizations, such as the Georgia Plant Conservation Alliance, the Georgia Native Plant Society and the Nature Conservancy, conduct organized rescues of native plants that are threatened by construction, provided permission is given by the landowner.

The Georgia Native Plant Society is an active statewide organization that offers seminars and workshops throughout the year (see http://www.gnps.org). The State Botanical Garden of Georgia offers an 80-hour certificate program on native plants that includes a series of courses through which one can earn a Certificate of Native Plants (see http://www.uga.edu/botgarden/index.html). The reference list at the end of this publication cites both websites and books that provide excellent information for wildflower enthusiasts.

Guide to Plant Descriptions

This publication describes an assortment of wildflowers worthy of landscape culture. They are arranged alphabetically by botanical name. Most of them are readily available in the nursery trade, but a few may require some searching of catalogs or websites or visits to specialty plant growers. Endangered, threatened or rare plant species listed in *Protected Plants of Georgia*, a publication of the Georgia Department of Natural Resources, are not included in this publication. Other plants that have very specific growing requirements that cannot easily be created or maintained in landscapes were also omitted. The appendix contains a *Guide for Selecting Wildflowers* described in this publication. It is based on various criteria, such as plant height, flower color, time of bloom and light requirement. Readers should find this table useful for selecting the right plants for specific locations in their landscapes.

Information on each plant is provided according to the following criteria:

Common Name(s) / Botanical Name / Family
Life Cycle
Characteristics
Cultural Requirements
Landscape Uses
Size
Hardiness Zones
Habitat
Native To
Propagation
Comments

Common Name(s) / Botanical Name / Family: Shown here are the generally accepted common names used by respected botanical authorities. For this publication, *Flora of Southern and Mid-Atlantic States* by Alan S. Weakley, North Carolina Herbarium, was used as the definitive source for botanical names. The family name is given as a point of information since some unifying traits are common to plants in the same family.

Life Cycle: This section explains whether the plant is an annual, biennial or perennial. An annual flowers, fruits and dies in one growing season. A biennial grows vegetatively the first year, then flowers, fruits and dies the second year. A perennial usually flowers and fruits each year, and lives for several years. Some plants may be annuals in some areas of Georgia and perennials in other areas of the state. A few plants perceived by gardeners as perennials may actually be re-seeding annuals.

Characteristics: In this section, the authors provide a botanical description of the plant, such as growth habit, leaf shape, leaf arrangement, flower form, time of flowering, flower size and color, and the type of root or fruit. The following figures illustrate common terms used to describe the plants, including common leaf shapes, common leaf arrangements, common types of inflorescences (arrangement of flowers on flowering stalks) and parts of flowers. A glossary at the end of this publication provides definitions of the botanical terms used to describe the plants.

Figure 1. Common Leaf Shapes

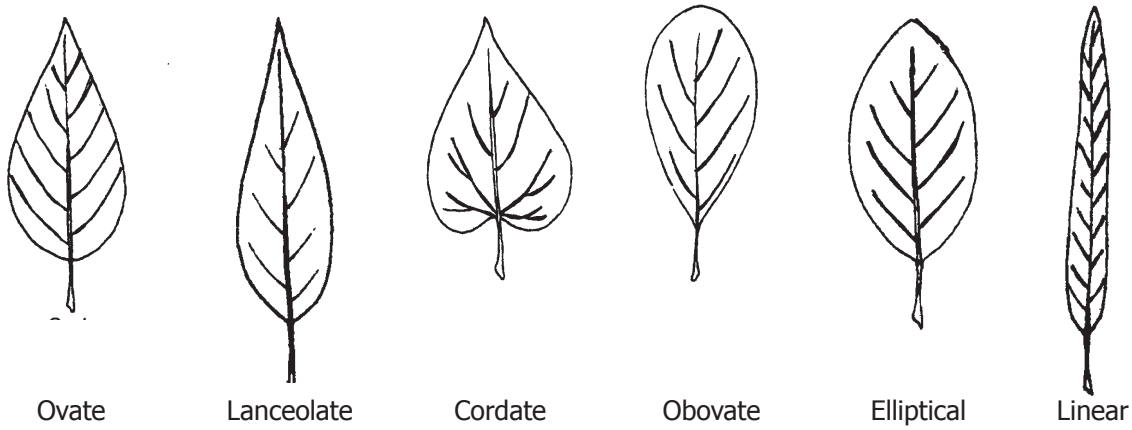


Figure 2. Common Leaf Arrangements

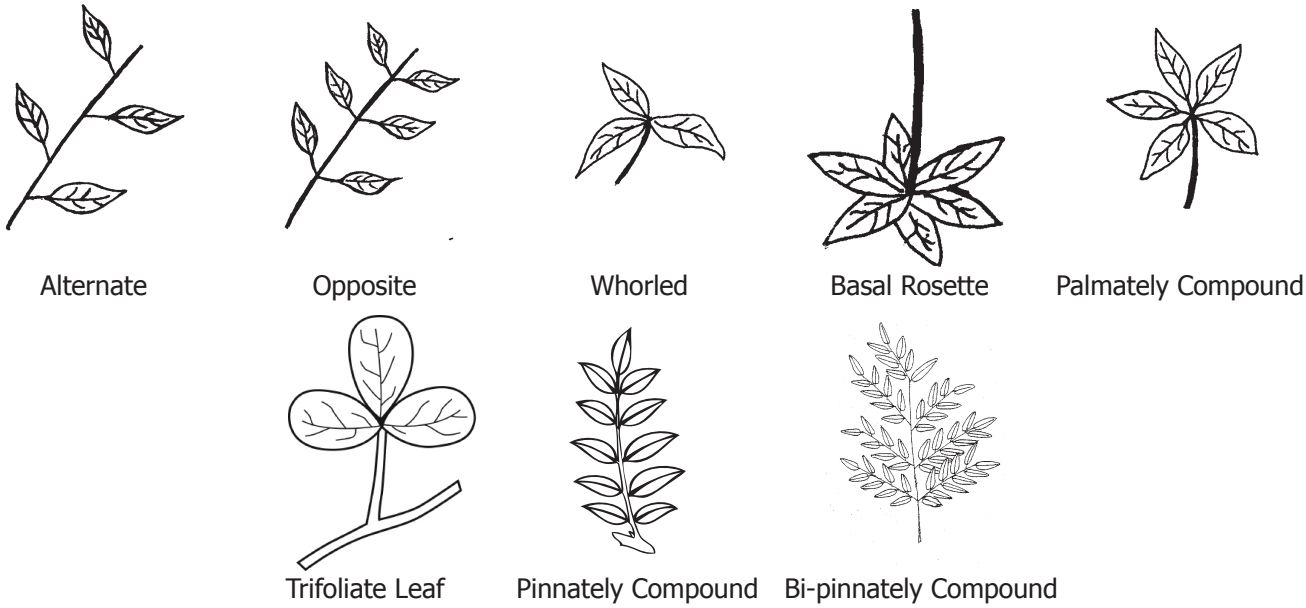


Figure 3. Common Types of Inflorescenses (Arrangement of flowers)

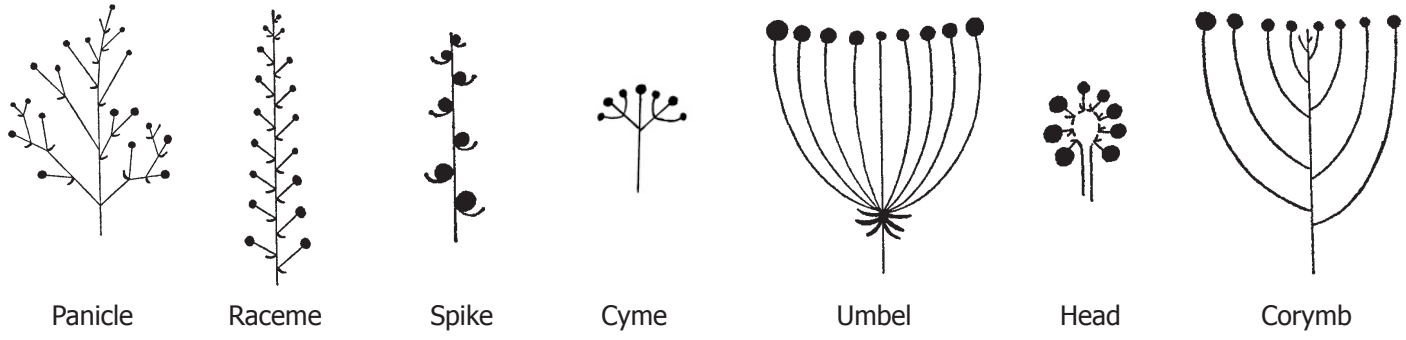
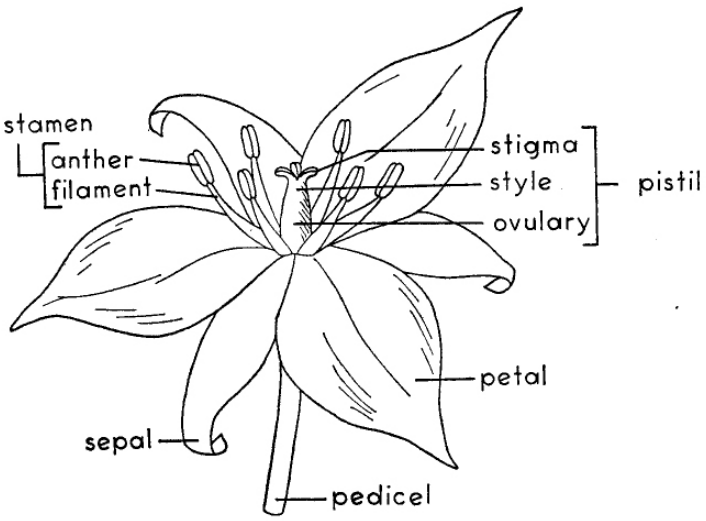
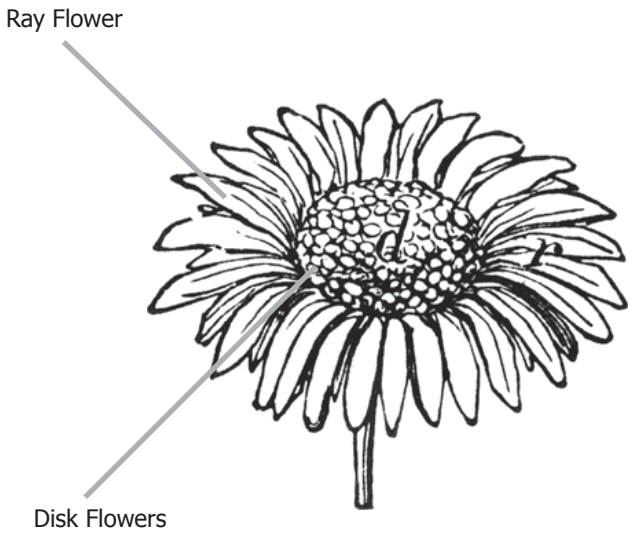


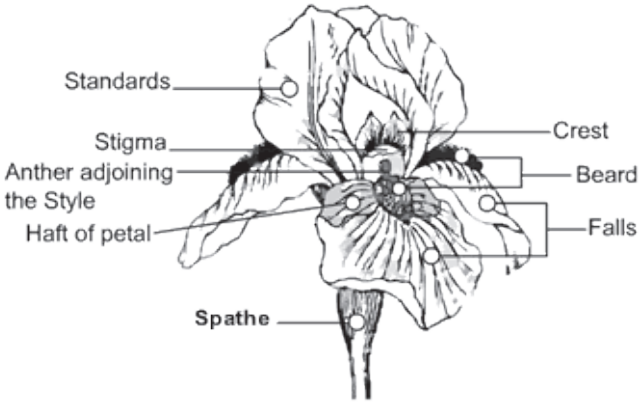
Figure 4. Flower Parts



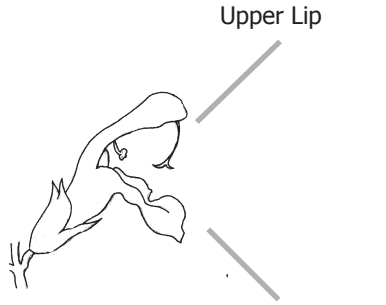
Complete Flower



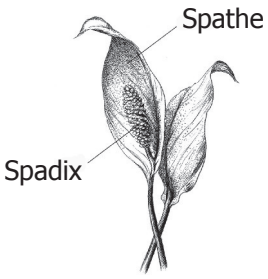
Composite Flower



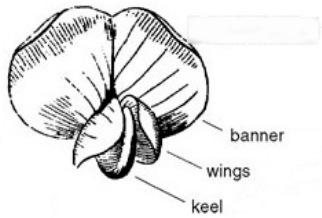
Iris Flower
(Credit: Town and Country Iris Society, Spokane, WA)



Lipped Flower
(*Salvia officinalis*)



Spathe and Spadix



Banner, Keel and Wing
Petals of Legume Flowers

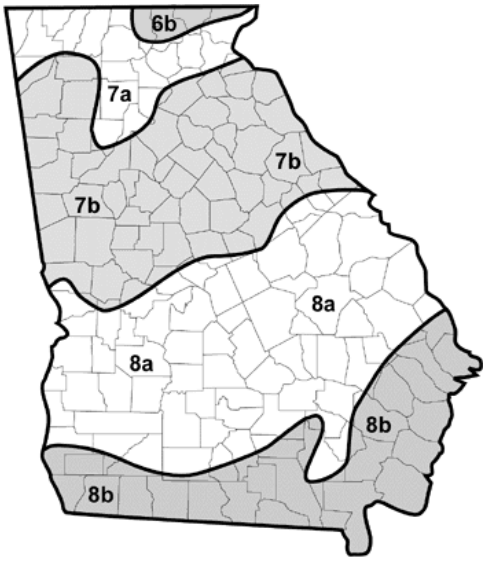
Cultural Requirements: A description of the type of environment the plant needs to thrive, including the light level, soil type and soil conditions, is provided. Other information useful in managing the plant, such as pruning after flowering to encourage repeat bloom or to prevent self-seeding, is included where appropriate.

Landscape Uses: This section suggests the type(s) of landscapes or environmental conditions appropriate for the plant. To grow native wildflowers successfully, it is important to simulate their native habitat as closely as possible.

Size: The expected mature height and/or spread of the plant under ideal cultural conditions are listed here.

Hardiness Zones: Hardiness zones are listed for Georgia. They are an estimate of the plant's winter hardiness according to established U.S. Department of Agriculture hardiness zones (1990 version). Most native plants are hardy throughout the state; however, nature does not always cooperate with the guidelines humans develop. Variations in microclimates may extend the growing range north or south of the zone listed. The USDA plant hardiness zones in Georgia are shown in Figure 5.

Figure 5. Cold Hardiness Zone Map of Georgia



Average Minimum Temperature for Each Zone	
6b	-5 to 0°F
7a	0 to 5°F
7b	5 to 10°F
8a	10 to 15°F
8b	15 to 20°F

Habitat: The environment(s) in which the plant is found in the wild.

Native To: A general description of the region within the continental U.S. where the plant is presently found in its native habitat.

Propagation: The propagation technique(s) commonly used to reproduce the plant are described.

Comments: Additional information about the plant that the reader may find interesting is provided here, such as the plant's attractiveness to wildlife or other cultivars of the plant available in the nursery trade.

Doll's Eyes, White Baneberry / *Actaea pachypoda*
Family: Buttercup / *Ranunculaceae*

Life Cycle: Perennial

Characteristics: Branched stems bear two or three large tri-foliate toothed leaves. Tiny white flowers are borne in terminal clusters in May or June. Flower stalks thicken after bloom and turn red. Flowers are followed by dense clusters of white pea-size fruit having a distinctive purple spot on their stigmatic end, causing them to resemble the eyes of a china doll. Berry clusters persist into fall and provide ornamental interest until frost.

Cultural Requirements: Plant Doll's Eyes in moist, organic, well-drained soils and partial shade to full shade. It does not like drought or wet feet. It will self-seed and spread when given the right growing conditions.

Landscape Uses: Use Doll's Eyes in shaded gardens.

Size: 1 to 3 feet tall and 2 to 3 feet wide

Hardiness Zones: All of Georgia

Habitat: North-facing slopes of nutrient-rich forests

Native To: Maine to Florida, west to Louisiana, north to Nebraska and Minnesota

Propagation: Seed or division
Seed: Collect seeds in August. Remove pulp and sow outdoors in flats or ground beds. Germination should occur the following spring.
Division: Root division can be done in spring or fall.

Comments: All parts of this plant are poisonous when ingested, so avoid planting this plant in areas frequented by children.

Images: Page 51

Black Cohosh, Black Bugbane / *Actaea racemosa* (syn. *Cimicifuga racemosa*)
Family: Buttercup / *Ranunculaceae*

Life Cycle: Perennial

Characteristics: Slender stems bear pinnately compound leaflets with three-lobed terminal leaflets (see Figure 2). Leaflets are ovate, deeply cut and finely-toothed along their margins. In April or May, racemes 3 to 6 inches long appear at the tips of the branches bearing small, white, fragrant flowers lasting two to three weeks. Seeds are borne in capsules that make a rattling sound when shaken.

Cultural Requirements: Black Cohosh prefers moist, well-drained, humus-enriched soil and partial shade or full shade. Cut back plants in late winter to make way for new spring growth.

Landscape Uses: Use Black Cohosh to brighten shady areas in the landscape, such as butterfly gardens and perennial borders.

Size: 4 to 6 feet tall and 2 to 4 feet wide

Hardiness Zones: All of Georgia

Habitat: Rich hardwood forests

Native To: Massachusetts, west to Indiana, south to Mississippi, east to Georgia

Propagation: Seed or division
Seed: Harvest and plant seeds outside in fall. It may take two years for seeds to germinate and four years to produce a flowering plant from seed.
Division: Dig and divide roots in fall or spring.

Comments: Black Cohosh is the food source for larvae of the Spring Azure butterfly. The foliage has a pungent odor that repels other insects. Flower nectar attracts several other butterflies. The root has been used medicinally for arthritis, menopausal symptoms and other ailments.

Images: Page 51

Common White Snakeroot / *Ageratina altissima* (syn. *Eupatorium rugosum*)
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Leaves are opposite, elliptic to oval in shape, 3 to 6 inches long, with toothed margins and pointed tips. Small, fluffy, bright white flower heads in loose, flat-topped clusters appear on short stalks from late summer to frost. Fruit are small, dry, hairless, seed-like achenes surrounded by white bristles.

Cultural Requirements: This plant prefers sun to light shade and moist loamy soils, but it will adapt to dry soils. Deadheading will encourage repeat flowering and prevent unwanted re-seeding.

Landscape Uses: Use Common White Snakeroot in woodland edges.

Size: 2 to 3 feet tall

Hardiness Zones: All of Georgia

Habitat: Open forests, meadows, and under power lines and in rights-of-ways

Native To: New England, south to Georgia, west to Louisiana, north to Wisconsin

Propagation: Seed, cuttings or division
Seed: Collect seeds from September to October and store them dry at 40°F for one month, then plant.
Cuttings: Stem-tip cuttings can be taken in April or May.
Division: Divide plants in fall or spring.

Comments: Common White Snakeroot can spread aggressively by seeds and rhizomes. Native Americans used an extract from the roots to treat snakebites, hence the common name.

Images: Page 51

Fly Poison / *Amianthium muscitoxicum*
Family: Bunchflower / *Melanthiaceae*

Life Cycle: Perennial

Characteristics: Basal leaves are narrow and elongated, 12 to 24 inches long. They spread outward and arch downward. Leafless flowering stalks resemble those of hyacinths, rising 1 to 2 feet above the foliage and producing dense cylindrical clusters of creamy white flowers that fade to bronze-green in early summer. The flowers are tiny, approximately 1/4 inch across, with six reflexed tepals and anthers that rise above the stigma. A sticky substance coats the flowers, causing them to glisten. Seeds are borne in capsules.

Cultural Requirements: This plant prefers moist, slightly acid soil and one to two hours of direct morning sunlight followed by afternoon shade.

Landscape Uses: Plant Fly Poison in moist perennial borders or wildflower gardens in partial shade. Plant them in groups for maximum show.

Size: 1 to 2 feet tall

Hardiness Zones: All of Georgia

Habitat: Low pinelands, savannahs, woodlands or moist meadows

Native To: New York to Florida, west to Louisiana, north to Oklahoma and Missouri

Propagation: Seed or division
Seed: Plant seeds when ripe in spring. No pre-treatment is required.
Division: Root division can be done in fall or spring.

Comments: All parts of this plant contain toxic alkaloids and are poisonous to livestock and humans. Avoid using it where young children play. Wear gloves when dividing plants. Early settlers crushed the bulbs and mixed them with sugar to prepare a fly poison, hence the common name.

Images: Page 52

Fringed Blue Star / *Amsonia ciliata*
Family: Dogbane / *Apocynaceae*

Life Cycle: Perennial

Characteristics: Leaves are alternate, linear or lance-shaped, four to 15 times longer than they are wide. They are sessile (attached directly to the stem, without a petiole) and are closely spaced up the stem. They turn golden yellow in fall. Pale blue flowers, ½ inch long, are star-shaped with five lobes and white centers. Flowers appear in loose clusters on stem tips from April to early May. Stems are pubescent. Slender seed pods, 4 to 7 inches long, are borne in pairs. They split along one side, releasing seeds. All plants in the genus *Amsonia* have milky sap.

Cultural Requirements: Fringed Blue Star is easy to grow in well-drained soil and full sun to partial shade. It requires some water during dry periods. Cut it back after flowering to maintain a bushy, erect growth form.

Landscape Uses: Fringed Blue Star is a good plant for perennial borders, rock gardens, cottage gardens or woodlands. It is showier when planted in groups.

Size: 2 to 3 feet tall

Hardiness Zones: All of Georgia

Habitat: Dry, sandy, rocky areas and sand hills

Native To: Florida into Texas, north to Kansas and Indiana, east to Virginia. It is primarily a plant of the Coastal Plain.

Propagation: Seed or cuttings
Seed: Collect seeds when the capsules turn tan and the seeds turn brown. Place them in hot water and let them soak overnight before planting. This removes a germination inhibitor from the seed.
Cuttings: Stem cuttings can be taken in May or June. Treat them with a rooting hormone to enhance rooting.

Comments: Butterflies are attracted to the flowers. A variety called Georgia Pancake or Threadleaf Sandhills Blue Star, *Amsonia ciliatia* var. *tenuifolia*, also can be found in the Coastal Plain.

Images: Page 52

Wideleaf Blue Star, Eastern Blue Star / *Amsonia tabernaemontana*
Family: Dogbane / *Apocynaceae*

Life Cycle: Perennial

Characteristics: This is a compact clump-forming plant with narrow, lustrous green leaves that radiate around the stem. Leaf shape is variable, ranging from ovate to lanceolate. Leaves turn yellow-gold in fall. From spring to early summer, blue, star-shaped flowers, ½ inch across, are borne in loose clusters at stem tips. The petals have fine hairs along their margins. The flowers are followed by long narrow seed pods that are attractive and provide ornamental value to the winter landscape.

Cultural Requirements: Wideleaf Blue Star is easy to grow in well-drained soil and full sun to partial shade. It may grow leggy in shaded areas. It is drought tolerant once established. Cut back plants after flowering to encourage compact growth. Deer do not like the milky sap.

Landscape Uses: This is a low-maintenance perennial for perennial borders or containers.

Size: 2 to 3 feet tall and 2 to 3 feet wide

Hardiness Zones: All of Georgia

Habitat: Rich hardwood forests, floodplains and stream banks

Native To: Massachusetts, west to Kansas, south to Texas, east to Florida

Propagation: Seed or cuttings
Seed: Collect seeds when the capsule turns tan and the seeds turn brown. Place them in hot water and let them soak overnight to remove a germination inhibitor before planting.
Cuttings: Stem cuttings can be taken in May or June. Treat them with a rooting hormone to enhance rooting.

Comments: Once planted, Wideleaf Blue Star tends to thrive on neglect. A similar species, *A. hubrichtii*, Arkansas Blue Star, grows 3 feet tall and wide. It was a 2009 Georgia Gold Medal winner and is a valued landscape plant; however, because it is native to Oklahoma and Arkansas and is not native to Georgia, it is not described in this publication. For a description of this plant, see www.georgiagoldmedalplants.org

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Wood Anemone / *Anemone quinquefolia*
Family: Buttercup / *Ranunculaceae*

Life Cycle: Perennial

Characteristics: A slender stalk, 4 to 8 inches tall, has basal leaves and a terminal whorl of three leaflets, each divided into three to five narrow, sharply toothed segments. Basal leaves disappear at flowering. In April/May, a single white or pink flower rises above the terminal leaf whorl. The flowers are 1 inch across and consist of five to seven petal-like sepals. The plant spreads by rhizomes to colonize an area, but it is not aggressive.

Cultural Requirements: This plant likes moist, organic soil and partial shade.

Landscape Uses: Plant Wood Anemone adjacent to paths in moist woodlands with filtered shade.

Size: 4 to 9 inches

Hardiness Zones: All of Georgia

Habitat: Moist hardwood forests, meadows and fields

Native To: Maine, south to Georgia, west to Mississippi, north to the Dakotas

Propagation: Seed or division
Seed: Collect seeds in spring and plant them in outdoor flats right away. They require warm and cold stratification to germinate, so don't expect seedlings until the following spring. It takes three to four years for seedlings to flower.
Division: Divide the rhizome in fall.

Comments: All parts of the plant are poisonous.

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Tall Thimbleweed / *Anemone virginiana*
Family: Buttercup / *Ranunculaceae*

Life Cycle: Perennial

Characteristics: Multiple erect stems rise 2 feet. A whorl of three-lobed leaves appears halfway up the stem. In April and May, a solitary white flower, 1 inch across, is borne at the top of each stem. The flowers consist of five white petal-like sepals with a thimble-like center mound of yellow stamens. Flowers give way to thimble-shaped seed heads that remain on the plant well into winter. The fluffy seed heads are a nice ornamental feature in fall.

Cultural Requirements: Tall Thimbleweed prefers moist organic soils and sun or partial shade. It will adapt to dry sites.

Landscape Uses: Use Tall Thimbleweed in open woodlands or wildflower meadows.

Size: 1 to 2 feet tall

Hardiness Zones: All of Georgia

Habitat: Moist field and woodland edges, prairies and meadows

Native To: Maine to Florida, west to Louisiana, north to the Dakotas, Wyoming and Colorado

Propagation: Seed or division
Seed: Collect seeds in September when the seed heads become fluffy. Stratify them at 40°F for two months before planting. They should germinate in two to three weeks at 70°F.
Division: Divide plants when they are dormant.

Comments: All parts of the plant are poisonous when ingested.

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Rue-anemone / *Anemonella thalictroides* (syn. *Thalictrum thalictroides*)
Family: Buttercup / *Ranunculaceae*

Life Cycle: Perennial

Characteristics: The plant produces a whorl of basal leaves, each having three lobes. In March or April, several flowering stems, approximately 9 inches long, emerge from each plant. Each stem produces a solitary terminal flower above a whorl of leaves. Flowers are white, 1 to 1½ inches wide and comprised of five to 10 petal-like sepals surrounding greenish-yellow stamens. The root is tuberous.

Cultural Requirements: Rue-anemone requires shade or partial shade and consistently moist, sandy soils. It does not like clay soils.

Landscape Uses: Use Rue-anemone in shaded wildflower gardens and shaded woodlands.

Size: 6 to 9 inches tall

Hardiness Zones: All of Georgia

Habitat: Rich hardwood forests and stream banks

Native To: Florida to Oklahoma, north to Minnesota, east to Maine

Propagation: Seed or division
Seed: Collect the pale green seeds in May and sow them immediately. No pre-treatment is required.
Division: Divide the tuberous root in fall or spring.

Comments: All parts of Rue-anemone are poisonous when ingested.

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Hairy Angelica / *Angelica venenosa*
Family: Carrot / *Apiaceae*

Life Cycle: Perennial

Characteristics: Hairy Angelica is a member of the parsley/carrot family and resembles these plants. The leaves have toothed margins, winged petioles and are divided into three leaflets. The upper part of the stem as well as flower stems (peduncles) and leaf stems (pedicels) are covered with fine hairs. Flowers are snow white and borne in compound umbels from June through July. Flowers and leaves are aromatic. Fruit are round, hairy and flat with three ridges on each side. The plant has a taproot.

Cultural Requirements: Plant Hairy Angelica in sunny or partially shaded moist rocky areas. The plant dies down and disappears in winter. Self-seeding occurs, and it may produce many plants.

Landscape Uses: This plant looks nice when planted in groups of three or more plants in wildflower gardens, rock gardens, damp ditches or meadows.

Size: 3 to 4 feet tall

Hardiness Zones: All of Georgia

Habitat: Moist rocky forests, damp ditches and sand hills

Native To: Florida to Mississippi, north to Oklahoma and Michigan, east to Connecticut

Propagation: Seed or cuttings
Seed: Collect seeds in September or October and give them dry, cold stratification (40°F) until late December, then plant them in outdoor beds or flats. Do not cover them because they need light to germinate. They should germinate in late winter to early spring.
Cuttings: Take root cuttings in fall or spring.

Comments: Hairy Angelica holds up well as a cut flower. It is often devoured by the caterpillar of the Black Swallowtail butterfly. Deer also like this plant.

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Plantain Pussytoes / *Antennaria plantaginifolia*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Basal leaves are spoon-shaped (narrow toward the base and widening to a broad, rounded tip). They are 3 inches long, ¾ inch wide and woolly. Stem leaves are wider and more rounded than the basal leaves. Plants are connected to each other by ground-hugging stolons and form a dense groundcover over time. Dense clusters of fuzzy white flower heads are borne in March at the top of stalks that are 6 to 18 inches tall. The flower heads resemble a cat's paw, hence the common name.

Cultural Requirements: Plantain Pussytoes requires dry to slightly moist soil and good drainage as well as full sun or partial shade. It thrives in poor soil.

Landscape Uses: The plant forms a silvery mat in the landscape and is an excellent groundcover for hot, rocky, dry habitats.

Size: 3 to 16 inches high and ½ to 1 foot wide

Hardiness Zones: All of Georgia

Habitat: Roadsides, woods and pastures

Native To: Maine to Minnesota, south to Missouri, east to Georgia

Propagation: Seed or division
Seed: Collect seeds in April or May. Store them dry at 40°F until the next February, then plant them in outdoor beds or flats.
Division: Plants can be divided in early spring.

Comments: The flowers hold up well in fresh floral arrangements, or they can be dried and used in dry floral arrangements. The plant is dioecious (produces male and female flowers on separate plants). Female flower heads are fuzzier than male flower heads. Butterflies are attracted to the flowers.

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Eastern Columbine / *Aquilegia canadensis*
Family: Buttercup / *Ranunculaceae*

Life Cycle: Perennial

Characteristics: Eastern Columbine is an erect, branching plant. Leaves have three round lobes. Delicate red and yellow bell-like nodding flowers with spurred petals are produced on branch terminals in early spring and remain for about six weeks.

Cultural Requirements: This plant is easy to grow in full sun to partial shade. It prefers slightly alkaline soils that are well drained. The plant tends to re-seed readily and establish expanding colonies. Pruning after flowering will discourage re-seeding and will help avoid leaf miner problems.

Landscape Uses: Use Eastern Columbine in wildflower meadows, butterfly and hummingbird gardens or in woodlands having filtered shade.

Size: 2 to 3 feet tall and 1 to 1½ feet wide

Hardiness Zones: All of Georgia

Habitat: Calcareous or mafic woods and nutrient-rich rocky slopes

Native To: Most of eastern North America (east of the Rockies)

Propagation: Seed
Seed: Collect seeds in May and store them dry at 40°F for six months, then plant them in outdoor beds or flats. Germination should occur in about four weeks.

Comments: Hummingbirds and butterflies are attracted to the flowers.

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Green Dragon / *Arisaema dracontium*
Family: Arum / *Araceae*

Life Cycle: Perennial

Characteristics: Green Dragon is an unusual plant. A single irregular palmately compound leaf (see Figure 2) is borne on the end of a long stem. The leaf is divided into five to 15 unequal leaflets and arranged palmately (like the upturned palm of a hand). A separate flowering stem, approximately 6 inches long, appears in March or April. It bears at its tip a narrow green hooded spathe and a long-tipped spadix bearing numerous tiny white flowers (the dragon's tongue) protruding several inches from the spathe (see Figure 4). Flowers are held out of sight at the base of the spadix. The flowers are followed by green berries that change to red, then orange as they mature. The plant grows from an underground corm.

Cultural Requirements: Green Dragon prefers partial shade and moist, well-drained humus-enriched soil. It does poorly in heavy clay. It does not like to be disturbed once it is established.

Landscape Uses: Use this plant in moist, woodland gardens.

Size: 1 to 3 feet tall

Hardiness Zones: All of Georgia

Habitat: Bottomlands, stream banks or floodplains; wherever springtime moisture is abundant

Native To: New Hampshire to Florida, west to Texas, north to Nebraska and Minnesota

Propagation: Seed or division
Seed: Collect seeds from August to October. They have double dormancy, requiring both cold stratification and warm stratification to geminate. Place seeds with surrounding pulp in a bag of moist sphagnum moss in the refrigerator during winter. Separate the pulp from the seeds in spring and plant the seeds in outdoor flats. It may take another year for the seeds to germinate, so patience is a virtue.
Division: Offsets from the below-ground corm can be removed in winter and potted or transplanted.

Comments: Birds and mammals eat the fruit of this plant. The swollen underground corm contains calcium oxalate crystals and should not be ingested. When digging or working with the seeds, wear gloves to avoid skin irritation.

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Jack-in-the-pulpit / *Arisaema triphyllum* spp. *quinatum*
Family: Arum / *Araceae*

Life Cycle: Perennial

Characteristics: One to two glossy green leaves, 12 to 18 inches long, divided into three leaflets appear like an umbrella on the top of stalks that are 1 to 2 feet tall. Flowers are borne in April or May below the foliage. The inflorescence is unusually shaped, with an erect spadix bearing numerous tiny green to purple flowers, and a sheath-like hooded spathe extending over the spadix. The outside of the spathe is usually green or purple, and the inside is usually striped purple or greenish-white. Red berries follow the flowers in mid- to late summer. Roots grow from corms.

Cultural Requirements: This plant prefers fertile, moist, humus-rich soil and partial shade.

Landscape Uses: Jack-in-the-pulpit prefers a shady woodland garden with plenty of moisture.

Size: 1 to 2 feet tall and 6 to 10 inches wide

Hardiness Zones: All of Georgia

Habitat: Fertile hardwood forests, stream banks or floodplains where spring moisture is abundant

Native To: North America east of the Rocky Mountains

Propagation: Seed or division
Seed: Seeds have a double dormancy. Harvest seeds from August to October, remove them from their pulp and sow them in outdoor beds or flats. They require cold stratification followed by warm stratification, then cold stratification, then warm again. This can be satisfied by keeping them outdoors year-round. They may take up to two years to germinate.
Division: The corms can be divided from winter to early spring.

Comments: Birds and mammals enjoy this plant's berries. All parts of Jack-in-the-pulpit contain calcium oxalate crystals and should not be ingested. When digging or handling the seeds, wear gloves to avoid skin irritation.

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Canadian Wild Ginger / *Asarum canadense*
Family: Birthwort / *Aristolochiaceae*

Life Cycle: Perennial

Characteristics: Canadian Wild Ginger has two heart-shaped, hairy basal leaves up to 6 inches wide. In spring, cup-shaped purple flowers, 1-inch across, appear on short stems between the two basal leaves. Flowers are handsome, having three showy sepals and no petals, but they are usually hidden by the foliage. The plant spreads by rhizomes to eventually form a dense mat.

Cultural Requirements: This plant prefers moist, well-drained soils with abundant organic matter and partial shade to full shade. It likes soils with a slightly acid to neutral pH in the range of 6 to 7. The plant spreads slowly by rhizomes and eventually becomes a dense groundcover. Apply mulch to conserve moisture.

Landscape Uses: Use Canadian Wild Ginger as a groundcover in shaded, moist woodlands.

Size: 4 to 8 inches high and spreading

Hardiness Zones: 7

Habitat: Moist, shaded, nutrient-rich forests

Native To: Eastern North America, from Maine to Georgia, west to Louisiana, north to Oklahoma, Missouri and the Dakotas

Propagation: Seed or division
Seed: Collect seeds four to six weeks after flowering and plant them right away. Germination percentage decreases with storage. The seeds should germinate the following spring and bloom the second year.
Division: Rhizomes can be divided in fall or spring.

Comments: Early Colonists used the roots as a substitute for ginger.

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Milkweed / Genus *Asclepias*

Milkweeds are plants most people either love or hate. They can be a nuisance in pastures, but in cultivated landscapes they can be beautiful additions to perennial borders and wildflower meadows. The foliage is a prime food source for a variety of butterfly larvae, and the flower nectar is valued by adult butterflies and hummingbirds. Some plants produce a substance called glycoside that discourages birds from eating butterflies.

Milkweed flowers are borne in clusters called umbels at the tips of stems. Each flower has five petals and an inner crown resembling a five-parted cup. Stems produce a white milky sap, with the exception of Butterfly Milkweed, which produces a clear sap when cut. Seeds are borne in pods that split, releasing hundreds of silky seeds that float long distances in the wind.

Plants are self-infertile, so if fertile seeds are desired, plant more than one plant in a colony so they will cross pollinate.

There are more than 20 native Milkweed species in the Southeastern U.S. with a habitat ranging from sand dunes to swamps. Five that are good candidates for landscape culture are described below.

Clasping Milkweed, Blunt-leaved Milkweed, Wavy-leaf Milkweed / *Asclepias amplexicaulis*
Family: Dogbane / *Apocynaceae*

Life Cycle: Perennial

Characteristics: Leaves are opposite, sessile (lacking stalks), typically in two to five pairs along the stem. They are oblong in shape, 3 to 4 inches long and 2 to 3 inches wide. The mid-rib of the leaf is lighter in color than the surrounding area, and lateral veins have a reddish tint. Leaf margins are wavy. Summer flowers are borne in terminal umbels, each having 15 to 80 flowers. Each flower is borne on a slender stalk, 1 to 1½ inches long, and consists of five greenish-purple to pink petals that are curved downward. Above the petals are five light-pink cup-like appendages (called the hood) that have protruding flesh-colored horns. Seeds are borne in spindle-shaped pods, 3½ to 6 inches long and approximately 1 inch wide, that split lengthwise to release silky seeds that float on the wind.

Cultural Requirements: Clasping Milkweed does best in full sun and moist, well-drained soil. Aphids can be a problem.

Landscape Uses: Use Clasping Milkweed in sunny perennial borders, meadows and butterfly gardens.

Size: 1 to 3 feet

Hardiness Zones: All of Georgia

Habitat: Prairies, glades, rocky open woods and roadsides

Native To: Vermont, south to Florida, west to Texas, north to Minnesota

Propagation: Seed or cuttings
Seed: Collect seed pods when they turn tan and begin to split. Remove and discard their silky tails, then store the seeds dry at 40°F for four to six months. Sow them in outdoor beds or flats when night temperatures are between 65°F and 70°F. The seeds need light to germinate, so cover them lightly with the germination medium.
Cuttings: Take root cuttings in February.

Comments: The larvae of many butterflies eat the foliage, and adult butterflies like the flower nectar.

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Swamp Milkweed / *Asclepias incarnata*
Family: Dogbane / *Apocynaceae*

Life Cycle: Perennial

Characteristics: Swamp Milkweed is a tall, clump-forming perennial. Medium green leaves are opposite, narrow, pointed, 3 to 6 inches long and 1 to 3 inches wide. Many flowering stalks arise from a single crown. The stalks contain a milky sap. In June or July, small, fragrant pink flowers appear in tight clusters at the stem ends. Each flower consists of five dark-rose petals that are curved downward. Above the flower are five erect cup-shapted appendages (collectively called the hood), each bearing a white, curved horn. Seeds are borne in spindle-shaped pods up to 4 inches long. The pods persist throughout the winter and split in spring, releasing silky-haired seeds that are carried by the wind.

Cultural Requirements: Swamp Milkweed is easy to grow in moist, well-drained soil and full sun. Plants have a deep tap root so it is best to leave them undisturbed once established. Aphids are attracted to this plant.

Landscape Uses: This is a good plant for butterfly and hummingbird gardens or wildflower meadows. It also likes growing in wetland gardens and at pond edges.

Size: 4 to 5 feet high and 2 to 3 feet wide

Hardiness Zones: All of Georgia

Habitat: Moist stream banks, swamps and marshes

Native To: Most of North America, except the far west coastal states

Propagation: Seed or cuttings
Seed: Collect pods when they turn tan and begin to split in spring. Remove silky tails from the seeds, then store the seeds dry at 40°F for four to six months. Sow the seeds the next spring in outdoor beds or flats. Cover them lightly with the germination medium because they need light to germinate.
Cuttings: Take root cuttings in February.

Comments: Foliage is slow to emerge in the spring. Monarch caterpillars feed on the foliage. All parts of the plant are poisonous.

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Common Milkweed / *Asclepias syriaca*
Family: Dogbane / *Apocynaceae*

Life Cycle: Perennial

Characteristics: Upright sturdy stems bear oblong leaves up to 8 inches long with reddish veins. From late spring to early summer, clusters of pinkish-purple flowers emerge from the upper leaf axils. They are pleasantly fragrant. Each flower consists of five reflexed pink petals below five erect pale-pink cup-like appendages that are collectively called the hood. Flowers are followed by warty seed pods, 2 to 4 inches long, which split open when ripe to release numerous silky-tailed seeds that float in the air. Stems exude a milky sap when cut. The plant spreads by rhizomes.

Cultural Requirements: Common Milkweed is easy to grow in full sun and well-drained soil that is slightly moist to dry. It can be an aggressive spreader from rhizomes. It also tends to self-seed and naturalize, so remove seed pods before they split if spreading is not desired.

Landscape Uses: Use Common Milkweed in butterfly gardens, perennial borders, wildflower gardens or rock gardens.

Size: 4 to 5 feet tall and 1 foot wide

Hardiness Zones: All of Georgia

Habitat: Open woods, fields, waste areas and roadsides

Native To: Eastern and central North America, from Maine to Georgia, west to Texas, north to the Dakotas. It also is found in Montana and Oregon.

Propagation: Seed or cuttings
Seed: Collect pods when they turn tan and begin to split. Remove silky tails from the seeds, then store the seeds dry at 40°F for four to six months. Sow them the next spring in outdoor beds or flats. Light is required for germination, so cover them lightly with the germination medium.
Cuttings: Take root cuttings in February.

Comments: Flowers are a nectar source for many butterflies, and leaves are a food source for the larvae of Monarch butterflies.

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Butterfly Weed, Butterfly Milkweed / *Asclepias tuberosa*
Family: Dogbane / *Apocynaceae*

Life Cycle: Perennial

Characteristics: Butterfly Weed is a bushy plant having several flowering branches emerging from a single crown. Leaves are alternate, lance-shaped, 1½ to 2¼ inches long, with pointed ends and smooth margins. Stems are hairy and the sap is clear. In late spring through summer, many small, bright orange flowers are borne in clusters, 2 to 5 inches across, on stem terminals. Seeds are borne in spindle-shaped pods that are 3 to 6 inches long. The pods split in late winter and the silky-haired seeds float to new locations.

Cultural Requirements: Butterfly Weed is easy to grow. It prefers full sun and well-drained soil. Once established, it is drought tolerant. It is difficult to transplant established plants from the wild, so it is best to plant container-grown plants.

Landscape Uses: This plant is an excellent addition to butterfly gardens, native plant gardens, rock gardens and wildflower meadows.

Size: 1 to 2 feet high and 1 to 2 feet wide

Hardiness Zones: All of Georgia

Habitat: Dry open woods, fields and roadsides

Native To: New England to Florida, west to Texas, north to Colorado and Minnesota

Propagation: Seed or cuttings
Seed: Collect pods when they turn tan and begin to split. Remove silky tails from the seeds, then store the seeds dry at 40°F for four to six months. Sow seeds the next spring in outdoor beds or flats. Light is required for germination, so cover them lightly with the germination medium.
Cuttings: Take root cuttings in February.

Comments: Butterfly Weed was a 2010 Georgia Gold Medal Winner. The flowers are a nectar source for many butterflies, and the foliage is a food source for Monarch butterfly larvae. Seed pods are used in dried floral arrangements. This is the only milkweed in Georgia that lacks milky sap. Its sap is clear. However, like the other milkweeds, the sap may irritate the skin, so gloves are recommended when taking cuttings or handling the plant.

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White Milkweed / *Asclepias variegata*
Family: Dogbane / *Apocynaceae*

Life Cycle: Perennial

Characteristics: Unbranched stalks containing milky sap bear large, opposite, ovate leaves up to 5½ inches long and 2¾ inches wide. In May or June white flowers with purple centers are borne in several clusters, 2 to 3 inches across, on the tips of stems. In late summer, hundreds of seeds are produced in spindle-shaped pods that are 5 to 6 inches long. The pods split in winter, releasing silky-haired seeds that float in the wind.

Cultural Requirements: This plant prefers open woodlands and slightly moist soils. Plant it where it gets filtered shade.

Landscape Uses: White Milkweed is a good plant for butterfly gardens, rock gardens and wildflower meadows.

Size: 2 to 3 feet tall and 18 to 24 inches wide

Hardiness Zones: All of Georgia

Habitat: Thickets, open woods, slopes and ridges

Native To: Connecticut to Florida, west to Texas and Oklahoma, north to Illinois and Ohio

Propagation: Seed or cuttings
Seed: Collect pods when they turn tan and begin to split. Remove silky tails from the seeds, then store the seeds dry at 40°F for four to six months. Sow seeds the next spring in outdoor beds or flats. Light is required for germination, so cover them lightly with the germination medium.
Cuttings: Take root cuttings in February.

Comments: Like other milkweeds, the milky sap of White Milkweed may irritate the skin. Flowers attract butterflies, and the foliage is a food source for Monarch butterfly larvae.

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Wild Indigo / Genus *Baptisia*

Plants in the genus *Baptisia* are members of the pea family and are legumes. They have clover-like trifoliate leaves and pea-like irregular flowers borne in upright racemes at the ends of erect stems. Flowers have five petals: one large broad upper "banner" petal, two "wing" petals on either side and two lower "keel" petals that are joined to form a canoe shape (see Figure 4). Flowers are followed by distinctive black, hard, inflated seed pods containing small yellowish-brown, hard, waxy seeds. The roots contain nitrogen-fixing bacteria.

Wild Indigo is often called false indigo to indicate that it differs from true indigo, *Indigofera tinctoria*, a plant imported from India and used to establish a major dye industry in the Southeast in the 1800s. Blue Wild indigo, *Baptisia australis*, was used by the Cherokee Indians and early settlers as a source of blue dye for clothing. Some Indian tribes used Wild Indigo for medicinal purposes. The Osage Indians made eyewash from the plant. The Cherokee Indians made a tea from it to be used for treating sore teeth. The dried pods with loose seeds were used as rattles to entertain Indian infants.

Freshly sown Wild Indigo seeds germinate in about two weeks. Old seeds should be placed in hot water and soaked overnight to enhance germination. Note, however, that Wild Indigo crosses readily, so if there is a species planted adjacent to another one, the seed-grown offspring might not resemble the parent. Wild Indigo can also be propagated from softwood cuttings taken in spring. Cuttings should be dipped in a rooting hormone and kept in high humidity until they root, usually about eight weeks.

There are 14 *Baptisia* species native to the Southeast. Five that are worthy of landscape culture are described below.

White Wild Indigo / *Baptisia alba*
Family: Legume / *Fabaceae*

Life Cycle: Perennial

Characteristics: White Wild Indigo is a bushy, upright plant with clover-like, trifoliate, bluish-green leaves. Leaflets are up to 2 inches long and covered with velvety hairs. They turn black in fall. Stems are covered with white fuzz. From April to July, white pea-like flowers (up to ½ inch long) are borne in terminal clusters (racemes) rising above the foliage. Oval seed pods turn black in fall and persist on the plant.

Cultural Requirements: White Wild Indigo prefers well-drained soil and full sun. Once established, it tolerates heat and drought. It slowly expands outward from the clump and should not be disturbed.

Landscape Uses: Use White Wild Indigo in water-smart gardens (gardens designed with water conservation in mind), naturalized areas, butterfly gardens or perennial borders.

Size: 2 to 3 feet tall and 2 to 2 ½ feet wide

Hardiness Zones: All of Georgia

Habitat: Prairies, dry open woods and ravines

Native To: Southeastern U.S.

Propagation: Seed or cuttings
Seed: Harvest seeds when pods turn tan but seeds inside are still green. They do not require pre-treatment, so plant them immediately. It takes up to three years to produce a flowering plant from seed.
Cuttings: Root cuttings can be taken in fall.

Comments: White Wild Indigo is easy to grow. It is tolerant of drought and poor soils and has no major pest problems. Flowers and seed pods can be dried and used in floral arrangements. The plant attracts birds and butterflies. Spiked Wild Indigo, *Baptisia albescens*, has white flowers and is somewhat smaller than White Wild Indigo, and its fruit are brown and elongated instead of black and oval like those of *Baptisia alba*.

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Blue Wild Indigo / *Baptisia australis*
Family: Legume / *Fabaceae*

Life Cycle: Perennial

Characteristics: Blue Wild Indigo is a bushy, upright plant with clover-like leaves having three bluish-green leaflets up to 2 inches long. Purple pea-like blooms appear in spring in dense terminal racemes, 4 to 16 inches long, above the foliage. Charcoal black seed pods, up to 2½ inches long, rattle when dry.

Cultural Requirements: Blue Wild Indigo is easy to grow. It prefers full sun to partial shade and slightly moist to dry soil. Once established, it is drought tolerant and low maintenance. Cutting plants back after flowering promotes more compact growth and prevents self-seeding; however, it also prevents the formation of seed pods, which are an attractive feature of the plants.

Landscape Uses: Use Blue Wild Indigo in wildflower meadows, butterfly gardens and perennial borders.

Size: 3 to 4 feet tall and 3 to 4 feet wide

Hardiness Zones: All of Georgia

Habitat: Riverbanks, gravel bars and open meadows

Native To: New Hampshire, south to Georgia, west to Texas, north to Nebraska, Iowa and Michigan

Propagation: Seed or cuttings
Seed: Harvest seeds when pods turn tan but seeds inside are still green. They do not require pre-treatment, so plant them immediately. It takes up to three years to produce a flowering plant from seed.
Cuttings: Root cuttings can be taken in fall.

Comments: American Indians and settlers used this plant for extracting dye for fabrics. Bees and butterflies are attracted to the plant. A dwarf variety, *Baptisia australis* var. *minor*, is available. A popular hybrid cultivar in the nursery trade, called Purple Smoke, is a cross between Blue Wild Indigo and White Wild Indigo.

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Longbract Wild Indigo, Cream Wild Indigo / *Baptisia bracteata*
Family: Legume / *Fabaceae*

Life Cycle: Perennial

Characteristics: Longbract Wild Indigo has loosely branched stems that bear alternate, tri-foliate, clover-like leaves. Leaflets are about 3 inches long, 1 inch wide and pointed at both ends. Leaves and stems are gray-green due to numerous small hairs. In March or April, creamy white pea-like flowers, 1 inch long, droop downward in terminal racemes. Black pea-like seed pods follow the flowers and persist on the plant throughout the fall and winter months.

Cultural Requirements: This plant has a deep tap root, allowing it to withstand dry conditions and heat. It prefers full sun or partial shade. It may need some support to stand upright when grown in shade.

Landscape Uses: Longbract Wild Indigo provides a nice backdrop in perennial gardens, wildflower gardens, butterfly or hummingbird gardens or naturalized areas.

Size: 18 to 24 inches tall and 12 to 25 inches wide

Hardiness Zones: All of Georgia

Habitat: Sand hills, open woods and meadows

Native To: Eastern United States

Propagation:
Seed: Harvest seeds from October to December when the seed pods turn black. After removing the seeds from their pods, soak them overnight in tepid water before planting them in outdoor beds or flats.

Comments: Flowers are used in fresh floral arrangements, and seed pods are used in dried floral arrangements. The flowers attract butterflies and hummingbirds.

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Gopherweed / *Baptisia lanceolata*
Family: Legume / *Fabaceae*

Life Cycle: Perennial

Characteristics: Leaves are trifoliate. Leaflets are elliptic in shape, 1 to 4 inches long, with smooth margins. In spring and summer, yellow pea-like flowers appear at the leaf axils in short, loosely clustered racemes. These are followed by spherical black pods, ½ to 1 inch in length.

Cultural Requirements: Gopherweed prefers moist, fertile, acidic, well-drained soil in full sun. Once established, it is heat and drought tolerant. A Coastal Plain plant, Gopherweed likes sandy, porous soil.

Landscape Uses: Use Gopherweed in perennial borders, rock gardens, butterfly gardens or open woods.

Size: 2 to 3 feet tall and 3 feet wide

Hardiness Zones: All of Georgia

Habitat: Sand hills, open woods and roadsides in the Coastal Plain

Native To: The Coastal Plain from South Carolina to Florida

Propagation:
Seed: Harvest seeds from October to December when the seed pods turn black. Place the seeds in tepid water and allow them to soak overnight before planting them in outdoor beds or flats.

Comments: Dried foliage and seed pods are attractive in floral arrangements. Butterflies are attracted to the flowers. A similar species, *Baptisia perfoliata*, is also found in the Coastal Plain.

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Shoofly Wild Indigo / *Baptsia tinctoria*
Family: Legume / *Fabaceae*

Life Cycle: Perennial

Characteristics: Leaves are small and clover-like, trifoliate and gray-green, with leaflets up to 1 inch long. In June or July, sparsely flowered racemes, 4 to 5 inches long, bear creamy yellow pea-like flowers up to ½ inch long. Seed pods follow flowers and turn black when mature.

Cultural Requirements: Plant Shoofly Wild Indigo in full sun to partial shade and dry to moderately moist soils. Once established, it is drought tolerant. Cut the plant back lightly after flowering to maintain a compact growth habit.

Landscape Uses: Use Shoofly Wild Indigo in cottage gardens, wildflower meadows, butterfly gardens and perennial borders.

Size: 2 to 3 feet tall and 2 to 3 feet wide

Hardiness Zones: All of Georgia

Habitat: Dry, open woods and sandy, acidic soils

Native To: Southeastern Canada, New England, south to Florida, west to Louisiana, north to Minnesota

Propagation:
Seed: Plant seeds directly after collecting them in the fall.

Comments: Shoofly Wild Indigo flowers are smaller and are not as showy as those of the other native *Baptisias*; however, it is a tough plant and easy to grow. Its flowers attract butterflies.

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Bearded Beggarticks, Bur Marigold / *Bidens aristosa*
Family: Aster / *Asteraceae*

Life Cycle: Annual

Characteristics: This plant grows upright and has a shallow taproot. Leaves are alternate, pinnately or bipinnately compound (see Figure 2), lance-shaped and 1 to 2 inches long. In fall, numerous daisy-like bright yellow flowers, 1 to 2 inches across, are borne on the terminals of branched stems. The flowers tend to glow in the sun and have a florescent quality. Fruit are dark brown, flattened and have two prongs that project from one end.

Cultural Requirements: Plant Bearded Beggarticks in full sun or partial shade and moist soil.

Landscape Uses: Use Bearded Beggarticks in wildflower gardens, perennial borders, naturalized meadows and roadside plantings.

Size: 1 to 5 feet tall and 2 feet wide

Habitat: Ditches, marshes and wet meadows

Native To: Most of eastern and central North America, from Maine to Georgia, west to Texas, north to Minnesota

Propagation: Seed or cuttings
Seed: Collect seeds in fall. Store them dry at 40°F for three months, then plant.
Cuttings: Terminal stem cuttings can be taken in spring.

Comments: The prickly seeds, known as beggarticks, cling to clothing on autumn walks through the woods.

Images: Page 59

Nodding Beggarticks / *Bidens cernua*
Family: Aster / *Asteraceae*

Life Cycle: Annual

Characteristics: Leaves are opposite and lance-shaped, up to 6 inches long and 1½ inches wide, pointed at the tip and sessile. Nodding flowers are borne at the upper leaf axils in fall. They are daisy-like with yellow ray flowers approximately ¾ inch long that surround dark yellow disk flowers (see Figure 4). Fruit are small flat seed-like achenes with four stiff barbed prongs at their upper end. The prongs help them attach to animal fur and clothing and hitch a ride to a new location. The plant has a taproot.

Cultural Requirements: Nodding Beggarticks likes partial shade and moist, well-drained soil.

Landscape Uses: Use this plant around ponds, lakes, streams, wet meadows, roadside ditches, bogs or other wet sites. It is a good plant for wildlife habitats because birds eat the seeds.

Size: 3 to 5 feet

Habitat: Swamps and other wet or moist sites

Native To: All of North America

Propagation: Seed or cuttings
Seed: Collect seeds in fall. Store them dry at 40°F for three months, then plant.
Cuttings: Terminal stem cuttings can be taken in spring.

Comments: Another name for Beggarticks is stick-tights. The barbed nutlets adhere to the clothing of hikers in autumn.

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Toothwort, Crinkleroot / *Cardamine diphylla* (syn. *Dentaria diphylla*)
Family: Mustard / *Brassicaceae*

Life Cycle: Perennial

Characteristics: Each stem usually produces only one pair of trifoliate, coarsely-toothed opposite leaves. In March or April a loose cluster of white to pink flowers appears on stem terminals. Each flower has four petals and is borne on a stalk that is about 2/3 inch long. Long thin pods bear the seeds. It colonizes an area by spreading rhizome.

Cultural Requirements: Toothwort prefers partial shade and moist acid soil high in organic matter.

Landscape Uses: Use this plant in woodland gardens, butterfly gardens and shaded rock gardens.

Size: 8 to 14 inches tall

Hardiness Zones: 6 to 7

Habitat: Rich hardwood forests and alluvial areas

Native To: Maine, south to Georgia, west to Alabama and Arkansas, north to Minnesota

Propagation: Seed or division
Seed: Sow seeds outdoors in a shaded seedbed. They require no pre-treatment; however, it takes three to four years to produce a flowering plant from seed.
Division: Divide rhizomes in fall or winter.

Comments: Toothwort attracts butterflies. It goes dormant in summer. A similar species, Cutleaf Toothwort, *Cardamine concatenata* (syn. *Dentaria lanceolata*), is also common in the Southeast.

Images: Page 59

Vanillaleaf, Deer tongue / *Carphephorus odoratissimus*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Vanillaleaf has a single erect leafy stem. Basal leaves are linear, lance-shaped, 6 to 8 inches long and 1½ inches wide. Stem leaves are alternate, sessile and much smaller than basal leaves. When dried, the leaves have a vanilla scent. Stems are hairy. In summer, small purple strap-like disk flowers appear in a broad cylindrical inflorescence at stem tips. Flowers are surrounded by overlapping bracts. Fruit are small, dry, cone-shaped achenes surrounded by numerous fine bristles.

Cultural Requirements: Vanillaleaf prefers moist, organic soils in full sun to partial shade.

Landscape Uses: This is a good plant for wildflower meadows and background plantings in herb gardens or butterfly gardens.

Size: Up to 6 feet tall

Hardiness Zones: 8, primarily a Coastal Plain species

Habitat: Moist pinelands, savannahs and thin mixed woods

Native To: North Carolina to Florida, west to Louisiana

Propagation: Seed, cuttings or division
Seed: Collect seeds when seed heads become puffy in late summer. Plant them right away in a well-drained germination medium and maintain a temperature of 70°F or higher.
Cuttings: Take stem cuttings in spring when new growth begins to harden and dip the cut end in a rooting hormone.
Division: Divide plants in early spring.

Comments: Vanillaleaf attracts bees, birds and butterflies. The vanilla-scented leaves are dried and used in smoking tobacco.

Images: Page 60

Blue Cohosh / *Caulophyllum thalictroides*
Family: Barberry/ *Berberidaceae*

Life Cycle: Perennial

Characteristics: Trifoliate-lobed leaves appear midway up the stem. They emerge smoky blue in spring and turn bluish-green at maturity. Young plants are covered with a white, waxy coating. In April, brownish-green to yellowish-green flowers, ½ inch across, with six pointed sepals appear in loose clusters at stem terminals. Flowers are followed by berry-like fruit that turn attractive bright blue as they mature and persist into fall. The plant spreads slowly by rhizomes to form colonies.

Cultural Requirements: Plant Blue Cohosh in shade and moist, well-drained soil.

Landscape Uses: Use this plant in moist, shady woodland gardens

Size: 1 to 3 feet tall and 1 foot wide

Hardiness Zones: All of Georgia

Habitat: Rich hardwood forests on basic soils

Native To: Maine to Georgia, Alabama, Arkansas and Oklahoma, north to North Dakota

Propagation: Seed
Seed: Collect berries when they begin to turn blue. Remove the seeds from the pulp covering them, then sow them in outdoor beds or flats. Patience is required because new seedlings may not appear until the second or third spring after sowing.

Comments: Fruit and seeds are poisonous when ingested, so exercise caution when planting this plant in areas frequented by young children.

Images: Page 60

Spurred Butterfly Pea / *Centrosema virginianum*
Family: Legume / *Fabaceae*

Life Cycle: Perennial

Characteristics: This is a twining, climbing or trailing vine with a tough, elongated root. Leaves are trifoliate. Each leaflet is lance-shaped and 1 to 2 inches long. From late spring through early summer, showy lavender flowers, approximately 1 inch across, with a white blotch hang downward from the leaf axils. There are two types of petals: a large, flat rounded petal (called the banner petal) that looks like the wings of a butterfly (hence the name Butterfly Pea) surrounds much smaller petals (called wing and keel petals) in the center of the flower (see Figure 4). Seeds are borne in flat pods, 3 to 7 inches long.

Cultural Requirements: Plant Butterfly Pea in full sun or partial shade and well-drained soil. It has an extensive root system. Like other members of the pea family, it has a symbiotic relationship with certain soil-borne bacteria that capture atmospheric nitrogen and convert it to a form of nitrogen that plants can use, thus enriching the soil. It tolerates drought.

Landscape Uses: It can be trained on supports or allowed to sprawl along the ground.

Size: 6 to 12 feet tall and 4 to 6 feet wide

Hardiness Zones: All of Georgia

Habitat: Dry woodlands

Native To: Florida to Texas, north to Illinois, east to Delaware

Propagation: Seed
Seed: Collect seed pods when they are almost mature and place them in a paper bag to dry and release their seeds. Soak seeds in water for 12 hours before planting.

Comments: Butterfly Pea has been used for animal forage and erosion control. Flowers attract bees and butterflies.

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Partridge Pea / *Chamaecrista fasciculata*
Family: Legume / *Fabaceae*

Life Cycle: Annual

Characteristics: Pinnately-compound leaves consist of small blue-green leaflets. The leaflets fold together when touched. Large showy yellow flowers with red centers arise from the leaf axils from July to September. Often, one petal curves inward, partially covering the center of the flower. Slender pods bearing seeds follow the flowers.

Cultural Requirements: Plant Partridge Pea in sun or partial shade and dry, sandy soil.

Landscape Uses: Use Partridge Pea in meadows, native plant gardens and butterfly gardens. It tends to re-seed, which may be a concern in some areas.

Size: 2 feet tall and 12 to 18 inches wide

Habitat: Disturbed open places

Native To: Florida to Texas, north to North Dakota and Minnesota, east to New York and Connecticut

Propagation: Seed
Seed: Collect seed pods when they are nearly mature and place them in a paper bag to dry and release their seeds. Then sow them directly in outdoor beds or flats.

Comments: Flowers attract bees and butterflies. Birds like the seeds.

Images: Page 61

Fairy Wand, Devil's Bit / *Chamaelirium luteum*
Family: Swamp-pink / *Heloniadaceae*

Life Cycle: Perennial

Characteristics: A rosette of evergreen basal leaves hug the ground. Each leaf is 3 to 8 inches long and oval, with smooth margins. Stem leaves are narrower than the basal leaves. Small white flowers are borne in dense terminal spikes in spring. The spikes are 4 to 8 inches long. They turn yellow with age. Male and female flowers are borne on separate plants. Male flower spikes are about 5 inches long and curve at the tip, while female flower spikes are 2 inches long and have a blunt, upright tip.

Cultural Requirements: Fairy Wand prefers shade and moist soil high in organic matter. Both male and female plants must be grown if seeds are to be produced.

Landscape Uses: Use Fairy Wand in moist, shaded woodlands.

Size: 2 to 3 feet

Hardiness Zones: All of Georgia

Habitat: Rich, moist woodlands

Native To: Connecticut, west to Michigan and Illinois, south to Louisiana, east to Florida

Propagation: Seed
Seed: Collect seeds in November when capsules split, then store them at 40°F for one month before planting. It takes about three years to produce a flowering plant from seed.

Comments: The common name stems from the shape of the flower spike, which resembles a fairy's wand.

Images: Page 61

Woolly Sunbonnets, Pineland Daisy / *Chaptalia tomentosa*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Leaves are basal, elliptic to lance-shaped, about 4 inches long and 1¼ inch wide, dark green above and woolly white below. The petioles have wings. From February to April, daisy-like flower heads are borne on leafless, hairy stalks. The flower heads have pinkish-white ray flowers and creamy white disk flowers. Fruit are small, dry, seed-like achenes surrounded by many fine white bristles.

Cultural Requirements: Plant Woolly Sunbonnets in moist to wet soil and full sun.

Landscape Uses: Use Woolly Sunbonnets in wildflower meadows or around ponds. It slowly self-sows, forming a mat-like ground cover.

Size: 1 foot tall and 1 foot wide

Hardiness Zones: 8 (a Coastal Plain plant)

Habitat: Wet pine flatwoods, bogs and savannahs

Native To: North Carolina to Florida, west to Texas

Propagation: Seed or division
Seed: Collect seeds in May or June and store them dry at 40°F for planting in outdoor beds or flats in October. Seeds require light to germinate so cover them lightly with the germination medium.
Division: Divide plants in fall or spring.

Comments: Woolly Sunbonnets is a cool-season plant and blooms from late winter to early spring.

Images: Page 62

White Turtlehead / *Chelone glabra*
Family: Plantain / *Plantaginaceae*

Life Cycle: Perennial

Characteristics: Square, narrow, dark-green stems support deep green leaves, 2 to 3 inches long and 1 inch wide, with toothed margins. White snapdragon-like flowers tinged with pink appear in terminal clusters from August to October. Flowers resemble the head of a turtle. Plants spread by rhizomes.

Cultural Requirements: This plant prefers moist to wet soil and partial shade.

Landscape Uses: Use White Turtlehead in bog gardens and along pond edges.

Size: 2 to 3 feet tall and 18 to 24 inches wide

Hardiness Zones: All of Georgia

Habitat: Stream banks, seepage areas, wet meadows and swamps

Native To: Maine, west to Minnesota, south to Arkansas, east to Florida

Propagation: Seed, cuttings or division
Seed: Harvest seeds and plant them in outdoor beds in the fall. An alternate method is to stratify the seeds at 40°F for one month, then plant.
Cuttings: Stem cuttings from firm new growth can be taken in spring.
Division: Divide rhizomes in spring.

Comments: White Turtlehead leaves are a food source for the larvae of the Baltimore Checkerspot butterfly. Its flowers attract butterflies and bumblebees. The plant is undesirable to deer.

Images: Page 62

Pink Turtlehead / *Chelone lyonii*
Family: Plantain / *Plantaginaceae*

Life Cycle: Perennial

Characteristics: Pink Turtlehead is an upright, clump-forming plant that spreads by rhizomes. Leaves are opposite, dark green, oval to broadly lance-shaped and up to 6 inches long. In late August, pink to rose-purple tubular flowers are borne in terminal racemes. They resemble the heads of open-mouthed turtles.

Cultural Requirements: Grow Pink Turtlehead in full sun or partial shade and moist soil enriched with organic matter. The plant dies down after the first frost and can be cut back at that time. It self-seeds readily, so dispose of the clippings if you want to discourage spreading.

Landscape Uses: Use Pink Turtlehead in shaded bogs, woodland gardens or along pond edges.

Size: 2 to 3 feet tall and 1½ to 2 feet wide

Hardiness Zones: All of Georgia

Habitat: Fertile, moist, humus-enriched soil near creeks, streams or ponds

Native To: The Southern Appalachian Mountains in Tennessee, North and South Carolina, and Georgia

Propagation: Seed, cuttings or division
Seed: Stratify the seeds at 40°F for one month before planting them.
Cuttings: Stem cuttings from firm new growth can be taken in the spring.
Division: Root division can be done when the plant is dormant.

Comments: Pink Turtlehead has good deer resistance. It also holds up well as a cut flower. Like White Turtlehead, it is a host plant for the larvae of the Baltimore Checkerspot butterfly. Butterflies and bees like the sweet floral nectar. A similar species, Rose Turtlehead, *Chelone obliqua*, is common in Georgia.

Images: Page 62

Green-and-gold / *Chrysogonum virginianum*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Green-and-Gold is a low-growing, semi-evergreen, herbaceous perennial groundcover. Leaves are oval, toothed, hairy and up to 3 inches long. They hug the ground. In May, bright yellow star-shaped flowers, approximately 1½ inch across, arise from the upper leaf axils. Each flower head has five yellow, rounded, notched ray petals surrounding a central disk of tiny yellow flowers. A profuse spring bloom is followed by sparse flowering through October. The plant spreads by stolons (above-ground stems that creep along the ground).

Cultural Requirements: Green-and-Gold prefers sun to partial shade and moist, well-drained soil high in organic matter.

Landscape Uses: Use this plant as a groundcover in moist woodland gardens or naturalized areas.

Size: 6 to 9 inches tall and 15 to 18 inches wide

Hardiness Zones: All of Georgia

Habitat: Moist woodlands

Native To: Louisiana to Florida, north to New York, west to Ohio

Propagation: Seed, cuttings or division
Seed: Collect seeds two to three weeks after the flower heads fade. Stratify them at 40°F for six weeks, then plant them in flats and keep them warm (70°F to 80°F).
Cuttings: Stem cuttings taken in spring and treated with a rooting hormone should root in about six weeks.
Division: Rooted stolons can be separated from the mother plant any time of year.

Comments: Given the right growing conditions, Green-and-Gold will naturalize and become low-maintenance. There are several cultivars in the trade.

Images: Page 62

Maryland Goldenaster / *Chrysopsis mariana*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Leaves lack petioles and are joined directly to the stem. They are lance-shaped, 1 to 2 inches long and alternate along the stem. Leaf margins are smooth. Young stems are covered with fine hairs. In late summer, clusters of yellow flowers, 1 inch across, appear on terminal stems. The petals of ray flowers are narrow and strap-shaped. They surround tiny yellow flowers that make up the center disk. Below the flower heads are whorls of sticky bracts. The plant spreads by rhizomes and seeds.

Cultural Requirements: Maryland Goldenaster prefers full sun and moist, well-drained, sandy soils. Once established, it has good drought tolerance. It self-seeds readily, so remove old flowers if seeding and spreading is not desired.

Landscape Uses: Use Maryland Goldenaster in butterfly gardens and open meadows. It is also a good plant for roadside wildflower plantings.

Size: 2 to 3 feet tall and 2 to 3 feet wide

Hardiness Zones: 6, 7

Habitat: Old fields, dry forests and roadsides

Native To: Rhode Island, west to Ohio, south to Texas, east to Florida

Propagation: Seed or division
Seed: Seeds may be planted as soon as they are mature. No pre-treatment is required.
Division: Established plants can be divided in late winter.

Comments: This is a tough, hardy plant that is easy to grow.

Images: Page 62

Carolina Coralbead / *Cocculus carolinus*
Family: Moonseed / *Menispermaceae*

Life Cycle: Perennial/Deciduous Vine

Characteristics: Carolina Coralbead is a deciduous twining vine that climbs other vegetation or trails along the ground. Leaves have various shapes, ranging from oval to heart-shaped or triangular, and may be up to 4 inches long. In summer small greenish-white flowers are borne in drooping racemes that are 1 to 2 inches long. Clusters of bright red fruit appear on female plants in late summer and persist until fall. Seeds are crescent-shaped. The plant spreads aggressively by rhizomes.

Cultural Requirements: This plant is easy to grow in moist, well-drained soils and full sun to partial shade. It requires moisture during periods of limited rainfall. It dies back in winter, so prune it back before spring growth begins.

Landscape Uses: Carolina Coralbead is a fast-growing vine for arbors and fences. The fruit attract birds, so it is a good plant for wildlife habitats.

Size: 10 to 14 feet long and 3 to 6 feet wide

Hardiness Zones: All of Georgia

Habitat: Rocky or sandy open woodlands, thickets and along ponds

Native To: Virginia, west to Illinois, south to Texas, east to Florida

Propagation: Seed
Seed: Collect fruit in November and remove the seeds from the pulp, then plant them in outdoor flats or beds in December. Germination should occur the following spring.

Comments: Carolina Coralbead tends to be short-lived due to its shallow root system and lack of drought tolerance. It is a dioecious plant (having male or female flowers on separate plants) so both male and female plants will need to be grown if the attractive fruit are desired. Only the female plant produces fruit.

Images: Page 63

Blue Mistflower / *Conoclinium coelestinum*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Blue Mistflower spreads by creeping rhizomes and quickly covers the ground. Leaves are opposite, triangular in shape, bluntly toothed and up to 4 inches long. From mid-summer until frost, small fluffy, bluish-purple flower heads appear in terminal clusters, each having up to 70 flowers. The flower consists of all disk flowers. They have no ray flowers (see Figure 4).

Cultural Requirements: This plant needs full sun or partial shade and moist, well-drained soils. It may require staking to hold it upright. Cut the plant back after flowering to avoid re-seeding and to encourage a compact growth habit.

Landscape Uses: Blue Mistflower is best used in areas where it can multiply freely. It is somewhat aggressive and may overtake adjacent plants in a perennial border. It attracts butterflies and is useful in butterfly gardens.

Size: 1½ to 2 feet tall and 2 feet wide

Hardiness Zones: All of Georgia

Habitat: Occurs in flood plains, fields and wet meadows

Native To: Maine, west to Minnesota, south to Arkansas, east to Florida

Propagation: Seed, cuttings or division
Seed: Collect seeds in September or October. Store them dry at 40°F for January planting in outdoor flats or beds.
Cuttings: Stem cuttings can be taken in June, and root cuttings can be taken in March or April. Division: Plants can be divided any time of year.

Comments: Blue Mistflower is sometimes called Hardy Ageratum because its flowers resemble those of ageratum. The plant will spread aggressively from seeds or rhizomes and forms a solid mass in moist areas.

Images: Page 63

Coreopsis, Tickseed – Genus *Coreopsis*

Coreopsis have become such common garden plants that we fail to recognize that many of our favorite ones are native plants. In fact, there are about 100 native species of Coreopsis in North America, and 12 of them are native to the Southeast. They are reliable, widely adapted plants that produce showy, daisy-like flowers that attract hummingbirds, and seeds that nourish a wide variety of songbirds.

Coreopsis is self-sterile and must cross with other seed-grown plants of the same species or other species to produce fertile seeds.

Six Coreopsis species that are native to the Southeast and worthy of garden culture are described here.

Lobed Coreopsis, Tickseed, Eared Coreopsis / *Coreopsis auriculata*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: This plant has a dwarf, compact growth habit. Foliage is usually found only on the lower half of the stem. Leaves are elliptic to oval, dark green, pubescent and up to 3 inches long and 1½ inches wide. Leaf petioles can be up to 6 inches long. Many of the leaves have ear-like lobes at their base. Flower heads appear in spring and are daisy-like, with bright yellow ray flowers surrounding golden yellow disk flowers. The petals of the ray flowers are distinctly toothed at their tips. The plant colonizes by stolons (aboveground runners).

Cultural Requirements: Lobed Coreopsis prefers full sun or partial shade and well-drained soil. Dead-heading after initial flowering encourages repeat bloom.

Landscape Uses: Use Lobed Coreopsis in sunny borders, containers or rock gardens. It also is a good plant for wildflower plantings along roadsides.

Size: 8 to 24 inches tall and spreading

Hardiness Zones: All of Georgia

Habitat: Open woodlands and fields

Native To: Louisiana to Florida, north to West Virginia, west to Kentucky

Propagation: Seed
Seed: Collect seeds about four weeks after flowering. Sow them right away and keep them warm (70°F to 80°F). Germination should occur in about seven days.

Comments: The flowers attract butterflies and the seeds attract birds. A dwarf cultivar, 'Nana,' grows 12 inches tall. Another cultivar, 'Zamfir,' is a sport of the 'Nana' cultivar and has unusual tubular flower petals. A third cultivar, 'Snowberry,' has white ray flowers with a burgundy base surrounding a central disk of tiny golden-yellow flowers.

Images: Page 63

Goldenmane Tickseed, Golden Wave Tickseed / *Coreopsis basalis*
Family: Aster / *Asteraceae*

Life Cycle: Annual

Characteristics: Goldenmane Tickseed is an erect bushy annual. Small, linear leaves, 1 to 2 inches long and ¾ inch wide, are pinnately compound and are borne on the lower half of the stem. Leaf petioles are 1 to 7 inches long. Flowering occurs from summer through fall. The flower heads are daisy-like and fragrant. They consist of yellow ray petals that are notched on their ends surrounding a central disk of tiny maroon flowers. The disk flowers have a distinct yellow band around their perimeter.

Cultural Requirements: This is an easy annual to grow in open, sunny areas and well-drained soils. It can be direct seeded.

Landscape Uses: Use Goldenmane Tickseed along roadsides or in meadows, butterfly gardens, perennial borders or annual flower beds.

Size: 12 to 18 inches tall

Habitat: Open, sunny, sandy roadsides and meadows in the Gulf Coastal Plain

Native To: Illinois and North Carolina, south to Florida and west to Texas and Arkansas.

Propagation: Seed, cuttings or division
Seed: Collect seeds in summer and plant them right away. Keep them warm (70°F+). Germination should occur in about a week.
Cuttings: Stem cuttings can be taken of new, hardened growth.
Division: Rhizomes can be divided in spring.

Comments: Goldenmane Tickseed is a beautiful annual for flower gardens. It attracts the Giant Swallowtail Butterfly.

Images: Page 64

Large-flowered Coreopsis / *Coreopsis grandiflora*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Dark green lance-shaped leaflets, up to 4 inches long and 1 inch wide, are borne on wiry stems. From mid-June to October, daisy-like yellow flower heads, 2 to 3 inches across, are borne on long terminal stalks. Ray flowers with notched tips surround a central disk of tiny golden yellow flowers.

Cultural Requirements: Large-flowered Coreopsis prefers full sun to partial shade and well-drained soil. Cut the plant back when frost damages its foliage.

Landscape Uses: This is a tough garden plant. It tolerates intense heat and dry sites and is a good plant for naturalizing along roadsides and in meadows.

Size: 6 to 12 inches tall and 6 to 12 inches wide

Hardiness Zones: All of Georgia

Habitat: Dry sandy soil, open rocky upland forests, granite flatrocks and roadsides

Native To: Central Georgia and western South Carolina, west to eastern Texas and Oklahoma

Propagation: Seed, cuttings or division
Seed: Collect seeds in fall and plant them right away. Keep them warm (70°F+). Germination should occur in about a week.
Cuttings: Stem tip cuttings can be taken from new, hardened growth.
Division: Rhizomes can be divided in spring.

Comments: Large-flowered Coreopsis is a favorite garden plant due to its toughness and long bloom period. It is also a good cut flower for floral arrangements. The vegetative parts of *Coreopsis basalis* and *C. grandiflora* look similar; however, while *C. grandiflora* is a perennial, *C. basalis* is an annual. Also, the disk flowers of *C. basalis* are maroon while those of *C. grandiflora* are yellow.

Images: Page 64

Woodland Coreopsis, Pot of Gold Coreopsis / *Coreopsis major*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: This is a single-stemmed plant arising from a rhizomatous root system. Leaves are sessile, occur in opposite pairs along the stem and consist of three leaflets each, giving the appearance of six whorled leaves instead of two opposite leaves. Leaf blades are pubescent. The paired leaves are spaced every 4 inches along the stem. Flower heads are daisy-like and 2 inches across. They appear in loose terminal clusters from late spring to late summer. Both ray and disk flowers are yellow. The plant has a long bloom period.

Cultural Requirements: Woodland Coreopsis is adaptable to a wide variety of soils and sunlight exposures. It needs good drainage and tolerates some shade; however, it blooms best in full sun. Prompt dead-heading after bloom encourages repeat flowering and prevents re-seeding. Cut back plants in mid-summer if they begin to flop over.

Landscape Uses: Woodland Coreopsis is a tough and long-lived plant. It is a great plant for perennial borders and wildflower meadows. After the first frost, stems and seed heads turn black. They provide an interesting accent to the winter landscape.

Size: 2 to 3 feet tall and 2 feet wide

Hardiness Zones: All of Georgia

Habitat: Dry open woodlands, prairie edges and roadsides

Native To: Connecticut, west to Illinois, south to Louisiana, east to Florida

Propagation: Seed
Seed: This plant tends to self-seed readily. Collect seeds in August, then store them dry at 40°F for planting in February. They require cold treatment to germinate.

Comments: Woodland Coreopsis is an attractive, widely adaptable plant that should be used more often in landscapes. Butterflies are attracted to this plant.

Images: Page 64

Star Tickseed, Downy Tickseed / *Coreopsis pubescens*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Leaves are opposite, oval to lance shaped, pubescent, 3 inches long and 1¼ inch wide. Stems are branching and hairy. The foliage remains evergreen throughout the winter. Bright yellow flower heads, 1½ inch across, appear from June to September. Both the ray and disk flowers are yellow. The petals of the ray flowers have jagged edges.

Cultural Requirements: Star Tickseed is found throughout the Southeast in a variety of sites, from partial shade to full sun and from moist to dry soils. It is not an aggressive spreader like some other *Coreopsis* species.

Landscape Uses: Use Star Tickseed in sunny areas at the front of perennial beds or in meadows, ditches or other open areas in sun or partial shade. It re-seeds, but it is not invasive. This is a good plant for poor soils and wet/dry fluctuations in soil moisture.

Size: 1 to 3 feet tall with equal width

Hardiness Zones: All of Georgia

Habitat: Roadsides, rock outcrops and open rocky forests

Native To: Southern Illinois, Missouri and Kansas, east to southern Virginia, south to northwest Florida, west to Louisiana. It is found mainly in the Southern Appalachian mountains.

Propagation: Seed
Seed: The seeds germinate readily without pre-treatment. They persist on the plant after flowering and can be collected throughout the fall and winter.

Comments: Star Tickseed attracts butterflies. A cultivar called 'Sunshine Superman' is available in the nursery trade.

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Plains Tickseed, Golden Tickseed / *Coreopsis tinctora*
Family: Aster / *Asteraceae*

Life Cycle: Annual

Characteristics: Plains Tickseed has an upright growth habit with angled branches, wiry stems and a taproot. Leaves are opposite and pinnately compound. Ray flowers are yellow with a reddish-brown base. Disk flowers are reddish-brown. Flower heads appear from June through September.

Cultural Requirements: Plains Tickseed prefers moist, well-drained sandy soil and full sun. It is drought tolerant once established.

Landscape Uses: Plant Plains Tickseed in annual beds, perennial borders or in wildflower gardens. Sow seeds directly into well-drained soils on sunny sites. Deadheading will encourage repeat flowering.

Size: 1 to 3 feet tall

Habitat: Open, disturbed areas

Native To: Throughout the United States and Canada

Propagation: Seed, cuttings or division
Seed: Collect seeds in summer and plant them right away. Keep them warm (70°F+). Germination should occur in about a week.
Cuttings: Stem cuttings can be taken in spring as new growth hardens.
Division: Rhizomes can be divided in spring.

Comments: Plains Tickseed is common in wildflower mixes sold by western seed companies. Native Americans used the plant to make dyes. Butterflies are attracted to the flowers, and birds are attracted to the seeds.

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Crinum Lily, Seven Sisters, String Lily, Swamp Lily / *Crinum americanum*
Family: Amaryllis / *Amaryllidaceae*

Life Cycle: Perennial

Characteristics: Leaves grow directly from a bulb and resemble those of lilies. They are 2 to 4 feet long and 2 to 3 inches wide. In summer, a single flower stem, 1 inch in diameter, emerges from the center of the bulb. It bears two to six white fragrant flowers. Tepals are 3 to 4 inches long and ½ inch wide. They are joined at the base, forming a long tube, and they are curved at the top. Purple anthers and stamens emerge above the tepals.

Cultural Requirements: Crinum Lily adapts to a wide variety of soils, including sand, sandy loam and clay. It also adapts to both sunny and shady areas. It prefers moisture and tends to decline over time on dry sites.

Landscape Uses: Water gardens, pond edges and bogs

Size: 4 feet tall and 12 to 18 inches wide

Hardiness Zones: 7 and 8

Habitat: Freshwater marshes, cypress swamps, ditches and lake edges

Native To: North Carolina to Florida, west to Texas, north to Arkansas

Propagation: Division
Division: Separate bulblets from the mother bulb in fall.

Comments: Some authorities feel this plant has the most beautiful flowers of all the plants in the Amaryllis family.

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Carolina Larkspur / *Delphinium carolinianum*
Family: Buttercup / *Ranunculaceae*

Life Cycle: Perennial

Characteristics: Carolina Larkspur has slender, upright, hairy, unbranched stems. Leaves are about 3 inches long and 3 inches wide, palmate with narrow lobes. Flower color ranges from white to blue or violet. The flowers are 1 inch wide and have appendages, called spurs, on some of the petals. Flowers appear from April to June. Basal leaves wither before flowering.

Cultural Requirements: Carolina Larkspur prefers sun to light shade and alkaline soil. It is drought tolerant once established.

Landscape Uses: Use Carolina Larkspur in perennial borders or wildflower meadows.

Size: 2 to 2½ feet tall

Hardiness Zones: All of Georgia

Habitat: Limestone glades, chalky soil prairies and moist, sandy woodlands associated with longleaf pines

Native To: Illinois to North Dakota, south to New Mexico, east to Florida and Kentucky

Propagation: Seed
Seed: Store seeds dry at 40°F for four months, then sow them in mid-October. Darkness enhances germination, so cover the seeding flat with newspaper, then check underneath once a week for germinated seedlings. Once germination occurs, remove the paper and expose the plants to normal lighting.

Comments: Plants in the genus *Delphinium* contain toxins and are poisonous to humans and animals when ingested. The Spanish named this plant Horseman's Spur from the spur-like appendages on the flower petals.

Images: Page 65

Eastern Shooting Star / *Dodecatheon meadia*
Family: Primrose / *Primulaceae*

Life Cycle: Perennial

Characteristics: Leaves, up to 6 inches long and 2½ inches across, are borne in a basal cluster. They are gray-green and hairless with a prominent central vein and smooth margins. A leafless flower stalk, 6 to 20 inches long, arises from the basal leaves in May or June and produces a terminal cluster of nodding flowers on arching pedicels (flower stems). Several flowers emerge from a central point at the top of the stalk, like shooting stars. Flower petals are white to pink and are reflexed backward on the stem. Seeds are borne in cone-shaped capsules at the base of the flowers.

Cultural Requirements: The farther south this plant is grown, the more moisture it requires. Moisture is especially important during the spring. The plant goes dormant by mid-summer. It likes alkaline soils and shade.

Landscape Uses: Eastern Shooting Star is an excellent choice for shady, moist rock gardens or perennial borders.

Size: 12 to 18 inches tall

Hardiness Zones: All of Georgia

Habitat: Wet meadows, bottomlands, rich, moist woodland slopes and calcareous or mafic rock outcrops, especially those having nutrient-rich seepages

Native To: Maryland, west to Wisconsin and Iowa, south to Texas, east to Georgia and Florida, and north to the Carolinas and Virginia

Propagation: Seed or cuttings
Seed: Collect seeds when capsules turn tan. Stratify them for two months at 40°F. Sow them in December in outdoor beds or flats.
Cuttings: Dig sections of the rhizomes in January or February. Each section must have at least one bud.

Comments: Rodents love this plant. Pea gravel, used as mulch, may help deter them.

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Purple Coneflower / *Echinacea purpurea*
Family: Aster / Asteraceae

Life Cycle: Perennial

Characteristics: Leaves are dark green, lance-shaped, alternate, hairy and coarsely toothed along their margins. From late spring to early summer, flower heads, 2 to 3 inches across, are borne on stalks rising 2 to 4 feet. The ray flowers are pink and the disk flowers are dark purple. Bracts are orange. Flower heads persist for a long time and their seeds attract birds.

Cultural Requirements: This is an easy plant to grow almost anywhere, except in wetlands. It prefers full sun to light shade. Powdery mildew may be a problem when it is grown in moist, shady sites. Dividing clumps every three to four years will invigorate the plant.

Landscape Uses: Use Purple Coneflower in perennial beds, meadows or at woodland edges. It is a very adaptable plant.

Size: 2 to 4 feet tall and spreading

Hardiness Zones: All of Georgia

Habitat: Dry to slightly moist areas in full sun or light shade

Native To: Originally a Midwestern plant, it has traveled to the Southeast

Propagation: Seed, cuttings or division
Seed: Collect seeds in late summer or fall. Give them cold stratification (three weeks at 40°F) before planting. They need light to germinate so cover them lightly with the germination medium. Cool soils enhance germination.
Cuttings: Stem cuttings can be taken in spring. A rooting hormone enhances root formation.
Division: Established clumps also can be divided in fall or spring.

Comments: Two species of *Echinacea* are native to more neutral or calcium-rich soils in the Southeast, and both occur in Georgia. Smooth Coneflower, *Echinacea laevigata*, has drooping pale pink ray flowers and smooth foliage. It is found in glades, rocky areas and prairies in northeast Georgia. It is a protected plant in Georgia. Prairie Purple Coneflower, *Echinacea simulata*, is found in the western prairies of Georgia on limestone substrates.

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Hairy Elephant's-foot, Devil's Grandmother / *Elephantopus tomentosus*
Family: Aster/*Asteraceae*

Life Cycle: Perennial

Characteristics: This plant has large basal leaves, up to 24 inches long and 3 to 7 inches across. They are hairy on their underside, shallowly lobed and have irregular teeth along their edges. There are few stem leaves, and they are much smaller than the basal leaves. Pink, purple or sometimes white flower heads, ½ inch across, are borne in August and September. The flowers are small and not very noticeable. The plant spreads by underground rhizomes.

Cultural Requirements: Hairy Elephant's-foot is adaptable to both dry and moist sites as well as shady or open areas. This plant can be aggressive, so plant it in an area where it can spread and naturalize.

Landscape Uses: Hairy Elephant's-foot is a good groundcover for dry woodland slopes.

Size: A single plant can grow up to 2 feet across.

Hardiness Zones: All of Georgia

Habitat: Dry open woodlands and thickets

Native To: North Carolina and Kentucky, west to Oklahoma, south to Texas and Florida

Propagation: Seed
Seed: If the objective is to encourage the plant to spread, don't cut the seed stalks until two months after bloom so ripe seeds will spread naturally.

Comments: This plant is good for erosion control on dry slopes and in areas where its spread can be controlled.

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Robin's Plantain / *Erigeron pulchellus*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Basal leaves are soft, hairy and toothed along their margins. They are up to 5 inches long, 3 inches wide and oval in shape. A few smaller lance-shaped leaves appear along the flowering stalk. The plant produces one hairy flowering stalk up to 2 feet tall that terminates in a cluster of several daisy-like flower heads in May or June. Each flower is ¾ to 1¼ inch in diameter. Ray flowers are white to light pink or violet, and disk flowers are yellow. The plant spreads by stolons (above-ground runners) and can become a groundcover.

Cultural Requirements: This is an adaptable plant and does fine in sun or partial shade as well as moist or dry soils.

Landscape Uses: Robin's Plantain is a tough ground cover for a wide variety of sites.

Size: 1 to 2 feet tall and spreading several feet

Hardiness Zones: All of Georgia

Habitat: Meadows, woodland edges and disturbed sites

Native To: Eastern North America, from Minnesota to Maine, south to Florida, west to Texas

Propagation: Seed or cuttings
Seed: Collect seeds two to three weeks after flowering. Store them dry at 40°F for planting the following March.
Cuttings: Stem cuttings root readily when taken in early spring.

Comments: Plants in the genus *Erigeron* (Daisy Fleabanes) and the genus *Symphyotrichum* (American Aster) have many similar characteristics, including small flower heads with white, blue or violet ray flowers and alternate leaves. The season of bloom helps separate Daisy Fleabanes from American Asters. Daisy Fleabanes bloom in the spring, while American Asters bloom in the fall.

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Rattlesnake-master, Button Snake-root / *Eryngium yuccifolium*
Family: Carrot / *Apiaceae*

Life Cycle: Perennial

Characteristics: Most leaves are in a basal rosette. They are large and sword-shaped (up to 3 feet long) with parallel veins and bristly edges. They resemble yucca plant leaves. Stem leaves are smaller than the basal leaves, blue-green and sword-shaped. Round greenish-white flower heads, 1 inch across, are borne in large open clusters from mid- to late summer. Below the flower heads are several whitish, pointed bracts. Flower heads develop a bluish cast as they age.

Cultural Requirements: Rattlesnake-master prefers partial shade and dry or moist, well-drained soils. It has a tap root and is difficult to transplant.

Landscape Uses: Use this plant in shaded naturalized areas or wildflower gardens. It is an aggressive seeder and will spread if it is not managed.

Size: 2 to 4 feet tall

Hardiness Zones: All of Georgia

Habitat: Open woodlands, prairies, meadows and barrens

Native To: Except for the northeastern states, it is native to most states east of the Mississippi and as far west as Minnesota, Oklahoma and Texas.

Propagation: Seed
Seed: Collect seeds from September to October. Store them dry at 40°F for 60 days, then plant them in flats held at 70°F. Germination should occur approximately one month after seeding.

Comments: This plant has a long history of medicinal use. American Indians used juices from the root to treat rattlesnake bites.

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Coral Bean, Cherokee Bean, Red Cardinal / *Erythrina herbacea*
Family: Pea / *Fabaceae*

Life Cycle: Perennial

Characteristics: Coral Bean is a shrubby, spreading plant reaching 5 feet tall. Stems are prickly. Leaves are compound with three spade-shaped leaflets. They are 3 to 5 inches long and 3 to 4 inches wide. Clusters of showy red tubular flowers, 1 to 2 inches long, appear in terminal racemes in spring before leaves emerge. Bright red seeds are borne in black pods that are 2 to 7 inches long. Roots are tuberous.

Cultural Requirements: This plant prefers sun or partial shade and dry soils. Remove dead wood each spring when new growth emerges. Expect the plant to die back each winter in the Piedmont and Mountain areas of Georgia.

Landscape Uses: Use Coral Bean as a background plant in perennial borders or along woodland edges.

Size: 3 to 5 feet tall

Habitat: Maritime forests, sand hills and longleaf pine ecosystems of the Coastal Plain

Hardiness Zones: All of Georgia. It will be killed back to the ground in zones 6 and 7, but it will usually over-winter.

Native To: North and South Carolina and Tennessee, south to Georgia, west to Texas, north to Oklahoma and Arkansas

Propagation: Seed, cuttings or division
Seed: Seeds require scarification (scraping on sandpaper) followed by cold stratification (40°F for 60 days).
Cuttings: Take cuttings from summer growth.
Division: Divide roots in fall or early spring.

Comments: Coral Bean seeds are poisonous when ingested. Hummingbirds visit its flowers.

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Dimpled Trout Lily / *Erythronium umbilicatum*
Family: Lily / *Liliaceae*

Life Cycle: Perennial

Characteristics: This plant is like a groundcover in early spring with 2-inch-long leaves that hug the ground. The leaves are green with heavy brown blotches. In early March, a leafless stalk rises 4 inches above the foliage and bears a single, bright yellow nodding flower with six reflexed tepals and six reddish-brown stamens. The backs of the tepals are rusty red. The plant dies down and goes dormant in late spring. It grows from a corm.

Cultural Requirements: Dimpled Trout Lily prefers semi-shady areas and slightly acid well-drained soil enriched with humus.

Landscape Uses: Use Dimpled Trout Lily in moist shaded woodland gardens. If left undisturbed, it will form a colony after several years.

Size: 2 to 4 inches and spreading

Hardiness Zones: All of Georgia

Habitat: Moist, deciduous woods, bottomlands and meadows

Native To: West Virginia and Maryland, south to Florida, west to Alabama, north to Kentucky

Propagation: Seed
Seed: Collect seeds when the capsule is yellow and before it ejects its seeds. Store them at 40°F for planting in September in outdoor beds or flats. They should germinate in January or February of the following year.

Comments: The common name Trout Lily stems from the fact that the mottled leaves resemble the speckled sides of brown trout. Cherokee Indians used the plant medicinally as a diuretic. They also crushed the leaves and bulbs and used the sap to dress wounds.

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American Boneset / *Eupatorium perfoliatum*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Pairs of opposite, lance-shaped, wrinkled, light green leaves are joined directly to the stem (sessile). They look as though the stem has pierced through them. Stems are hairy. Flat-topped clusters of small white flower heads appear above the foliage from August to September.

Cultural Requirements: American Boneset grows best in moist soil and sunny to partially shaded areas. It does well in both clay and sandy soils. Pinch back the shoots periodically to encourage branching and a stockier plant. It has strong stems that don't need staking.

Landscape Uses: This plant attracts butterflies and a large variety of other insects. Since it gets tall, use it as a background plant in a perennial border.

Size: 3 to 5 feet tall

Hardiness Zones: All of Georgia

Habitat: Marshes, swamps, open moist meadows and ditches

Native To: Eastern and Midwestern North America, from Nova Scotia and Quebec to North Dakota, south to Texas, east to Florida

Propagation: Seed, cuttings or division
Seed: Collect seeds from August to November. Store them dry one month at 40°F, then sow them in December or January in outdoor beds or flats.
Cuttings: Take cuttings from terminal shoots in June.
Division: Plants can be divided in early spring.

Comments: Early doctors used American Boneset for medicinal purposes. The leaves were wrapped with bandages around splints to help heal broken bones, and a tea made from the leaves was used to treat colds, flu and a variety of other ailments.

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Late Boneset / *Eupatorium serotinum*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Stout, pubescent stems have occasional side branches and leaves near their tops. Leaves are lance-shaped, up to 7 inches long and 2 inches wide, with petioles up to 1 inch long. The leaves are coarsely serrated along their margins and tend to curve downward. A large, terminal flat-topped inflorescence, several inches across, appears at the top of the stem in late summer and lasts about a month. Each flower head consists of approximately 12 white disk flowers. There are no ray florets. Each disk flower is about ¼ inch long, narrow and tubular, with five small triangular lobes at its top. A long white style protrudes conspicuously from each flower. Rhizomes spread to colonize an area.

Cultural Requirements: Late Boneset prefers full sun to partial shade and moderately moist soil high in organic matter. Plants grow shorter in drought-prone areas and tend to drop their leaves early.

Landscape Uses: Use Late Boneset in moist low-lying areas, along ponds or in ditches. It can be somewhat weedy when provided ideal cultural conditions.

Size: 3 to 6 feet tall and spreading

Hardiness Zones: All of Georgia

Habitat: Moist meadows, river flood plains, drainage ditches and other low-lying areas

Native To: Massachusetts, south to Florida, west to Texas, north to Minnesota

Propagation: Seed, cuttings or division
Seed: Collect seeds from August to November. Store them dry for one month at 40°F, then sow them in December or January in outdoor beds or flats.
Cuttings: Take cuttings from terminal shoots in June.
Division: Plants can be divided in early spring.

Comments: The flowers attract nectar-feeding butterflies, bees and moths. Late Boneset can be distinguished from American Boneset by its leaf attachment; Late Boneset leaves have petioles while American Boneset leaves lack petioles and are attached directly to the stems.

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White Wood Aster, Heartleaf Aster / *Eurybia divaricata* (syn. *Aster divaricatus*)
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Basal leaves are heart-shaped, 1½ to 2½ inches long and coarsely toothed. Leaves along the stem are smaller than the basal leaves and oval in shape. Small white flower heads, 1 inch across, appear in July and August in flat-topped terminal clusters. Flower heads consist of seven to 12 ray flowers and small yellow to red disk flowers. The plant spreads by rhizomes.

Cultural Requirements: This plant is very adaptable and easy to grow in sun or shade. Once established, it has good drought tolerance. Remove old blossoms to prevent self-seeding.

Landscape Uses: Plant White Wood Aster at the edges of woodlands, in perennial borders or in wildflower gardens.

Size: 1 to 2 feet high and spreading

Hardiness Zones: All of Georgia

Habitat: Mesic to dry hardwood forests

Native To: Eastern North America, from Maine to Georgia, west to Mississippi, north to Ohio and New York

Propagation: Seed, cuttings or division
Seed: Collect seeds in October. Store them dry at 40°F before planting them in outdoor beds or flats in early January. They require light to germinate, so cover them lightly with the germination medium.
Cuttings: Stem cuttings can be taken in May. Dip the cut end in a rooting hormone.
Division: Plants can be divided in spring or fall.

Comments: Hummingbirds are attracted to the plant.

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Carolina Flat-topped Goldenrod, Slender Goldentop / *Euthamia caroliniana* (syn. *Euthamia minor*)
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Stems are straight and sparsely pubescent. Leaves are ½ to 1½ inches long, lance-shaped, sessile and have a prominent main vein. Leaf arrangement is somewhat erratic; some leaves are turned downward on the stem, others outward and still others upright along the stem. In August, flat-top clusters of bright yellow flower heads are borne at the tops of stems. They consist of both tubular and non-tubular ray flowers. Fruit are small, dry, hairy, oblong, seed-like achenes.

Cultural Requirements: Carolina Flat-topped Goldenrod prefers moist, well-drained soil and full sun.

Landscape Uses: This plant is useful in wildflower meadows, along pond edges and in bottomlands.

Size: 1 to 3 feet tall and 12 inches wide

Hardiness Zones: 7, 8

Habitat: Outer edges of marshes or among grasses in flatwoods and prairies, sandy or rocky areas in the Coastal Plain

Native To: Maine to Florida, west to Louisiana

Propagation: Seed, cuttings or division
Seed: Collect seeds in the fall when flower heads dry and become fluffy. They can be planted right away if temperatures of 70°F or higher can be provided during germination. Otherwise, they can be stored dry at 40°F for planting when outside temperatures are 70°F or higher.
Cuttings: Take stem cuttings of new spring growth when it begins to harden.
Division: Divide plants in late winter or early spring.

Comments: The plant is an important source of nectar in late autumn for small native bees and numerous butterflies.

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Joe-Pye Weed, Trumpetweed / *Eutrochium fistulosum* (syn. *Eupatorium fistulosum*) Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Joe-Pye Weed is a large plant with whorls of leaves, four to seven per whorl, on sturdy stems that are 6 to 10 feet tall. Leaves are dark green and up to 12 inches long. They are coarsely serrated along their margins. Stems have purple or green spots and are hollow. Each stem is topped with a large pink flower head, 12 to 18 inches in diameter, in July and August. Flower heads consist of hundreds of tiny, vanilla-scented, pinkish-lavender flowers.

Cultural Requirements: Joe-Pye Weed is a large plant that needs plenty of room. It also needs abundant moisture and sunlight. Organic matter added to sandy soil before planting will help it hold moisture.

Landscape Uses: This is one of the most interesting plants to have at the back of a perennial border or butterfly/hummingbird garden. Plant it in groups of three or more for a dramatic effect.

Size: 6 to 10 feet tall

Hardiness Zones: All of Georgia

Habitat: Moist or wet ditches, along streams or lakes, roadsides and in open areas where there is soil moisture and sun

Native To: Maine to Iowa, south to Florida, west to Texas

Propagation: Seed, cuttings or division
Seed: Collect seeds from August to November. Store them dry at 40°F for planting in December or January in outdoor beds or flats. Germination should occur in one to two weeks when they are provided warm (70°F+) temperatures.
Cuttings: Take cuttings from terminal shoots in June.
Division: Plants can be divided in early spring.

Comments: Several cultivars of Joe-Pye Weed are available, but they may not be as long-lived as the native species. The plant attracts hummingbirds, butterflies and a variety of insect pollinators.

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Soapwort Gentian / *Gentiana saponaria* (syn. *Dasystephana saponaria*) Family: Gentian / *Gentianaceae*

Life Cycle: Perennial

Characteristics: Leaves are opposite, lance-shaped, 3½ inches long and 1½ inches wide. From September to October, tubular blue flowers, 1½ inches long, arise from the upper leaf axils. Each flower has five lobes that are fused together. As they mature, the flowers open wide enough to allow bees inside for pollination. Seed capsules have two sections containing numerous seeds. The plant has a long taproot.

Cultural Requirements: Soapwort Gentian needs constant moisture and good drainage. It prefers fertile, sandy-loam soil and partial shade.

Landscape Uses: Use this plant along shady streams, shady lake edges or under trees. The bright blue flowers provide a dramatic fall show.

Size: 1 to 2 feet high

Hardiness Zones: All of Georgia

Habitat: Bogs, marshes, wet woodlands, swamps, seepage areas and shallow streams

Native To: New York to Illinois, south to Texas and Florida

Propagation: Seed, cuttings or division
Seed: Collect seeds in November or December when the capsules split. Place them in a plastic bag containing sand and a few drops of water and store them in a dark location at 70°F for two weeks. Then, put the bag in the refrigerator for an additional two months before planting the seeds in flats maintained at 70°F.
Cuttings: Terminal cuttings can be taken in mid-spring. Dip the cut ends in a rooting hormone.
Division: Plants can be divided in fall or early spring.

Comments: Another Gentian species, Striped Gentian, *Gentiana villosa*, blooms in late fall and prefers a dry habitat. It has white, greenish-white or purple flowers and is found at forest edges or in grassy meadows. It, too, is worthy of landscape culture.

Images: Page 70

Wild Geranium, Cranesbill Geranium / *Geranium maculatum*
Family: Geranium / *Geraniaceae*

Life Cycle: Perennial

Characteristics: Mottled, medium green leaves, up to 6 inches across, have finger-like lobes with toothed margins. Flowers emerge in spring on long stalks rising above the leaves. Flowers are pink to lilac, 1¼ inches across and saucer-shaped, with five upward-curving petals. In the fall, the leaves turn shades of red and persist throughout the winter. Seeds are borne in beaked capsules (hence the name Cranesbill).

Cultural Requirements: Wild Geranium is easy to grow in average, well-drained soil and full sun to partial shade. Moisture is essential, especially in early spring. Deadheading will encourage repeat bloom.

Landscape Uses: Wild Geranium is a beautiful addition to a woodland garden or perennial border.

Size: 12 to 24 inches tall and 18 inches wide

Hardiness Zones: All of Georgia

Habitat: Rich, moist hardwood forests and shaded roadsides

Native To: North and South Dakota, east along the Atlantic and Gulf coasts

Propagation: Seed, cuttings or division
Seed: Collect capsules before they split. Place them in a dry paper bag to split and release their seeds. Store the seeds dry at 40°F for three months, then plant them in outdoor flats or beds in mid-summer.
Cuttings: Stem cuttings can be taken after flowering.
Division: Plants can be divided in spring or fall.

Comments: Wild Geranium seeds attract mourning doves and bobwhite quail.

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Sunflower / Genus *Helianthus*

The genus name *Helianthus* is derived from the Greek words *Helio*, which means sun, and *Anthus*, which means flower. Sunflower heads track the sun's movement by rotating toward the sun throughout the day, a phenomenon called heliotropism.

Sunflowers are an important agricultural crop. Oil extracted from the seeds is used for making cooking oil, medicine, paint and biofuel. The seeds themselves are used for animal feed and human snack food. A large sunflower head is made up of 1,000 to 2,000 individual flowers joined together at their base (disk flowers) surrounded by showy ray flowers that do not develop seeds. Adding sunflowers to the landscape is a great way to attract birds and other wildlife.

There are 51 sunflower species native to North America. Thirty-seven species are herbaceous perennials and 14 species are annuals. Eleven species are native to Georgia. Those most worthy of landscape culture are described here.

Narrowleaf Sunflower, Swamp Sunflower / *Helianthus angustifolius*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Narrowleaf Sunflower is a large plant with multi-branched stems. Leaves are rough textured, 3 to 6 inches long and ½ inch wide, lance-shaped, with an occasional purple tinge. Numerous showy yellow flower heads, 2 to 3 inches across, appear from September to October in terminal clusters. Ray flowers are bright golden yellow and disk flowers are reddish brown to purple. Fruit are small, dry, angled, seed-like achenes.

Cultural Requirements: Narrowleaf Sunflower is easy to cultivate. It thrives in sun or partial shade and moist soil. It does not like dry sites. It may need staking in wet years. It spreads by rhizomes and may require periodic thinning, especially on damp sites. Pruning in mid-summer encourages more compact growth and branching.

Landscape Uses: Use Narrowleaf Sunflower as a background plant in perennial borders or rock gardens, along ponds or in bog gardens.

Size: 4 to 9 feet tall

Hardiness Zones: All of Georgia

Habitat: Wet roadside ditches, wet meadows and swamps

Native To: Pennsylvania, west to Illinois, south to Texas, east to Georgia

Propagation: Seed, cuttings or division
Seed: Collect seeds in November and plant them directly in flats maintained at 70°F. Germination should occur in about two weeks.
Cuttings: Stem cuttings can be taken in June. Treat the cut end with a rooting hormone.
Division: Divide plants in the spring.

Comments: Narrowleaf Sunflower will adapt to dry habitats, but it grows shorter when moisture is limited. A lemon-yellow variety found in the trade is one of the latest blooming sunflowers, adding a splash of color to the late fall landscape. The flowers attract butterflies, finches eat the seeds, and deer like to graze on this plant.

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Woodland Sunflower, Rough Sunflower / *Helianthus divaricatus*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Leaves are sessile, opposite and 3 to 8 inches long on branching stems. Their shape varies from lance-shaped to oval. The upper surfaces of the leaves are rough, while the lower surfaces are hairy. Flower heads are borne on stem tips from July to September. They are 2 inches across. Both ray and disk flowers are yellow. The plant spreads aggressively by rhizomes.

Cultural Requirements: Woodland Sunflower thrives in sun or partial shade. It adapts to both moist and dry soils. Divide plants every three to four years.

Landscape Uses: Woodland Sunflower is appropriate for meadows, grasslands and woodlands. It is aggressive, so it may not be appropriate for perennial borders or other managed areas.

Size: 2 to 6 feet tall

Hardiness Zones: All of Georgia

Habitat: Roadsides, woodlands and rocky bluffs

Native To: New England to Wisconsin, south to Oklahoma and Florida

Propagation: Division
Division: Rhizomes can be divided in fall or spring.

Comments: Flowers hold up well as cut flowers.

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Confederate Daisy, Stone Mountain Yellow Daisy / *Helianthus porteri* (syn. *Viguiera porteri*) Family: Aster / *Asteraceae*

Life Cycle: Annual

Characteristics: Leaves are narrow, lance-shaped, opposite, 2 to 3 inches long, and about ¼ inch wide. Numerous yellow flower heads, 1 to 2 inches across, are borne on terminal branches from September to October. The plant has a short taproot that attaches to rock crevices and likes growing on granite outcrops.

Cultural Requirements: Although this plant is native to granite outcrops, it will grow in many other places. It prefers full sun and well-drained soil. It is not a good competitor and can easily be choked out by more aggressive species. Cut it back in winter to broadcast seeds that will produce new plants the next growing season.

Landscape Uses: Confederate Daisy makes a spectacular display on rocky, barren ground where nothing else will grow. It produces plenty of seeds and self-sows every year when cultural conditions are to its liking.

Size: 2 to 3 feet tall

Habitat: Granite outcrops in the Piedmont, rocky barrens and glades

Native To: The Piedmont regions of Georgia and Alabama

Propagation: Seed
Seed: Harvest seeds six to eight weeks after bloom. Store them dry at 40°F for planting in outdoor flats or beds the following January. Cool soils are required for germination. The seeds also require light to germinate, so cover them lightly with the germination medium.

Comments: A festival in honor of Confederate Daisy is held each year at Stone Mountain Park near Atlanta.

Images: Page 71

Hepatica, Liverleaf Hepatica / *Hepatica americana* (syn. *Anemone americana*, *Hepatica nobilis* var. *obtusa*) Family: Buttercup / *Ranunculaceae*

Life Cycle: Perennial

Characteristics: Leaves are basal and heart-shaped with three lobes. Some plants may have speckled leaves, while others have leaves that are maroon on their undersides. In March or April numerous hairy flower stalks, 4 to 6 inches long, rise above the foliage, each bearing a single saucer-shaped bloom composed of five to seven petal-like sepals. Occasionally double flower forms are found having up to 20 sepals. Flower color ranges from blue to lavender, shades of pink or white. A mature clump can produce 20 to 30 flowering stalks. When the sepals fall, new leaves emerge. The leaves are bright shiny green as they unfurl, turn dark green as they mature, then become dark brown in the fall. Seeds bear nutrient-rich appendages that attract ants. The ants carry the seeds back to their nests where they germinate and establish new colonies.

Cultural Requirements: Hepatica prefers moist, organic soils and partial shade.

Landscape Uses: Plant Hepatica in small drifts in shaded, moist woodlands, stream banks or shaded rock gardens.

Size: 4 to 6 inches tall and wide

Hardiness Zones: All of Georgia

Habitat: Nutrient-rich hardwood forests

Native To: Minnesota to Maine, south to Florida, west to Mississippi

Propagation: Seed, cuttings or division
Seed: Sow seeds in outdoor beds or flats. Roots emerge in fall and leaves emerge in spring. Grow the seedlings in containers for one to two years before transplanting them into the landscape.
Cuttings: Root cuttings having at least three buds can be collected in winter and transplanted to flats.
Division: Plants can be divided in spring after flowering.

Comments: There is a great deal of confusion among botanists as to the correct classification of this plant. Some authorities say *H. americana* is the same as *H. nobilis* var. *obtusa*, while others put the plant in the genus *Anemone*. The common name Hepatica comes from the Greek word *hepar*, which means liver.

Images: Page 71

Coral Bells, Alumroot / *Heuchera americana*
Family: Saxifrage / *Saxifragaceae*

Life Cycle: Perennial

Characteristics: The plant has a basal rosette of evergreen heart-shaped leaves. Each leaf is 3 to 5 inches wide and has five to seven lobes. New leaves emerge purplish-brown, then they turn green. Leaf venation is silver or rose-purple. A flowering stem emerges in early spring and rises 18 to 24 inches above the plant. It bears panicles of small, inconspicuous, bell-shaped flowers that range in color from pale yellow to purple. The orange-tipped stamens are the most noticeable part of the flower.

Cultural Requirements: Plant Coral Bells in well-drained soil that is high in organic matter. It prefers shade or partial shade (morning sun). Deadheading encourages repeat blooms.

Landscape Uses: Use Coral Bells in shaded areas of perennial borders, rock gardens or woodlands. Since its leaves are evergreen, it looks good year-round.

Size: 1 to 2½ feet tall and 1 to 1½ feet wide

Hardiness Zones: All of Georgia

Habitat: Drainage slopes of rich woods, dry woods and rocky areas

Native To: Connecticut to Oklahoma, south to Georgia

Propagation: Seed or division
Seed: Collect seeds three to four weeks after flowering. Plant them directly in flats, covering them lightly with the germination medium. Maintain the flats at 70°F to 80°F. Germination should occur in three to four weeks.
Division: Plants can be divided in spring or fall.

Comments: Many hybrids have been created from the 30 North American species of *Heuchera*. There are cultivars with chartreuse flowers and purple leaves.

Images: Page 71

Little Brown Jug, Heartleaf, Evergreen Wild Ginger / *Hexastylis arifolia* (syn. *Asarum arifolia*)
Family: Birthwort / *Aristolochiaceae*

Life Cycle: Perennial

Characteristics: Shiny, thick, heart-shaped evergreen leaves, 3 to 6 inches long, are borne at ground level. They are dark green with pale green splotches in spring and summer, then they turn bronze in winter. Reddish-brown flowers appear in April and May at ground level. They are inconspicuous and often hidden in the leaf litter. They have no petals and are actually composed of thick, fleshy, fused sepals shaped like little brown jugs. Rhizomes spread slowly.

Cultural Requirements: In a natural setting, only 2 or 3 leaves may be seen, but under cultivation, Heartleaf forms large clumps of basal foliage. It is shade-tolerant but prefers partial shade. It will adapt to both moist and dry soils. Slugs like to eat this plant.

Landscape Uses: Use Little Brown Jug in shaded woodland gardens. Since the leaves are evergreen, the plant looks nice year-round.

Size: 3 to 6 inches tall

Hardiness Zones: All of Georgia

Habitat: Mixed deciduous or pine forests

Native To: Kentucky to Virginia, south to Florida, west to Louisiana

Propagation: Seed or division
Seed: Seeds can be planted outdoor immediately after harvest, or they can be stored in moist sphagnum at 40°F for later planting. They are slow to germinate, so do not expect seedlings until the following spring.
Division: Plants can be divided in spring or late fall. Make certain each division has at least one fleshy root.

Comments: Native Indians used root extracts and tea made from the leaves to treat heart and lung conditions and stomach pain.

Images: Page 72

Largeflower Heartleaf / *Hexastylis shuttleworthii* (syn. *Asarum shuttleworthii*)
Family: Birthwort / *Aristolochiaceae*

Life Cycle: Perennial

Characteristics: This plant has basal evergreen heart-shaped glossy leaves up to 4 inches long and 3 inches wide. The leaves have smooth margins and light-colored mottled areas along their veins. From mid- to late spring, light purplish-brown vase-shaped flowers, 2 inches long, appear below the foliage. They are inconspicuous and often hidden in the leaf litter. Fruit are fleshy globose capsules.

Cultural Requirements: Largeflower Heartleaf prefers moist, well-drained soil and partial shade to full shade.

Landscape Uses: This plant is best used as a groundcover in shady, moist woodlands. It retains its leaves in winter, so it looks nice year-round.

Size: 6 inches to 1 foot tall and spreading 4+ feet.

Hardiness Zones: All of Georgia

Habitat: Mesic acidic hardwood forests

Native To: The Southern Appalachian Mountains

Propagation: Seed or division
Seed: Seeds can be planted outdoors immediately after harvest, or they can be stored in moist sphagnum at 40°F for later planting. Seeds are slow to germinate, so do not expect seedlings until the following spring.
Division: Plants can be divided in spring or late fall. Make certain each division has at least one fleshy root.

Comments: The root of this plant is used as a spice for candy and tea. A variety called Callaway Ginger, *H. shuttleworthii* var. *harperii*, is available in the nursery trade. It is shorter than this species (just 3 inches tall), mat-forming and has mottled leaves. There are several other species that have horticultural value. *Hexastylis virginica* (Virginia Heartleaf), for instance, has beautiful silver-mottled leaves.

Images: Page 72

Scarlet Rose Mallow / *Hibiscus coccineus*
Family: Mallow / *Malvaceae*

Life Cycle: Perennial

Characteristics: Leaves are palmate, up to 10 inches long, with three to seven deeply cut lobes and toothed margins. Bright scarlet flowers arise from the upper leaf margins throughout the growing season. The flowers are large, 6 to 8 inches across, with five petals and protruding stamens (male flower parts) and pistil (female flower part). Fruit are hard capsules containing hairy seeds.

Cultural Requirements: Scarlet Rose Mallow prefers full sun and wet to moist soils. It is deciduous and dies back in winter. Cut back the plant to the ground prior to spring growth.

Landscape Uses: Use Scarlet Rose Mallow as an accent plant in a perennial border or along the edge of a pond. A group of three to five plants provides an eye-catching display.

Size: 4 to 6 feet high

Hardiness Zones: All of Georgia

Habitat: Marshes, wet ditches and swamps

Native To: Southeastern coastal states

Propagation: Seed or cuttings
Seed: Collect seeds when capsules split. Soak the seeds in water for 24 hours before planting them. Keep the seeding flats warm (70°F+) to enhance germination.
Cuttings: Terminal stem cuttings can be taken in June.

Comments: This is a stunning plant worthy of landscape culture. Scarlet Rose Mallow was a Georgia Gold Medal winner in 2007. It attracts hummingbirds, butterflies and bees.

Images: Page 72

Halberd-leaf Rose Mallow / *Hibiscus laevis* (syn. *Hibiscus militaris*)
Family: Mallow / *Malvaceae*

Life Cycle: Perennial

Characteristics: Stems are round and hairless. Leaves are alternate with three to five pointed lobes and serrated edges. Flowers appear from mid-summer to early fall on the upper stems. They are up to 6 inches across with white to light-pink petals and a maroon throat. Each flower has five petals and five green sepals. Numerous stamens surrounding the pistil form a tubular central column. The fruit is an ovoid capsule containing many seeds.

Cultural Requirements: Halberd-leaf Rose Mallow prefers full sun to partial shade and moist soil.

Landscape Uses: This plant is best used in sunny perennial borders having irrigation or along pond edges.

Size: 4 to 6 feet tall and 3 to 4 feet wide

Hardiness Zones: All of Georgia

Habitat: Wet soils along streams, sloughs, freshwater marshes, ponds and ditches

Native To: New York to Florida, west to Texas, north to Minnesota

Propagation: Seed or cuttings
Seed: Collect seeds when capsules split. Soak the seeds in water for 24 hours, then sow them in flats maintained at 70°F or higher to enhance germination.
Cuttings: Terminal stem cuttings can be taken in June.

Comments: Waterfowl and bobwhite quail eat the seeds. The leaves of this plant resemble the blade of a halberd, a combination spear and battle-ax used in the 15th and 16th centuries.

Images: Page 72

Crimson-eyed Rose Mallow, Marsh Mallow / *Hibiscus moscheutos*
Family: Mallow / *Malvaceae*

Life Cycle: Perennial

Characteristics: Leaves are alternate and have toothed margins. They are 6 to 8 inches long, 2 to 3 inches wide and pubescent underneath. Flowers are large, up to 6 inches across, with five pinkish-white petals and a crimson throat. A tubular column of stamens surrounding the pistil rises above the petals. This plant flowers over a long period, from late summer to fall. Fruit are beaked capsules.

Cultural Requirements: Crimson-eyed Rose Mallow prefers full sun and fertile, moist soil. Supplemental fertilizer, mulch and occasional irrigation may be necessary. Cut back the plant in late winter to remove old foliage and make way for new growth. Japanese Beetles like the leaves and flowers.

Landscape Uses: Crimson-eyed Rose Mallow makes a dramatic statement when planted adjacent to ponds or lakes, or in low spots where water drains.

Size: 4 to 6 feet tall

Hardiness Zones: All of Georgia

Habitat: Wet ditches, swamps and marshes

Native To: Massachusetts to Wisconsin, south to Texas and Florida

Propagation: Seed or cuttings
Seed: Collect seeds when capsules split. Soak the seeds in water for 24 hours, then sow them in flats maintained at 70°F or higher to enhance germination.
Cuttings: Terminal stem cuttings can be taken in June.

Comments: Crimson-eyed Rose Mallow was used extensively in breeding ornamental hibiscus. Numerous cultivars with large flowers were the result.

Images: Page 73

Spider Lily, Carolina Spiderlily / *Hymenocallis occidentalis*
Family: Lily / *Liliaceae*

Life Cycle: Perennial

Characteristics: A basal clump of strap-shaped leaves, up to 17 inches long, rises from a bulb. In summer, a flowering stalk, up to 22 inches tall, emerges from the center of the foliage and bears three to six white fragrant blossoms. Each flower is up to 7 inches across and has six segments and a center tubular cup. Flowers are followed by oval seed capsules.

Cultural Requirements: Spider Lily is best grown in moist to wet soils in full sun or partial shade. Allow the foliage to remain after flowering to feed the bulb and developing bulblets.

Landscape Uses: Use Spider Lily in perennial borders, open woodland gardens and along streams and ponds.

Size: 1½ to 2½ feet tall and 1 to 1½ feet wide

Hardiness Zones: All of Georgia

Habitat: Swamps, moist fields, bottomlands and rich, moist forests

Native To: North Carolina to Georgia, west to Texas, north to Missouri, Illinois and Indiana

Propagation: Seed or division
Seed: Collect seeds from September to October and sow them directly in outdoor flats. Germination should occur in three to four months. It takes three to four years to produce a flowering plant from seed.
Division: Separate bulblets from the mother bulb in the fall.

Comments: Attractive, fragrant blooms make Spider Lily worthy of landscape culture.

Images: Page 73

Orange Jewelweed, Spotted Touch-me-not / *Impatiens capensis*
Family: Touch-me-not / *Balsaminaceae*

Life Cycle: Annual

Characteristics: Leaves are up to 4 inches long, coarsely toothed and have long petioles. Stems are hollow, weak and succulent. In summer, flowers emerge from the upper leaf axils and dangle downward on stalks up to 4 inches long. They are orange to orange-yellow, 1 inch long and shaped like a cornucopia. The base of the flower has a tiny nectar spur that curls downward. Flowers are followed by seed pods. When mature, the slightest touch causes the pod to split and release its seeds.

Cultural Requirements: Orange Jewelweed prefers moist soil and shade or partial shade.

Landscape Uses: Use Orange Jewelweed in shaded, moist sites for vibrant color from early summer until frost.

Size: 2 to 5 feet tall and spreading

Habitat: Moist areas, such as stream banks, marshes, seepages or woodland edges

Native To: Most of eastern North America

Propagation: Seed
Seed: Collect seeds in August or September. Stratify them dry at 40°F for two to three months before planting.

Comments: Orange Jewelweed can be aggressive in moist woodland sites. It is a nectar plant for hummingbirds. Native Americans used its watery plant juices to relieve the itch of poison ivy and insect bites.

Images: Page 73

Yellow Jewelweed, Pale Touch-me-not / *Impatiens pallida*
Family: Touch-me-not / *Balsaminaceae*

Life Cycle: Annual

Characteristics: Leaves are up to 4 inches long and coarsely toothed on long petioles. Stems are hollow, weak and succulent. From summer through fall, solitary yellow flowers with five fused petals are borne at the upper leaf axils and dangle downward on pedicels up to 2 inches long. The base of the flower has a tiny nectar spur that curls downward. Flowers are followed by seed-bearing capsules approximately 2 inches long. When mature, the slightest touch causes the capsules to split and release their seeds.

Cultural Requirements: Yellow Jewelweed prefers morning sun, afternoon shade and wet to moist soil conditions.

Landscape Uses: Use Yellow Jewelweed in moist woodlands and along pond edges

Size: 3 to 6 feet tall

Habitat: Edges of ponds and streams, swamps, openings in moist deciduous woodlands and soggy thickets

Native To: Maine, south to Georgia, west to Oklahoma, north to the Dakotas

Propagation: Seed
Seed: Collect seeds from August to September. Store them dry at 40°F for two to three months before planting them in outdoor beds or flats.

Comments: The nectar of the flowers attracts hummingbirds and bumblebees. A wide variety of moth larvae feed on the foliage, and a number of game birds eat the seeds.

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Iris

All Iris flowers are characterized by three falls (actually sepals) and three upright petals called standards (see Figure 4). The falls are showier than the standards. They may or may not have a band of hairs in their middle, called a beard, or an area of raised tissue, called the crest. The variation of these markings distinguishes the species. All native Irises have a distinctive leaf arrangement. The leaf bases overlap then spread out into a fan shape. Irises are not bothered by deer and are a good choice for landscapes that are grazed by deer.

Dwarf Crested Iris / *Iris cristata*
Family: Iris / *Iridaceae*

Life Cycle: Perennial

Characteristics: Dwarf Crested Iris is a low-growing, spreading plant with narrow, sword-shaped, medium-green leaves up to 6 inches long and 2 inches wide. Leaves arise from a branching rhizome that spreads to form colonies. In spring, pale blue flowers with gold crests appear on short stalks. Sepals are distinctly marked with a central band of white, yellow or purple. Seeds are produced in capsules.

Cultural Requirements: Plant Dwarf Crested Iris in sun to partial shade and moist soil enriched with organic matter. Divide plants when they become crowded.

Landscape Uses: Plant Dwarf Crested Iris along the edges of moist shaded woodland where its diminutive size can be readily seen. Under favorable growing conditions, the plant spreads and becomes a ground cover.

Size: 6 to 12 inches high and spreading

Hardiness Zones: All of Georgia

Habitat: Moist, fertile wooded slopes and flood plains

Native To: Maryland to Missouri and Oklahoma, south to Mississippi and Georgia

Propagation: Seed or division
Seed: Collect capsules when they are mature and remove their seeds. Sow the seeds in outdoor beds or flats. No pretreatment of the seeds is required. It may take two years for them to germinate, so patience is a virtue.
Division: Divide the plants in late winter or early spring.

Comments: The flowers attract hummingbirds and bees. This plant is easy to grow when provided its required growing conditions.

Images: Page 74

Copper Iris / *Iris fulva*
Family: Iris / *Iridaceae*

Life Cycle: Perennial

Characteristics: Leaves are sword-like and 12 to 15 inches long. Flower stalks rise 2 to 3 feet high and bear copper, sometimes yellow, flowers. The flowers are 2 to 3 inches wide and consist of three hanging sepals (falls) that turn downward and three erect petals (standards). The falls are faintly yellow at their base. Seeds are borne in capsules.

Cultural Requirements: Copper Iris prefers sun to partial shade and wet to moist sites. It will grow in standing water.

Landscape Uses: Use Copper Iris along the edges of ponds, streams or lakes. It is a good plant for water gardens or bogs. It does not tolerate drought.

Size: 2 to 3 feet tall

Hardiness Zones: All of Georgia

Habitat: Wet, swampy areas

Native To: Ohio, Kentucky, Tennessee, south to Florida, west to Texas, north to Illinois

Propagation: Seed or division
Seed: Collect capsules in late summer before they split and release their seeds. Remove the seeds from their capsules and store them dry at 40°F for planting in November or December. Before planting, soak the seeds in water for 24 hours to soften the seed coat. Cover the seeds lightly with the germination medium because light enhances germination. It takes at least two years to produce a flowering plant from seed.
Division: Plants can be divided in late winter.

Comments: Bees and hummingbirds are attracted to the flowers. This is a member of the Louisiana (crestless) iris group.

Images: Page 74

Dwarf Violet Iris / *Iris verna*
Family: Iris / *Iridaceae*

Life Cycle: Perennial

Characteristics: Sword-shaped leaves emerge from scaly rhizomes. In spring, flower stalks rise above the foliage and bear lavender to deep-blue flowers with yellow markings on their falls. Seeds are borne in capsules.

Cultural Requirements: This plant prefers moist soil enriched with organic matter. It also likes two to four hours of morning sun. It is not a vigorous spreader like *I. cristata*.

Landscape Uses: Use Dwarf Violet Iris in the front of a perennial border where it can be seen.

Size: 6 to 10 inches tall

Hardiness Zones: All of Georgia

Habitat: Moist, sandy-loam soil in pine barrens of the Coastal Plain and rocky or sandy upland forests

Native To: Maryland, Virginia and Kentucky, south to Mississippi and Georgia

Propagation: Seed or division
Seed: Collect capsules about eight weeks after bloom and remove their seeds. No pre-treatment of the seeds is required. Sow them in outdoor beds or flats. They may take two years to germinate.
Division: Divide plants in late winter or early spring.

Comments: Flower color and size are similar to those of Dwarf Crested Iris; however, the two plants are easy to tell apart. The flowers of *I. verna* are beardless and crestless while those of *I. cristata* have crests on their falls. Also, the flowers of *I. verna* appear before the foliage, while those of *I. cristata* appear after the foliage. Furthermore, flowers of *I. verna* are more fragrant than those of *I. cristata*. This is an easy plant to grow in shaded woodland gardens.

Images: Page 75

Virginia Iris, Southern Blueflag / *Iris virginica*
Family: Iris / *Iridaceae*

Life Cycle: Perennial

Characteristics: Narrow sword-like leaves, 1 to 2 feet tall and 2 to 3 inches wide, grow from rhizomes. New leaves have a burgundy tinge at their bases that persists until early summer. Flowers are borne on stalks that rise 1 to 3 feet from the base of the plant in spring. Each stalk bears one to three flowers. Falls are violet-blue and crests are yellow or white. The rhizome spreads to form colonies. Seeds are borne in capsules.

Cultural Requirements: Virginia Iris is a wetland species that likes consistent moisture. It adapts to sun or partial shade. It spreads slowly and is not aggressive.

Landscape Uses: Use Virginia Iris along the edges of streams or ponds, in drainage ditches or in water gardens. It also does well in low-lying areas that are subject to flooding.

Size: 2 to 3 feet high

Hardiness Zones: All of Georgia

Habitat: Marshes, wet ditches and swamps in open areas

Native To: Florida, west to Texas, north to Virginia

Propagation: Seed or division
Seed: Collect capsules in late summer before they split and release their seeds. Remove the seeds and store them dry at 40°F for planting in November or December. Before planting, soak the seeds in water for 24 hours to soften their seed coats. Light enhances germination so cover them lightly with the germination medium. It takes at least two years to produce a flowering plant from seed.
Division: Plants can be divided from fall to late winter.

Comments: This is an easy plant to grow on moist sites. It is very similar in form to its northern cousin, *Iris versicolor*.

Images: Page 75

Slender Lespedeza / *Lespedeza virginica*
Family: Legume / *Fabaceae*

Life Cycle: Perennial

Characteristics: Slender Lespedeza is a slender, erect plant with trifoliate leaves. Leaflets are oblong to linear and have distinctive parallel veins. Stems are hairy. Small pink flowers are borne in dense clusters in the upper leaf axils in September. Each flower is ¼ inch long and consists of a broad upper petal with rose-pink splotches and two smaller side petals adjacent to a lower lip. The plant has a strong taproot.

Cultural Requirements: Plant Slender Lespedeza in full sun or light shade and moist, well-drained soils. It will adapt to dry sites. It self-seeds readily, so prune it back after flowering if seeding and spreading is not desired.

Landscape Uses: Plant Slender Lespedeza at woodland edges and in open meadows.

Size: 1 to 3 feet tall

Hardiness Zones: All of Georgia

Habitat: Rocky and dry open woods, gravel stream banks, thickets, prairies and bluffs

Native To: All states east of the Mississippi River (except New England), west to Wisconsin, south to Texas

Propagation: Seed
Seed: Store seeds for 10 days at 40°F before planting them in warm soil.

Comments: Like other legumes, Lespedezas have nitrogen-fixing bacteria in root nodules that trap atmospheric nitrogen and convert it to a form of nitrogen that is available to plants. They also provide food for birds and other wildlife. *L. virginica* is similar to *L. cuneata*, a Chinese species that has become invasive. Native *Lespedezas* have leaves that are broadest at the center and have pink to purple blooms, while Chinese *Lespedeza* has leaves that are broadest at the tip and white blooms flecked with purple. Two additional native species, Trailing Lespedeza, *L. procumbans*, and Creeping Lespedeza, *L. repens*, have pink blooms.

Images: Page 75

Blazing Star / Genus *Liatris*

All *Liatris* species described in this publication have the characteristics listed below.

- They occur naturally in many diverse habitats, but in order to bloom and grow well, they need at least a half day of full sun.
- They have strong stems with closely spaced leaves and internodes that gradually decrease in length up the stem.
- They are long-lived plants.
- They can be grown easily from seed.
- Tiny pink or white flowers are grouped in heads, which are surrounded at their base by several whorls of bracts. The color and texture of these bracts are useful in distinguishing species.
- Flowers open progressively over several weeks from the top of the stem downward.
- They grow from a bulbous woody rootstock.

Tall Blazing Star, Rough Blazing Star / *Liatris aspera*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Tall Blazing Star is an upright, clump-forming plant. Basal leaves are narrow, lance-shaped, up to 12 inches long and rough textured. Leaves along the stem are shorter than the basal leaves and are bright green. Stems are zigzag in shape and covered with grayish hairs. Button-like, pink-lavender flower heads, up to 1½ inch across, appear from August to September on the upper portion of branches. The bracts at the base of the flower heads are rounded, rough to the touch and have ragged pink or white margins.

Cultural Requirements: This plant thrives in either moist or dry soil and needs at least a half-day of full sun. Its tall stems can flop and may require staking.

Landscape Uses: Tall Blazing Star makes a spectacular showing when planted along sandy roadsides or in meadows.

Size: 3 to 5 feet tall

Hardiness Zones: All of Georgia

Habitat: Sandy prairies, barrens and open meadows

Native To: Michigan to North Dakota, south to Oklahoma and Texas, east to Alabama and Georgia

Propagation: Seed or division
Seed: Collect seeds when the flower heads turn fluffy and brown. Store them dry for two months at 40°F, then sow them in outdoor beds or flats in December or January. Germination should occur in about two months.
Division: Plants can be divided in fall or late winter.

Comments: Because the flowers tend to open at the same time, they are used by the florist trade in floral arrangements. The flowers attract butterflies and hummingbirds. This species is endangered in Canada and is somewhat rare in Georgia.

Images: Pages 75-76

Doll's Eyes, White Baneberry / *Actaea pachypoda*

Ed McDowell

Hugh and Carol Nourse

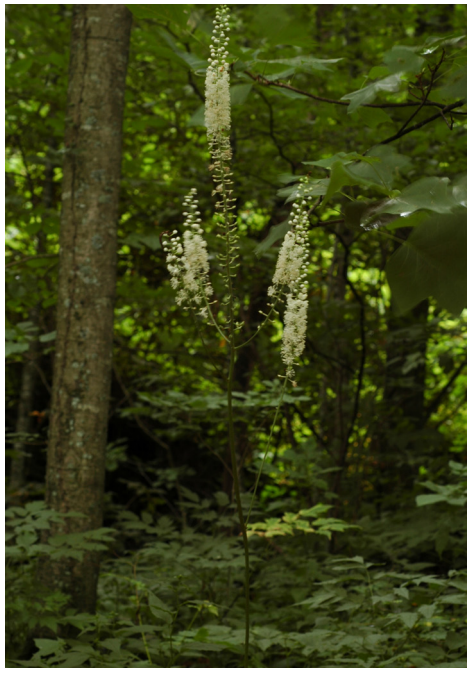
Ed McDowell

Black Cohosh, Black Bugbane / *Actaea racemosa* (syn. *Cimicifuga racemosa*)

Michael Strickland

Michael Strickland

Hugh and Carol Nourse



Hugh and Carol Nourse

Common White Snakeroot / *Ageratina altissima* (syn. *Eupatorium rugosum*)

Hugh and Carol Nourse

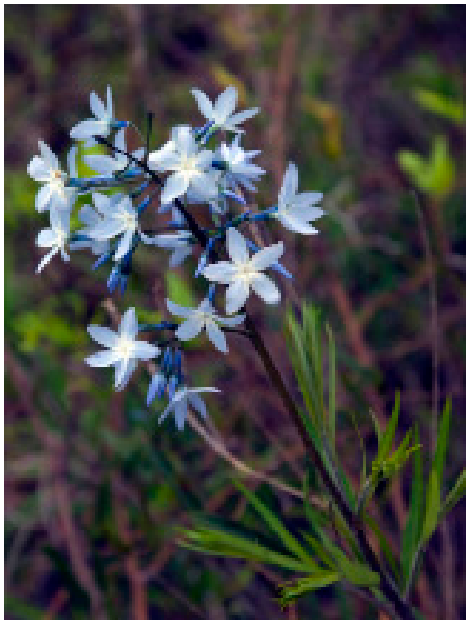
Hugh and Carol Nourse

Fly Poison / *Amianthium muscitoxicum*

Hugh and Carol Nourse

Hugh and Carol Nourse

Fringed Blue Star / *Amsonia ciliata*



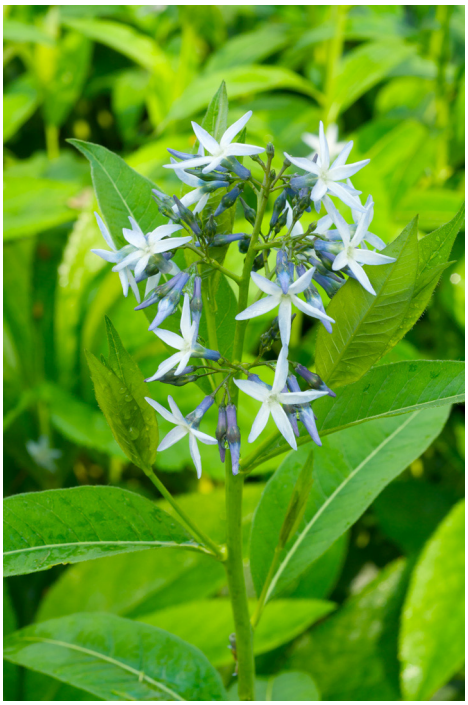
Gil Nelson

Gil Nelson

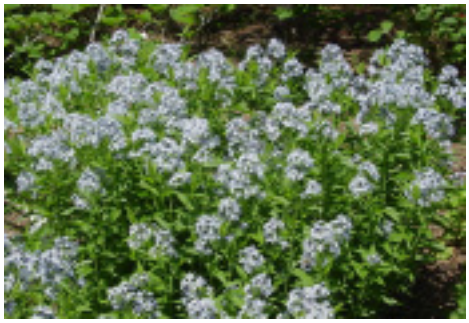
Ed McDowell

Wideleaf Blue Star, Eastern Blue Star / *Amsonia tabernaemontana*

Ed McDowell



Hugh and Carol Nourse

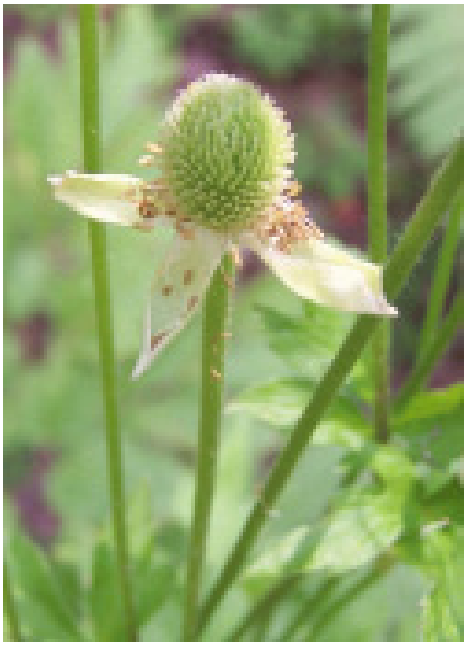


Gary Wade

Wood Anemone / *Anemone quinquefolia*

Hugh and Carol Nourse

Hugh and Carol Nourse



Michael Strickland

Tall Thimbleweed / *Anemone virginiana*

Hugh and Carol Nourse

Hugh and Carol Nourse

Michael Stickland

Rue-anemone / *Anemonella thalictroides* (syn. *Thalictrum thalictroides*)

Hugh and Carol Nourse

Hugh and Carol Nourse

Hugh and Carol Nourse

Hairy Angelica / *Angelica venenosa*

Shannon Pable

Ed McDowell

Ed McDowell

Plantain Pussytoes / *Antennaria plantaginifolia*

Michael Strickland

Ed McDowell

Michael Strickland

Michael Strickland

Eastern Columbine / *Aquilegia canadensis*

Ed McDowell

Ed McDowell

Ed McDowell

Green Dragon / *Arisaema dracontium*

Hugh and Carol Nourse

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Hugh and Carol Nourse

Jack-in-the-pulpit / *Arisaema triphyllum*

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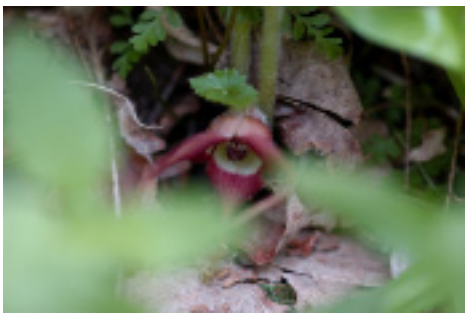
Hugh and Carol Nourse

Ed McDowell

Michael Strickland

Canadian Wild Ginger / *Asarum canadense*

Hugh and Carol Nourse



Ed McDowell

Clasping Milkweed,
Blunt-leaved Milkweed,
Wavy-leaf Milkweed /
Asclepias amplexicaulis

Gil Nelson

Ed McDowell

R.K. Robertson, Illinois Natural History Survey

Swamp Milkweed /
Asclepias incarnata

Ed McDowell

Ed McDowell

Common Milkweed /
Asclepias syriaca

Gil Nelson

Gil Nelson

Butterfly Weed, Butterfly Milkweed / *Asclepias tuberosa*

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Gil Nelson

White Milkweed / *Asclepias variegata*

Hugh and Carol Nourse

Michael Strickland

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White Wild Indigo / *Baptisia alba*

Margie Hunter

Hugh and Carol Nourse

Hugh and Carol Nourse

Blue Wild Indigo / *Baptisia australis*

Hugh and Carol Nourse

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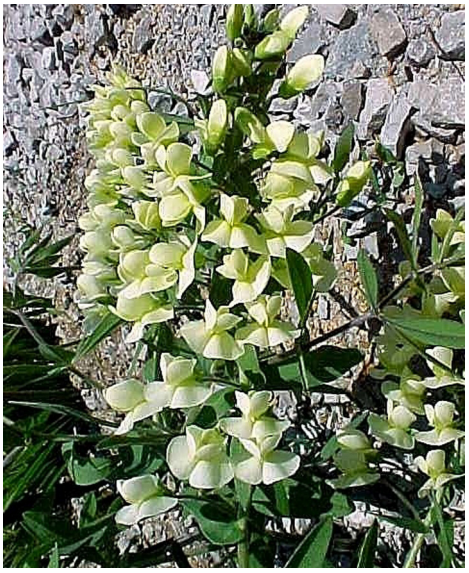
Ed McDowell

Gary Wade

Longbract Wild Indigo, Cream Wild Indigo / *Baptisia bracteata*



Missouri Botanical Garden, Kemper Center for Home Gardening

Missouri Botanical Garden, Kemper Center for Home Gardening

Gopherweed / *Baptisia lanceolata*

Gil Nelson

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Shoofly Wild Indigo / *Baptsia tinctoria*

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Bearded Beggarticks, Bur Marigold / *Bidens aristosa*

Margie Hunter

Shannon Pable

Nodding Beggarticks / *Bidens cernua*

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Toothwort, Crinkleroot / *Cardamine diphylla* (syn. *Dentaria diphylla*)

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Vanillaleaf, Deer tongue / *Carphephorus odoratissimus*

Hugh and Carol Nourse

Jeffrey Pippen

Jeffrey Pippen

Ed McDowell

Ed McDowell

Blue Cohosh / *Caulophyllum thalictroides*

Hugh and Carol Nourse

Ed McDowell

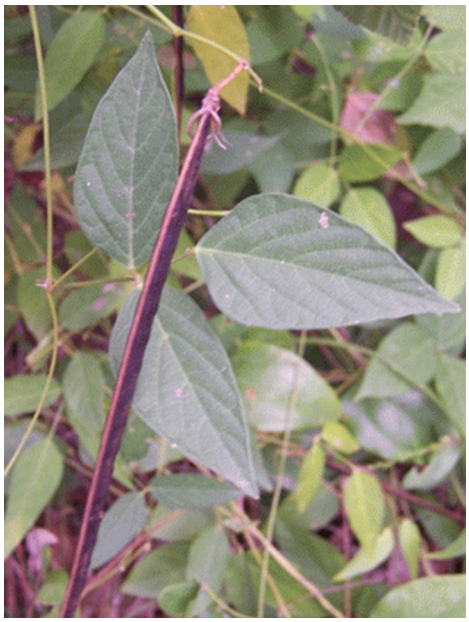
Ed McDowell

Spurred Butterfly Pea / *Centrosema virginianum*

Ed McDowell

Michael Strickland

Michael Strickland



Michael Strickland

Partridge Pea / *Chamaecrista fasciculata*

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Ed McDowell

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Ed McDowell

Fairy Wand, Devil's Bit / *Chamaelirium luteum*

Ed McDowell

Ed McDowell

Female Flower, Michael Strickland

Male Flower, Michael Strickland

Woolly Sunbonnets, Pineland Daisy / *Chaptalia tomentosa*

Hugh and Carol Nourse

Gil Nelson

White Turtlehead / *Chelone glabra*

Hugh and Carol Nourse

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Green-and-gold / *Chrysogonum virginianum*

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Michael Strickland

Pink Turtlehead / *Chelone lyonii*

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Maryland Goldenaster / *Chrysopsis mariana*

Michael Strickland

Michael Strickland

Gil Nelson

Carolina Coralbead / *Cocculus carolinus*

Hugh and Carol Nourse

Michael Strickland

Michael Strickland

Blue Mistflower / *Conoclinium coelestinum*

Gil Nelson

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Michael Strickland

Michael Strickland

Lobed Coreopsis, Tickseed, Eared Coreopsis / *Coreopsis auriculata*

Michael Strickland

Michael Strickland

Michael Strickland

Goldenmane Tickseed, Golden Wave Tickseed / *Coreopsis basalis*

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Large-flowered Coreopsis / *Coreopsis grandiflora*

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Woodland Coreopsis, Pot of Gold Coreopsis / *Coreopsis major*

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Star Tickseed, Downy Tickseed / *Coreopsis pubescens*

Jeffrey Pippen

Jeffrey Pippen

Jeffrey Pippen

Plains Tickseed, Golden Tickseed / *Coreopsis tinctora*

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Rob's Plants

Carolina Larkspur / *Delphinium carolinianum*

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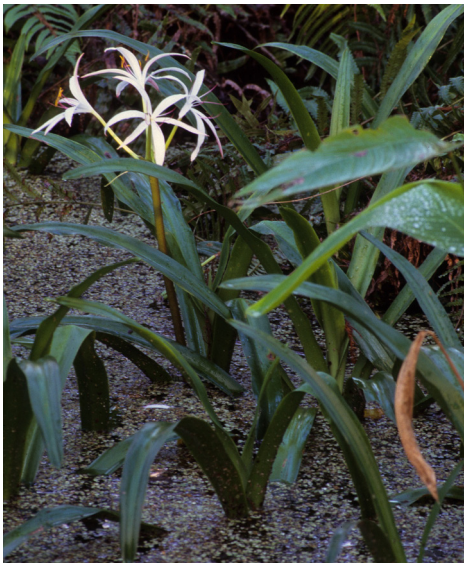
Crinum Lily, Seven Sisters, String Lily, Swamp Lily / *Crinum americanum*



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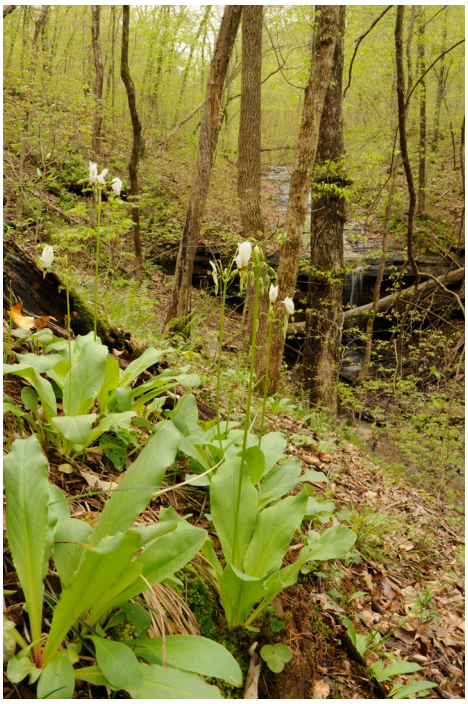
Hugh and Carol Nourse

Eastern Shooting Star / *Dodecatheon meadia*



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Hugh and Carol Nourse

Hugh and Carol Nourse

Michael Strickland

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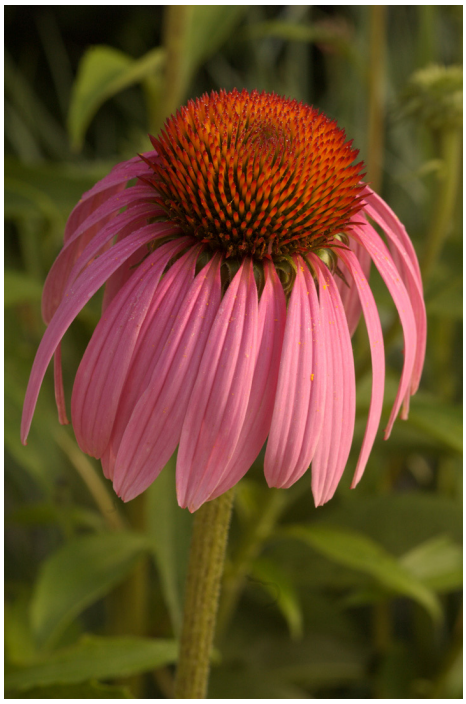
Purple Coneflower / *Echinacea purpurea*



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Gary Wade

Hairy Elephant's-foot, Devil's Grandmother / *Elephantopus tomentosus*

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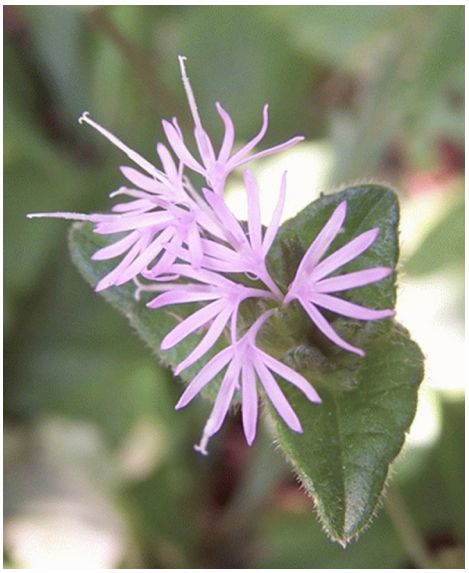

Michael Strickland

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Michael Strickland

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Coral Bean, Cherokee Bean, Red Cardinal / *Erythrina herbacea*

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Gil Nelson

Robin's Plantain / *Erigeron pulchellus*

Margie Hunter

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Rattlesnake-master, Button Snake-root / *Eryngium yuccifolium*

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Late Boneset / *Eupatorium serotinum*

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Dimpled Trout Lily / *Erythronium umbilicatum*

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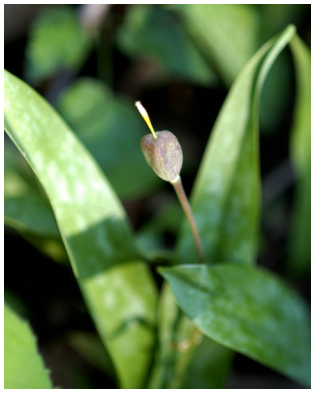
Ed McDowell



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American Boneset / *Eupatorium perfoliatum*

Margie Hunter

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White Wood Aster, Heartleaf Aster / *Eurybia divaricata* (syn. *Aster divaricatus*)

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Carolina Flat-topped Goldenrod, Slender Goldentop / *Euthamia caroliniana* (syn. *Euthamia minor*)

Jeffrey Pippen

Jeffrey Pippen

Jeffrey Pippen

Gary Wade

Joe-Pye Weed, Trumpetweed / *Eutrochium fistulosum* (syn. *Eupatorium fistulosum*)

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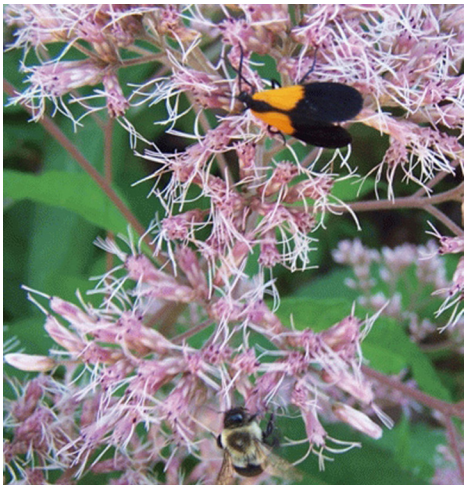

Michael Strickland

Michael Strickland

Gary Wade

Soapwort Gentian / *Gentiana saponaria* (syn. *Dasystephana saponaria*)

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Michael Strickland

Wild Geranium, Cranesbill Geranium / *Geranium maculatum*

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Narrowleaf Sunflower, Swamp Sunflower / *Helianthus angustifolius*

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Woodland Sunflower, Rough Sunflower / *Helianthus divaricatus*

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Confederate Daisy, Stone Mountain Yellow Daisy / *Helianthus porteri* (syn. *Viguiera porteri*)

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Hepatica, Liverleaf Hepatica / *Hepatica americana* (syn. *Anemone americana*, *Hepatica nobilis* var. *obtusa*)

Margie Hunter

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Coral Bells, Alumroot / *Heuchera americana*

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Little Brown Jug, Heartleaf, Evergreen Wild Ginger / *Hexastylis arifolia* (syn. *Asarum arifolia*)

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Largeflower Heartleaf / *Hexastylis shuttleworthii* (syn. *Asarum shuttleworthii*)

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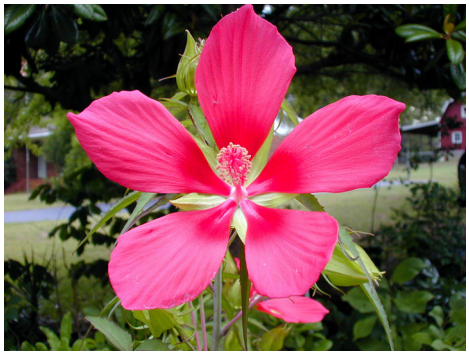
Scarlet Rose Mallow / *Hibiscus coccineus*



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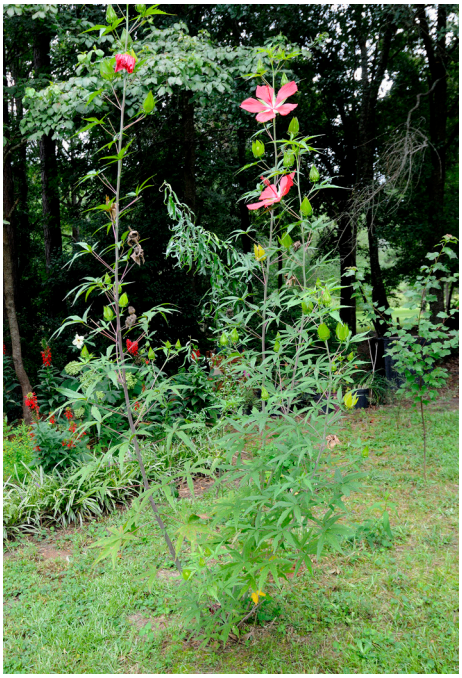

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Halberd-leaf Rose Mallow / *Hibiscus laevis* (syn. *Hibiscus militaris*)

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Crimson-eyed Rose Mallow, Marsh Mallow / *Hibiscus moscheutos*

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Spider Lily, Carolina Spiderlily / *Hymenocallis occidentalis*

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Orange Jewelweed, Spotted Touch-me-not / *Impatiens capensis*

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Yellow Jewelweed, Pale Touch-me-not / *Impatiens pallida*

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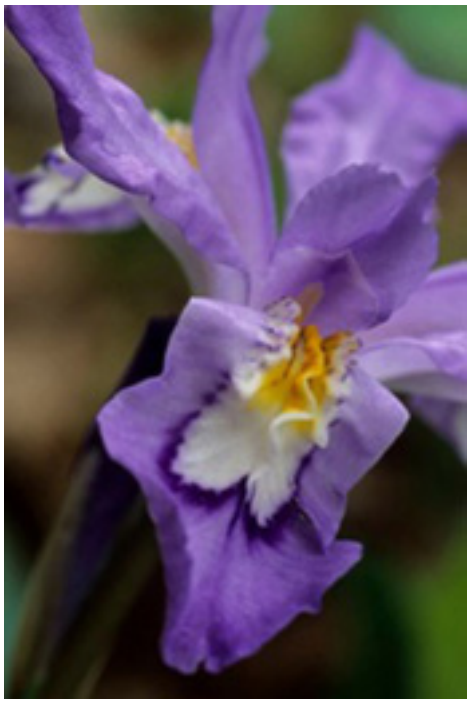
Dwarf Crested Iris / *Iris cristata*



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Copper Iris / *Iris fulva*

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Dwarf Violet Iris / *Iris verna*

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Virginia Iris, Southern Blueflag / *Iris virginica*

Margie Hunter

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Slender Lespedeza / *Lespedeza virginica*

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Tall Blazing Star, Rough Blazing Star / *Liatris aspera*

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continued on next page

Tall Blazing Star, Rough Blazing Star / *Liatris aspera*

continued

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Pink-scale Blazing Star / *Liatris elegans*

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Shaggy Blazing Star, Grass-leaf Blazing Star / *Liatris pilosa* (syn. *Liatris graminifolium*)

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Dense Blazing Star, Marsh Blazing Star / *Liatris spicata*

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Scaly Blazing Star / *Liatris squarrosa*

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Turk's Cap Lily /
Lilium superbum

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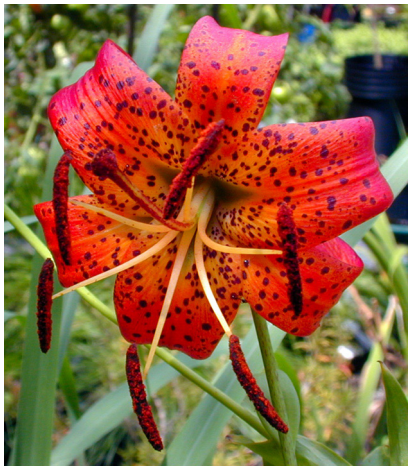

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Carolina Lily /
Lilium michauxii

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Cardinal Flower /
Lobelia cardinalis

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Downy Blue Lobelia /
Lobelia puberula

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Great Blue Lobelia /
Lobelia siphilitica

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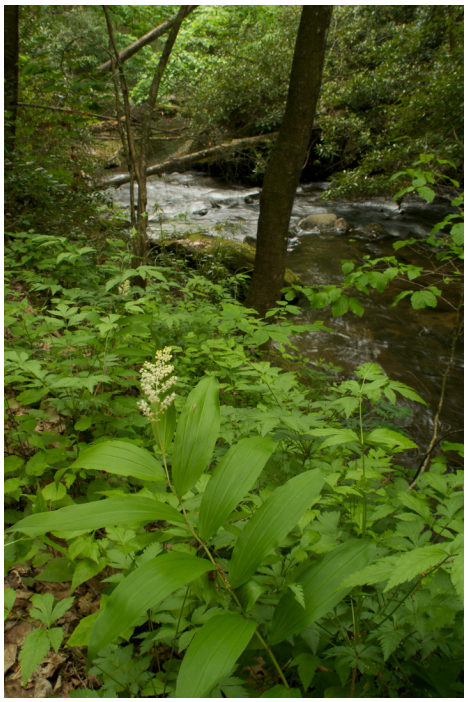
Solomon's Plume,
Feathery False Lily-of-the-Valley /
Maianthemum racemosum
(Syn: *Smilacina racemosa*)



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Solomon's Plume, Feathery False Lily-of-the-Valley / *Maianthemum racemosum* (Syn: *Smilacina racemosa*)

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Spoonshape Barbara's Buttons, Piedmont Barbara's Buttons / *Marshallia obovata* var. *obovata*

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Eastern Sensitive Briar / *Mimosa microphylla*

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Anglefruit Milkvine, Climbing Milkvine / *Matelea gonocarpos*

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Partridge-berry / *Mitchella repens*

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Hugh and Carol Nourse

Beebalm, Oswego Tea / *Monarda didyma*

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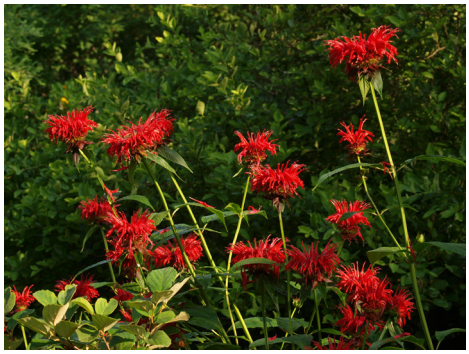

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Appalachian Bergamot / *Monarda fistulosa*

Gil Nelson

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Spotted Horse-mint / *Monarda punctata*

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Sweet-cicely, Anise-root / *Osmorhiza claytonii*

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Golden Ragwort, Golden Groundsel / *Packera aurea* (syn. *Senecio aureus*)

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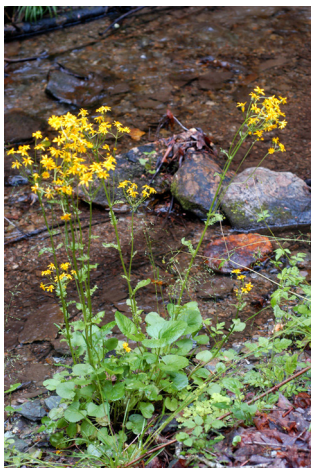

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Southern Beardtongue / *Penstemon australis*

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Hugh and Carol Nourse

Jeffrey Pippen

Beardtongue, Appalachian Beardtongue / *Penstemon canescens*

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Smooth Beardtongue / *Penstemon digitalis*

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Small's Beardtongue / *Penstemon smallii*

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Hairy Phlox / *Phlox amoena*

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Carolina Phlox, Thickleaf Phlox / *Phlox carolina*

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Woodland Phlox / *Phlox divaricata*

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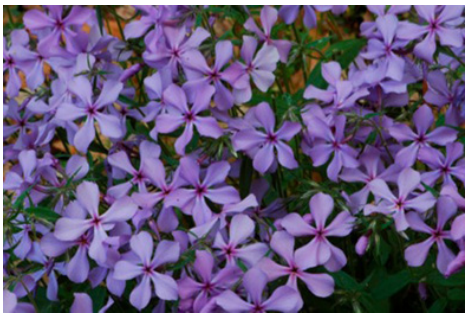

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Smooth Phlox / *Phlox glaberrima*

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Wild Sweet William, Meadow Phlox / *Phlox maculata*

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Garden Phlox, Summer Phlox / *Phlox paniculata*

Gary Wade

Gary Wade

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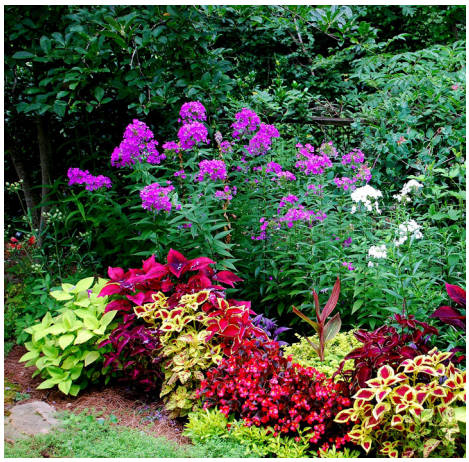
Shannon Pable



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Creeping Phlox / *Phlox stolonifera*

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Moss Phlox, Moss Pink / *Phlox subulata*

Gary Wade

Gary Wade

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Gary Wade

Obedient Plant / *Physostegia virginiana*

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Grass-leaved Goldenaster, Narrowleaf Silkgrass / *Pityopsis graminifolia*

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Michael Strickland

Mayapple, American Mandrake / *Podophyllum peltatum*

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Dwarf Cinquefoil / *Potentilla canadensis*

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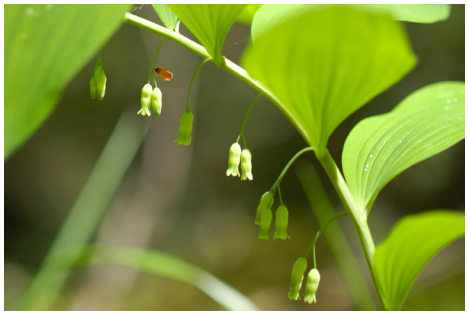
Solomon's-seal, Small Solomon's Seal, Smooth Solomon's Seal / *Polygonatum biflorum*



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Southern Mountain Mint, White Horse Mint / *Pycnanthemum pycnanthemoides*

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Maryland Meadow Beauty / *Rhexia mariana*

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Meadow Beauty, Handsome Harry / *Rhexia virginica*

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Orange Coneflower, Brown-eyed Susan / *Rudbeckia fulgida*

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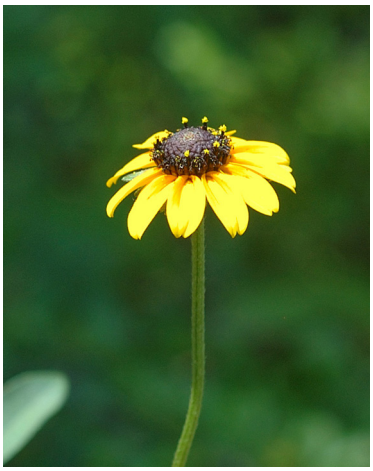
Hugh and Carol Nourse



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Black-eyed Susan / *Rudbeckia hirta*

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Cutleaf Coneflower / *Rudbeckia laciniata*

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Brown-eyed Susan, Three-lobed Coneflower / *Rudbeckia triloba*

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Gary Wade

Gil Nelson

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Azure-blue Sage, Pitcher Sage / *Salvia azurea*

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Lyre-leaf Sage / *Salvia lyrata*

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Scarlet Sage, Tropical Sage, Blood Sage, Texas Sage / *Salvia coccinea*

Gary Wade

Gary Wade

Michael Strickland

Michael Strickland

Bloodroot, Red Puccoon, Indian Paint, Pauson, Tetterwort / *Sanguinaria canadensis*

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Hairy Skullcap / *Scutellaria elliptica*

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Hyssop Skullcap, Rough Skullcap, Helmet Flower / *Scutellaria integrifolia* L.

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Eugene Wofford

Wild Pink, Sticky Catchfly, Carolina Campion / *Silene caroliniana*

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Starry Campion, Widow's Frill /
Silene stellata

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Fire Pink, Scarlet Catchfly /
Silene virginica

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Starry Rosinweed /
Silphium asteriscus

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Kidneyleaf Rosinweed / *Silphium compositum*

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Cup Plant / *Silphium perfoliatum*

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Blue-eyed-grass, Narrowleaf Blue-eyed-grass / *Sisyrinchium angustifolium*

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Ed McDowell

Michael Strickland

Wrinkle-leaf Goldenrod, Rough-stemmed Goldenrod / *Solidago rugosa*

Dennis Horn

Blue-stemmed Goldenrod, Axillary Goldenrod, Wreath Goldenrod / *Solidago caesia*

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Licorice Goldenrod, Anise-scented Goldenrod, Sweet Goldenrod / *Solidago odora*

Dennis Horn

Showy Goldenrod / *Solidago speciosa*

Margie Hunter

Missouri Botanical Garden

Gray Goldenrod / *Solidago nemoralis*

Margie Hunter

Gary Wade

Gary Wade

Gary Wade

Indian-pink, Woodland Pinkroot / *Spigelia marilandica*

Hugh and Carol Nourse

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Ed McDowell

Dennis Horn

Star Chickweed / *Stellaria pubera*

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Ed McDowell

Eastern Silvery Aster / *Symphyotrichum concolor*

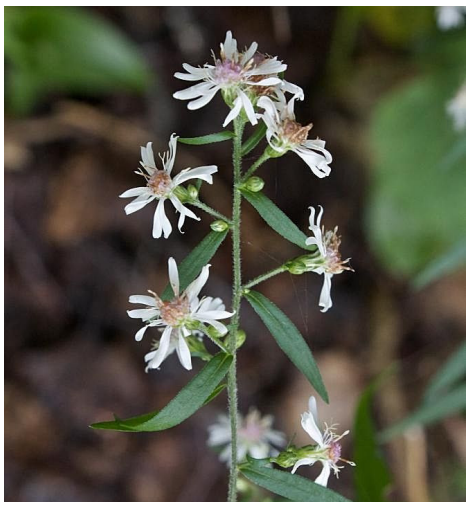
Dennis Horn

Gary Wade

Calico Aster / *Symphyotrichum lateriflorum* (syn. *Aster lateriflorus*)

Eugene Wofford

USDA Natural Resources Conservation Service



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New England Aster /
Symphyotrichum novae-angliae
(Syn. *Aster novae-angliae*)

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Foamflower,
Heartleaf Foamflower,
Allegheny Foamflower /
Tiarella cordifolia

Ed McDowell

Ed McDowell

Ed McDowell

Ed McDowell

Late Purple Aster /
Symphyotrichum patens
(syn. *Aster patens*)

Ed McDowell

Gary Wade

Gary Wade

Bluecurls /
Trichostema dichotomum

Hugh and Carol Nourse

Hugh and Carol Nourse

Ed McDowell

Catesby's Trillium,
Bashful Wakerobin,
Rose Trillium /
Trillium catesbaei

Ed McDowell

Ed McDowell

Ed McDowell

Sweet Betsy, Toad Trillium,
Whippoorwill Flower /
Trillium cuneatum

Ed McDowell

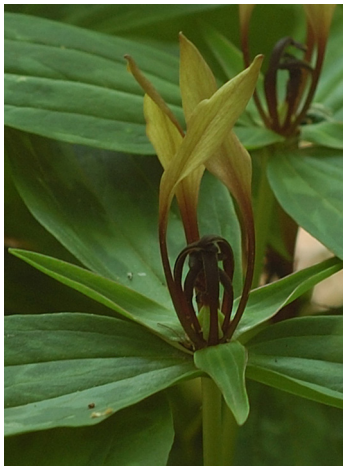
Ed McDowell

Ed McDowell

Lance-leaved Trillium, Narrow-leaved Trillium / *Trillium lancifolium*

Gil Nelson

Ed McDowell



Ed McDowell

Yellow Wakerobin, Yellow Trillium / *Trillium luteum*

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Ed McDowell

Ed McDowell

Ed McDowell

Spotted Wakerobin, Spotted Trillium / *Trillium maculatum*

Ed McDowell

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Ed McDowell

Southern Nodding Trillium, Illscented Wakerobin / *Trillium rugelii*

Hugh and Carol Nourse

Hugh and Carol Nourse

Ed McDowell

Ed McDowell

Underwood's Trillium / *Trillium underwoodii*

Ed McDowell

Ed McDowell

Ironweed, New York Ironweed / *Vernonia noveboracensis*

Ed McDowell

Ed McDowell

Narrowleaf Ironweed, Tall Ironweed / *Vernonia angustifolia*

Gil Nelson

Ed McDowell

Ed McDowell

Halberdleaf Yellow Violet / *Viola hastata*

Hugh and Carol Nourse

Ed McDowell

Ed McDowell

Bird's Foot Violet / *Viola pedata*

Hugh and Carol Nourse

Gil Nelson

Alpine Violet, Woods Violet / *Viola labradorica* (Syn. *Viola conspersa*)

Rob's Plants

Longspur Violet / *Viola rostrata*

Margie Hunter

Hugh and Carol Nourse

Ed McDowell

Ed McDowell

Atamasco Lily, Rain Lily / *Zephyranthes atamasca*

Hugh and Carol Nourse

Hugh and Carol Nourse

Ed McDowell

Golden Alexander, Golden Zizia / *Zizia aurea*

Margie Hunter

Ed McDowell

USDA Natural Resources Conservation Service

North Carolina Native Plant Society

Pink-scale Blazing Star / *Liatris elegans*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Leaves are 3 inches long, lance-shaped and narrow. They resemble pine needles. They are arranged in whorls around the stems. From August to October pale pink-lavender flower heads are borne in dense spikes, 6 to 20 inches long, at the top of stems. The bracts that surround the flower heads are the same color as the flowers, making the flowers appear larger.

Cultural Requirements: Plant Pink-scale Blazing Star in sun and sandy soil. It prefers moist soil, but it will adapt to dry soils. It does not grow well in Piedmont clay, but it adapts well to dry sandy soils of the Coastal Plain.

Landscape Uses: Use Pink-scale Blazing Star in sunny meadows, perennial borders, cottage gardens, natural areas, butterfly gardens or roadside plantings in the Coastal Plain.

Size: 2 to 4 feet high

Hardiness Zones: 7 to 8

Habitat: Sand hills and well-drained pinelands

Native To: South Carolina to Florida, west to Oklahoma and Texas along the Coastal Plain

Propagation: Seed or division
Seed: Collect seeds when the flower heads turn fluffy and brown. Store them dry for two months at 40°F, then sow them outside in December or January. Germination should occur in about two months.
Division: Plants can be divided in fall or late winter.

Comments: Butterflies are attracted to the flowers.

Images: Page 76

Shaggy Blazing Star, Grass-leaf Blazing Star / *Liatris pilosa* (syn. *Liatris graminifolium*)
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Leaves are alternate, linear, narrow and up to 6 inches long. They get smaller as they ascend the stem. Pink flower heads are borne in slender, arching spikes from September to late October. Flower heads are attached directly to the stem (sessile). Long, curved styles give the flower heads a shaggy appearance. Rust-colored pappi (bristles) arise from the base of the flowers. Fruit are small, dry, seed-like achenes surrounded by fine white bristles.

Cultural Requirements: Plant Shaggy Blazing Star in sun to light shade and moist, well-drained soil. To keep the plant compact, avoid over-fertilizing it.

Landscape Uses: This is a good plant for meadows and open areas as well as hummingbird and butterfly gardens. It is a perfect companion for medium-size grasses, like Little Bluestem and Broomsedge.

Size: 2 to 3 feet tall

Hardiness Zones: All of Georgia

Habitat: Sand hills, pine barrens, road banks, meadows and fields

Native To: New Jersey, south along the Atlantic coast to Florida, west along the Gulf coast to Mississippi

Propagation: Seed or division
Seed: Collect seeds when the flower heads turn fluffy and brown. Store them dry for two months at 40°F before sowing them outside in December or January. Germination should occur in about two months.
Division: Plants can be divided in fall or late winter.

Comments: The species name *pilosa* means hairy, referring to the bristles inside the flower tube.

Images: Page 76

Dense Blazing Star, Marsh Blazing Star / *Liatris spicata*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Basal leaves are narrow, grass-like and up to 8 inches long. Stem leaves are shorter than basal leaves and gradually decrease in size as they ascend the stem. Flower spikes, 6 to 12 inches long, appear in June on the tips of stems. They consist of numerous round, deep purple flower heads about ¾ inch across. Each flower head is comprised of four to 10 narrow tubular flowers with long, prominent branching styles.

Cultural Requirements: Dense Blazing Star is easy to grow in sun or partial shade and moist to wet soil. It needs more moisture than other *Liatris*. Too much fertilizer can result in floppy stalks. It tolerates heat and humidity well.

Landscape Uses: Use Dense Blazing Star in native plant gardens, perennial borders or cottage gardens.

Size: 2 to 5 feet tall, clump-forming

Hardiness Zones: All of Georgia

Habitat: Wet meadows, mountain outcrops and marsh margins

Native To: New York to Wisconsin, south to Louisiana and Florida

Propagation: Seed or division
Seed: Collect seeds when the flower heads turn fluffy and brown. Store them dry for two months at 40°F before sowing them outside in December or January. Germination should occur in about two months.
Division: Plants can be divided in fall or late winter. Corms are available in the nursery trade.

Comments: Dense Blazing Star is a favorite flower of the florist trade because it holds up well in floral arrangements.

Images: Page 77

Scaly Blazing Star / *Liatris squarrosa*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Leaves are narrow, lance-shaped, 4 to 6 inches long at the base of the stem and becoming smaller as they ascend the stem. Flat-topped flower heads consisting of 15 to 45 small pink tubular flowers appear from mid-June through August. The style of each flower has two long, curved branches that protrude above the flowers. The bracts surrounding the flower heads (collectively called the involucre) are loose and spreading.

Cultural Requirements: Plant Scaly Blazing Star in full sun. It adapts to dry, rocky areas and barren soils.

Landscape Uses: This is a tough plant and is best for grassland meadows and perennial borders.

Size: 2 to 4 feet tall

Hardiness Zones: All of Georgia

Habitat: Rocky sites, dry open prairies and woodland edges

Native To: Texas to Florida, north to New Jersey, west to Michigan

Propagation: Seed or division
Seed: Collect seeds when the flower heads turn fluffy and brown. Store them dry for two months at 40°F, then sow them outside in December or January. Germination should occur in about two months.
Division: Plants can be divided in fall or late winter.

Comments: Scaly Blazing Star is one of the earliest *Liatris* to bloom.

Images: Page 77

Carolina Lily / *Lilium michauxii*
Family: Lily / *Liliaceae*

Life Cycle: Perennial

Characteristics: Thick fleshy oval leaves, 2 to 3 inches long and 2 inches wide, are whorled up the stem. In summer, one to three nodding orange-red flowers appear on branched terminals. Petals are bent backward, revealing dangling white stamens with long purple-brown anthers.

Cultural Requirements: Carolina Lily likes fertile, moist, well-drained soil amended with liberal amounts of humus. It needs at least two hours of sun each day to bloom well.

Landscape Uses: Use Carolina Lily as a specimen plant in a perennial border or a sunny woodland.

Size: 2 to 4 feet tall

Hardiness Zones: All of Georgia

Habitat: Dry, open forests

Native To: Texas north to Arkansas, east to West Virginia, south to all of the southeastern states

Propagation: Seed or division
Seed: Collect seeds when capsules turn brown and split. Place them in a plastic bag containing moist sphagnum peat moss, then provide them three months of warm stratification (70°F) followed by three months of cold stratification (40°F), followed by another three months of warm stratification (70°F) before planting.
Division: The easiest propagation technique is to dig the bulbs when they go dormant, then remove and plant the bulb scales to obtain new plantlets.

Comments: Most native lilies are found near wetlands. Deer and voles like to eat lilies, so fences or cages may be needed to protect the plants. Sharp gravel used as mulch around the plants may help deter voles.

Images: Page 78

Turk's Cap Lily / *Lilium superbum*
Family: Lily / *Liliaceae*

Life Cycle: Perennial

Characteristics: Stems up to 6 feet tall bear whorls of lance-shaped leaves up to 6 inches long. In mid-summer, nodding (downward facing) orange flowers, up to 4 inches across with protruding stamens, appear in racemes at the end of flower stalks. The flowers have three orange petals and three orange sepals that are sharply reflexed backward toward the flowering stem. The flowers have greenish throats.

Cultural Requirements: This plant is easy to grow in moist, well-drained soils and partial shade. Mulching is recommended to keep the roots cool.

Landscape Uses: Use Turk's Cap Lily in irrigated perennial borders, wildflower gardens or along pond edges. It is most effective when planted in groups of several plants.

Size: 4 to 6 feet tall and spreading

Hardiness Zones: All of Georgia

Habitat: Wet meadows and moist woodlands

Native To: New Hampshire, south to Florida, west to Arkansas, north to Illinois

Propagation: Seed or division
Seed: Collect seeds when capsules turn brown and split. Seeds have a double dormancy and require a sequence of pre-treatment before planting. Place them in a plastic bag containing moist sphagnum moss and store them in a warm area (at least 70°F) for three months. Then store them at 40°F for another three months, followed by three more months of warm storage (70°F) before planting.
Division: The easiest propagation technique is to dig the bulbs when they go dormant, then remove and plant the bulb scales to obtain new plantlets.

Comments: This is the tallest of the native lilies.

Images: Page 78

Lobelia

There are about a dozen species of Lobelia native to North America, but only five are native to the Southeast, and only three are common in the nursery trade.

All lobelias have alternate leaves and bear flowers in long spikes. The flowers have upper and lower lips (see Figure 4). Three petals make up the lower lip, and two other petals make up the upper lip.

It is important to keep Lobelias free of mulch in winter because they must have light to overwinter.

All parts of the Lobelia plant are poisonous when ingested.

Cardinal Flower / *Lobelia cardinalis*
Family: Bellflower / *Campanulaceae*

Life Cycle: Perennial

Characteristics: Leaves are alternate and lance-shaped with toothed margins. They are 6 inches long and 2 inches wide. Lower leaves have short petioles while upper leaves lack petioles. Deep red flowers, about 1 inch long, and are borne in racemes at the top of the stems in late summer. Flowers are tubular and have two flaring lips. The stamens are united to form an erect tube that is topped with a small tuft of white hairs. Flowering begins in August and lasts about three weeks. Flowers are followed by capsules containing brown seeds.

Cultural Requirements: Cardinal Flower prefers morning sun and afternoon shade and moist, humus-enriched soils. It does not like wet sites.

Landscape Uses: This is a great plant for perennial borders as well as hummingbird and butterfly gardens.

Size: 2 to 4 feet tall and 12 inches wide

Hardiness Zones: All of Georgia

Habitat: Moist areas, stream banks, ditches and lakeshores

Native To: Most of the U.S, except the far northwestern states

Propagation: Seed, cuttings or division
Seed: Collect seeds from September to November when capsules turn tan and papery. Sow them directly in flats maintained at 70°F or higher. They require light to germinate, so cover them lightly with the germination medium. Germination should occur in about two weeks.
Cuttings: Stem cuttings can be taken throughout the year.
Division: New plantlets, called offsets, form at the base of the mother plant. These can be removed and transplanted in fall or spring.

Comments: Cardinal Flower is a favorite of hummingbirds and butterflies. There is a white cultivar called ‘Alba” in the trade, as well as one called ‘Roser,’ which has rose-pink flowers.

Images: Page 78

Downy Blue Lobelia / *Lobelia puberula*
Family: Bellflower / *Campanulaceae*

Life Cycle: Perennial

Characteristics: Stem leaves are alternate, lance-shaped and have toothed margins. Basal leaves are rounded and 2 to 4 inches across. The stem is usually covered with short hairs, hence the name "Downy Blue Lobelia." Flowers are slightly less than ½ inch long and may be lavender-purple, pink, blue or white. They are unusual in shape, with a two-lobed upper lip and a three-lobed lower lip. At the center of the flower is an erect column of stamens having white hairs at their tips. Flowers are borne along one side of a terminal spike that is 8 to 12 inches long. Flowering occurs from mid-summer into fall. Flowers are followed by capsules containing brown seeds.

Cultural Requirements: Downy Blue Lobelia prefers morning sun and afternoon shade and moist, well-drained soils.

Landscape Uses: Use this plant in perennial borders as well as hummingbird and butterfly gardens.

Size: 1 to 4 feet high

Hardiness Zones: All of Georgia

Habitat: Moist forests and open areas

Native To: New Jersey west to Missouri, south to Texas, east to Florida

Propagation: Seed, cuttings or division
Seed: Collect seeds from September to November when capsules turn tan and papery. Sow them directly in flats maintained at 70°F or higher. They require light to germinate, so cover them lightly with the germination medium. Germination should occur in about two weeks.
Cuttings: Terminal stem cuttings can be taken throughout the year.
Division: New plantlets, called offsets, form at the base of the mother plant. These can be removed and transplanted in fall or spring.

Comments: Flowers attract hummingbirds and butterflies.

Images: Page 79

Great Blue Lobelia / *Lobelia siphilitica*
Family: Bellflower / *Campanulaceae*

Life Cycle: Perennial

Characteristics: Leaves are alternate, lance-shaped and 3 to 5 inches long with toothed margins. Stems are square. Flowers are blue, about 1 inch in length, two-lipped and tubular. They are borne in terminal racemes in August and September. Leafy bracts are interspersed among the flowers. Fruits are spherical capsules containing yellowish-brown seeds.

Cultural Requirements: Great Blue Lobelia is easy to grow in moist, acidic, humus-enriched soils on sites having morning sun and afternoon shade. Plants need uniform moisture for best performance.

Landscape Uses: Use Great Blue Lobelia in bog gardens, wet areas or hummingbird and butterfly gardens.

Size: Up to 3 feet tall and 1 foot wide

Hardiness Zones: 6 to 7

Habitat: Swamps, stream banks, roadside ditches and other wet areas

Native To: Maine, west to North Dakota, Wyoming and Colorado, south to Texas, east to Georgia

Propagation: Seed, cuttings or division
Seed: Collect seeds from September to November when capsules turn tan and papery. Sow them directly in flats maintained at 70°F or higher. They require light to germinate, so cover them lightly with the germination medium. Germination should occur in about two weeks.
Cuttings: Terminal stem cuttings can be taken throughout the year.
Division: New plantlets, called offsets, form at the base of the mother plant. These can be removed and transplanted in fall or spring.

Comments: Flowers attract hummingbirds and butterflies.

Images: Page 79

Solomon's Plume, Feathery False Lily-of-the-Valley / *Maianthemum racemosum* (Syn: *Smilacina racemosa*) Family: Lily / *Liliaceae*

Life Cycle: Perennial

Characteristics: Leaves are alternate, sessile, 3 to 6 inches long, elliptic in shape and have prominent parallel veins. Stems are arching and slightly zigzag. Spring flowers are tiny, white and have a yellowish cast. They are borne in profusion in clusters at the stem tips. Flowers are followed by green fruit, ¼ inch across, that turn ruby red in late summer. The plant slowly colonizes an area with spreading rhizomes.

Cultural Requirements: Solomon's Plume requires moist soil with ample humus and partial shade.

Landscape Uses: Plant Solomon's Plume in moist woodland gardens or shaded areas adjacent to streams or ponds.

Size: 2 to 3 feet tall and spreading

Hardiness Zones: All of Georgia

Habitat: Rich, moist, deciduous or mixed hardwood forests

Native To: This is one of the most widely adapted forest plants in North America. It is found in all U.S. states except Hawaii.

Propagation: Seed or division
Seed: Collect seeds when the fruit turn red. After removing them from the pulp, sow the seeds directly in outdoor flats or beds. Patience is a virtue since it may take two years for seeds to germinate.
Division: Divide plants in late winter or early spring before new leaves unfurl.

Comments: Birds and small mammals like the fruit, and deer like the foliage. Early settlers used a poultice made from the roots to treat sunburn.

Images: Pages 79-80

Spoonshape Barbara's Buttons, Piedmont Barbara's Buttons / *Marshallia obovata* var. *obovata* Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: This is a clump-forming perennial with basal spoon-shaped evergreen leaves. In May or June, branching stalks up to 2 feet tall rise above the leaves and bear spherical flower heads 1 inch across. Each flower head consists of numerous white tubular flowers, each with five twisted petals. Each flower head is surrounded by numerous green bracts.

Cultural Requirements: Plant Spoonshape Barbara's Buttons in moist, well-drained soils and full sun to partial shade. It can tolerate drought once it is established.

Landscape Uses: Use this plant in perennial borders, wildflower meadows or woodland edges

Size: 2 feet tall and 1 to 2 feet wide

Hardiness Zones: All of Georgia

Habitat: Moist, well-drained roadsides and fields, bogs and dry forests dominated by pines

Native To: Virginia, North and South Carolina, Florida, Georgia, Alabama and Tennessee

Propagation: Seed, division
Seed: Collect flower heads when they are dry and remove the seeds. They require no pre-treatment before planting. Germination should occur in two to four weeks.
Division: Divide plants from late winter to early spring.

Comments: This plant attracts a number of pollinators, including butterflies and bees. It is an endangered plant in Florida and Tennessee. The origin of the common name, Barbara's Buttons, is unknown, but it is sometimes attributed to Saint Barbara, whose light-colored hair resembled the flower heads. In 2009, the plant was designated Wildflower of the Year in North Carolina.

Images: Page 80

Anglefruit Milkvine, Climbing Milkvine / *Matelea gonocarpos*
Family: Dogbane / *Apocynaceae*

Life Cycle: Perennial

Characteristics: This is a twining vine that reaches 10 feet in height. Leaves are opposite, heart-shaped, about 4 inches long and 2 inches wide. Stems are covered with fine hairs and contain a milky sap. Flowers are star-shaped, purple to green, about 1 inch across, with five narrow petals. Flowers are clustered on long stalks. Summer flowers are followed by angular seed pods up to 5 inches long. They are shaped like a cucumber.

Cultural Requirements: Plant Anglefruit Milkvine in full sun to partial shade in moist, fertile woodlands. It needs a support on which to grow. The plant dies down to the ground each winter and returns with vigor in spring.

Landscape Uses: Use Anglefruit Milkvine on a trellis or arbor in moist, shaded gardens

Size: 6 to 10 feet in length and 3 to 6 feet wide

Hardiness Zones: All of Georgia

Habitat: Moist, rich woods and thickets

Native To: Maryland and Virginia, west to Nebraska, south to Texas, east to Florida

Propagation: Seed
Seed: Collect pods when they turn tan and begin to split. Remove the silky tails from the seeds, then store the seeds dry at 40°F for four to six months. Sow the seeds the following spring in outdoor beds. Cover them very lightly because they need light to germinate.

Comments: Large leaves, attractive flowers and interesting seed pods make the plant worthy of garden culture. Another species, Spinypod, *Matelea caroliniensis*, is common in the Piedmont region of Georgia. It has maroon flowers and spiny pods.

Images: Page 80

Eastern Sensitive Briar / *Mimosa microphylla*
Family: Pea / *Fabaceae*

Life Cycle: Perennial

Characteristics: This plant is a sprawling vine with arching stems and alternate, compound leaves. Each leaf consists of six to 16 leaflets, which are further subdivided into many small sub-leaflets, giving the plant a fern-like appearance. The leaflets close along their mid-ribs when touched. Older stems bear hooked thorns. From May to July, fragrant pink flowers are borne in ball-shaped heads at the leaf axils near the stem tips. They resemble pink powderpuffs. Seeds are nut-like, 1/8 inch long and 1/16 inch wide. They are borne in long, slender prickly pods.

Cultural Requirements: Sensitive Briar likes sun and dry sandy or rocky soil.

Landscape Uses: Eastern Sensitive Briar is a nice groundcover for banks. It needs help climbing a support. Its fragrant flowers and the novelty of its leaflets folding when touched make it a garden-worthy plant.

Size: 1 to 5 feet long and sprawling

Hardiness Zones: All of Georgia

Habitat: Prairies, ravines and open, dry woodlands

Native To: Illinois, Kentucky and North Carolina, south to Florida, west to Texas

Propagation: Seed or division
Seed: Scarify the seeds by rubbing them with sandpaper before planting.
Division: The rhizome can be divided in fall or spring.

Comments: The flowers are attractive to bees, and birds like the seeds. The plant is a legume and a nitrogen fixer. Another native but rare species, Fourvalve Mimosa, *M. quadrivalvis*, is found in the Coastal Plain. The native mimosas are not invasive like the exotic mimosa tree, *Albizia julibrissin*.

Images: Page 80

Partridge-berry / *Mitchella repens*
Family: Madder / *Rubiaceae*

Life Cycle: Perennial

Characteristics: Partridge-berry is an evergreen creeping groundcover. Leaves are opposite, dark green, elliptic in shape, ¼ to ¾ inch long, with white hairs on both upper and lower surfaces. Flowers are white, fragrant, tubular and ½ inch long. They occur in pairs on a single stem in May and June. The ovaries of the two flowers are united and produce a single red berry that is ¼ inch in diameter. The plant spreads by stolons that creep along the ground and root at their nodes.

Cultural Requirements: Partridge-berry prefers partial shade and humus-enriched acidic soil.

Landscape Uses: This is a good groundcover for shady, undisturbed areas.

Size: 1 to 2 inches high and spreading

Hardiness Zones: All of Georgia

Habitat: Mixed evergreen or deciduous woods with acidic soil

Native To: Eastern U.S., from Maine to Minnesota, south to Texas, east to Florida

Propagation: Seed, cuttings or division
Seed: Harvest berries in November, remove the seeds from the pulp, and sow them directly in outdoor beds or flats. They may take up to two years to germinate.
Cuttings: Stem cuttings can be taken any time of year.
Division: Plants can be divided in fall or winter.

Comments: Fruit are consumed by ruffled grouse, bobwhite quail and turkeys.

Images: Page 81

Beebalm / Genus *Monarda*

Most gardeners are familiar with Beebalm, a commonly cultivated herb used in perennial borders, butterfly and hummingbird gardens, and fragrance and culinary gardens. Plants bear dense heads of two-lipped flowers. Improved cultivars of some species have expanded the variety and intensity of flower colors available as well as the plant's tolerance of drought and powdery mildew, a foliar disease.

There are about 16 species of *Monarda* native to North America. Three of the most common, garden-worthy species are described below.

Beebalm, Oswego Tea / *Monarda didyma*
Family: Mint/ *Lamiaceae*

Life Cycle: Perennial

Characteristics: Leaves are opposite, lance-shaped, toothed and 3 to 6 inches long. Stems are square. The flower head consists of a cluster of two-lipped tubular flowers. Flower color ranges from maroon to pale pink, violet-blue or flaming scarlet. Two stamens and the style protrude from each flower. Flowering occurs in late summer and lasts one to two months. Fruit are small brown oval nutlets. Spreading rhizomes help the plant colonize an area.

Cultural Requirements: Beebalm prefers morning sun, afternoon shade and moist, fertile soil. It is an easy plant to grow, but it can look rough in summer due to its susceptibility to powdery mildew, a disease that turns the foliage white, then brown. Provide good air circulation between plants to discourage powdery mildew problems.

Landscape Uses: Use Beebalm in perennial borders, wildflower gardens, herb gardens, butterfly and hummingbird gardens or woodland gardens.

Size: 3 to 5 feet high and 1 foot wide

Hardiness Zones: 6 to 7

Habitat: Moist mountain woods and bottomlands, stream banks and seeps

Native To: Maine to Georgia, west to Missouri, north to Minnesota

Propagation: Seed, cuttings or division
Seed: Place mature seed heads in a paper bag to dry and release their seeds. Sow the seeds directly in flats held at 70°F. Light enhances germination, so cover the seeds lightly with the germination medium.
Cuttings: Stem tip cuttings can be taken in spring.
Division: Plants can be divided in fall or spring.

Comments: Leaves are aromatic and were used as a tea substitute by Native Americans and early settlers. Beebalm tea is sold by herbalists and is still enjoyed today. The crushed foliage is used to soothe bee stings. A few cultivars, such as 'Jacob Cline,' have good resistance to powdery mildew. The plant is a hummingbird and butterfly magnet. It also has good resistance to deer browsing.

Images: Page 81

Appalachian Bergamot / *Monarda fistulosa*
Family: Mint / *Lamiaceae*

Life Cycle: Perennial

Characteristics: Leaves are opposite, oblong, toothed along their margins and 2 to 4 inches long. Stems are square. In summer, clusters of lavender two-lipped tubular flowers are borne in dense heads, 1 to 2 inches across, on the tips of stems. Each flower head is subtended by a whorl of pale-pink leafy bracts. Fruit are small shiny brown nutlets.

Cultural Requirements: This plant prefers moist, well-drained soil and full sun to partial shade. Good air circulation between plants will discourage powdery mildew disease. The plant tends to self-seed, so dead-heading (removing spent blossoms) will discourage re-seeding. Thin plants every two to three years or whenever they become crowded.

Landscape Uses: Use Appalachian Bergamot in moist woodland gardens, meadows, herb gardens or butterfly and hummingbird gardens.

Size: 2 to 4 feet tall, 1 foot wide and spreading

Hardiness Zones: All of Georgia

Habitat: Dry clearings, roadsides and woodland edges

Native To: All of North America except California and Florida

Propagation: Seed, cuttings or division
Seed: Place mature seed heads in a paper bag to dry and release their seeds. Sow the seeds directly in flats held at 70°F. Light enhances germination, so cover the seeds lightly with the germination medium.
Cuttings: Stem tip cuttings can be taken in spring.
Division: Plants can be divided in fall or spring.

Comments: Appalachian Bergamot leaves are aromatic and are used as a tea substitute. Oil extracted from the leaves has been used to treat respiratory ailments. The plant is great for wildlife gardens since it attracts birds, butterflies and hummingbirds. This species has good resistance to powdery mildew disease.

Images: Page 81

Spotted Horse-mint / *Monarda punctata*
Family: Mint / *Lamiaceae*

Life Cycle: Perennial

Characteristics: Square stems bear opposite lance-shaped leaves. They are 1 to 3 inches long and have toothed margins. From July to September, yellow two-lipped flowers with purple spots are borne in dense terminal spikes. Each flower is subtended by greenish-purple bracts. Fruits are small black nutlets.

Cultural Requirements: Spotted Horse-mint prefers full sun to partial shade and moist, well-drained soils. It will adapt to dry sites and poor soils. It tends to self-seed, so deadheading after flowering will prevent it from spreading. Provide good air circulation between plants to minimize powdery mildew disease.

Landscape Uses: Uses Spotted Horse-mint in wildflower meadows, rock gardens, herb gardens or hummingbird gardens.

Size: 1 to 3 feet tall, 1 foot wide and spreading

Hardiness Zones: All of Georgia

Habitat: Dry sandy soils, flood plains, sand hills, rocky woodlands and maritime forests

Native To: Massachusetts to Minnesota, south to Nebraska and New Mexico, east to Florida. It is also found in California.

Propagation: Seed, cuttings or division
Seed: Place seed heads in a paper bag to dry and release their seeds. Then sow the seeds in flats held at 70°F. Light enhances germination, so cover the seeds lightly with the germination medium.
Cuttings: Terminal stem cuttings can be taken in spring.
Division: Plants can be divided in fall or spring.

Comments: Leaves are aromatic and used for making tea. The tea is said to ease backaches and reduce fever and inflammation. The pungent foliage has been used as a deer repellent in the garden. This species has good resistance to powdery mildew. Another species, Lemon Beebalm, *Monarda citriodora*, has pale green leaves and whorls of purple flowers with light green centers and a striking lemon scent.

Images: Page 81

Sweet-cicely, Anise-root / *Osmorhiza claytonii*
Family: Carrot / *Apiaceae*

Life Cycle: Perennial

Characteristics: Fern-like leaves alternate up the stem and consist of three deeply toothed leaflets up to 12 inches in length. There is usually only one flowering stem per plant. Both the stem and leaves are hairy. From April to June, flat-topped clusters of white flowers with five petals are borne on short stalks at the upper leaf axils. Fruit are flattened nutlets.

Cultural Requirements: This plant requires moist, shaded areas and soil enriched with organic matter.

Landscape Uses: Plant Sweet-cicely in moist, shaded woodlands.

Size: Up to 3 feet high and 2 feet wide

Hardiness Zones: 6 to 7

Habitat: Rich, moist hardwood forests

Native To: Maine to North Dakota, south to Arkansas, east to Georgia

Propagation: Seed
Seed: Collect seeds when they turn brown. Store them dry at room temperature for four weeks, then move them to 40°F for three months before planting them in outdoor beds or flats.

Comments: The genus *Osmorhiza* means odorous root in Greek, in reference to the licorice scent given off by the root when it is crushed.

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Golden Ragwort, Golden Groundsel / *Packera aurea* (syn. *Senecio aureus*)
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Basal leaves are heart-shaped and toothed along their margins with a purple tint on their underside. Stem leaves are oblong and lobed. In spring, flowering stems rise 1 to 3 feet and bear yellow daisy-like flowers, 1 inch across, in flat-topped clusters near their tips. Seeds are surrounded by fluffy white hairs (like dandelions) that help them float in the air. Rhizomes spread and colonize an area over time.

Cultural Requirements: This plant is easily grown in moist soils and full sun or partial shade. It tolerates seasonal flooding. Self-seeding and spread may be a problem. To prevent seed dispersal, remove flowering stems after flowering and before seeds mature.

Landscape Uses: Use Golden Ragwort in irrigated perennial borders, woodlands or wildflower gardens.

Size: 1 to 3 feet tall and 1 foot wide

Hardiness Zones: All of Georgia

Habitat: Meadows, boggy areas, stream seepages and low woodlands

Native To: Maine to Florida, west to Texas, north to Minnesota

Propagation: Seed or division
Seed: Store seeds 45 days at 40°F to enhance germination.
Division: Divide plants in spring.

Comments: Leaves may cause skin irritation when touched. A related biennial species, Butterwort, *Packera anonymous*, is a common roadside plant. It has yellow blooms in May and early June.

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Beardtongue / Genus *Penstemon*

There are more than 250 species of *Penstemons* native to North America. Most of them grow in the cool, moist mountainous regions of the western United States. About 10 species are common in the eastern U.S. Most of them are found on high rocky outcrops that have well-drained soil.

Penstemon is a Greek word that means five stamens (four are fertile and one is sterile). The name beardtongue refers to the tuft of beard-like hairs found on the sterile stamen (the tongue).

Four of the most common *Penstemon* species recommended for landscape culture are described below.

Southern Beardtongue / *Penstemon australis*
Family: Figwort / *Scrophulariaceae*

Life Cycle: Perennial

Characteristics: Leaves are opposite, lance-shaped and 2 inches long. Stems are square. Both leaves and stems are hairy. Rosy-pink tubular two-lipped flowers are borne in panicles at the top of the stems from May to June. Seeds are produced in capsules.

Cultural Requirements: Southern Beardtongue prefers dry sandy soil and partial shade.

Landscape Uses: This plant is a good candidate for low water-use gardens, roadside plantings and wildflower meadows.

Size: 2 feet tall and 6 inches wide

Hardiness Zones: All of Georgia

Habitat: Sandy roadsides, sand hills and flatwoods

Native To: The Southeast, primarily a Coastal Plain and Piedmont plant, from Virginia and Kentucky, south to Mississippi, east to Florida

Propagation: Seed, cuttings or division
Seed: Collect seeds in July and August and store them at 40°F for two months before sowing. Light enhances germination so cover the seeds lightly with the germination medium.
Cuttings: Stem cuttings dipped in a rooting hormone root in about six weeks.
Division: Divide plants at their crown in fall or early spring. Prune the top of each division to its basal leaves.

Comments: This is a garden-worthy plant that requires minimal care.

Images: Page 82

Beardtongue, Appalachian Beardtongue / *Penstemon canescens*
Family: Figwort / *Scrophulariaceae*

Life Cycle: Perennial

Characteristics: Erect downy stems bear oval leaves 2 to 4 inches long. Upper leaves are sessile, while lower leaves have petioles. From late May to early June, violet to pale lavender two-lipped tubular flowers, approximately ½ inch long, appear in pairs along the upper part of the stem. Seeds are borne in capsules. The plant colonizes an area by spreading rhizomes and seed dispersal.

Cultural Requirements: Beardtongue is easy to grow on well-drained sandy soils and in full sun to partial shade. Avoid planting it in wet, poorly-drained soils. Cut plants back to their basal foliage after flowering to improve their appearance.

Landscape Uses: Use Beardtongue in perennial borders, rock gardens, butterfly gardens or dry, open woodlands.

Size: 1 to 2 feet tall and clumping

Hardiness Zones: All of Georgia

Habitat: Roadsides, dry woodlands and rocky slopes

Native To: Pennsylvania, south to Georgia, west to Alabama, north to Illinois. It is also found in Vermont.

Propagation: Seed, cuttings or division
Seed: Collect capsules when they turn brown. Place them in a paper bag, then crush the bag with a rolling pin to release the seeds from the capsules. Store seeds dry at 40°F for two months before planting them in outdoor flats. Light enhances germination so cover the seeds lightly with the germination medium.
Cuttings: Stem cuttings dipped in a rooting hormone root in about six weeks.
Division: Divide plants at their crown in fall or early spring. Prune the top of each division to its basal leaves.

Comments: The flowers attract bees and butterflies.

Images: Page 82

Smooth Beardtongue / *Penstemon digitalis*
Family: Figwort / *Scrophulariaceae*

Life Cycle: Perennial

Characteristics: This is a semi-evergreen, erect, clump-forming plant. Basal leaves are oval in shape with long petioles, while stem leaves are lance-shaped and sessile (attached directly to the stem). Stem leaves are arranged in pairs on the stem. Leaf size is variable, ranging from 3 to 6 inches long and ½ to 2 inches wide. White, two-lipped, tubular flowers, about 1 inch long, appear in clusters at the tops of stems from May to July. Flowers have red streaks near their bases. Seeds are borne in capsules. Each capsule is about ½ inch in length.

Cultural Requirements: Smooth Beardtongue prefers full sun and moist, well-drained soil. It is easy to grow and low-maintenance when provided the right growing conditions. Remove the old flowers to maintain a neat appearance.

Landscape Uses: This plant can be used to complement perennial borders, wildflower meadows and roadside plantings.

Size: Up to 3 feet tall and 6 inches wide

Hardiness Zones: All of Georgia

Habitat: Moist open woods, meadows and disturbed areas

Native To: Maine, west to South Dakota, south to Texas, east to Georgia

Propagation: Seed, cuttings or division
Seed: Collect capsules when they turn brown. Place them in a paper bag, then crush the bag with a rolling pin to release the seeds from the capsules. Store the seeds dry at 40°F for two months before planting them in outdoor flats. Light enhances germination so cover the seeds lightly with the germination medium. They should germinate in one to three months.
Cuttings: Stem cuttings dipped in a rooting hormone root in about six weeks.
Division: Plants can be divided in the fall.

Comments: Hummingbirds and bumblebees are attracted to the flowers. Another species, Eastern Beardtongue, *P. laevigatus*, has white flowers and is a good plant for wet meadows and bottomlands.

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Small's Beardtongue / *Penstemon smallii*
Family: Figwort / *Scrophulariaceae*

Life Cycle: Perennial

Characteristics: Erect stems bear shiny opposite sessile leaves with dark veins and heart-shaped bases. A basal rosette of leaves turns reddish-bronze in winter. From late April to June, numerous tubular dark-pink to rosy-lavender flowers with a white throat appear at the leaf axils along the stem. The plant blooms for about four weeks, which is longer than most other native Beardtongues. Seeds are borne in capsules.

Cultural Requirements: Small's Beardtongue prefers moist, acidic, well-drained sandy soil and sun to partial shade. It will not tolerate wet sites. It is considered a short-lived perennial, so allow it to re-seed for years of enjoyment.

Landscape Uses: Use Small's Beardtongue in perennial borders, hummingbird and butterfly gardens or wildflower meadows. It holds up well as a cut flower in floral arrangements.

Size: 1½ to 2½ feet tall

Hardiness Zones: All of Georgia

Habitat: Margins of woodlands, rock outcrops, cliffs and banks. It is often found on calcareous soils.

Native To: North and South Carolina, Georgia, Alabama and Tennessee

Propagation: Seed, cuttings or division
Seed: Collect capsules when they turn brown. Place them in a paper bag, then crush the bag with a rolling pin to release the seeds from the capsules. Store the seeds dry at 40°F for two months before planting them in outdoor flats. Light enhances germination so cover the seeds lightly with the germination medium.
Cuttings: Stem cuttings dipped in a rooting hormone root in about six weeks.
Division: Divide plants at their crown in fall or early spring. Prune the top of each division to its basal leaves.

Comments: Hummingbirds and butterflies love this plant.

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Phlox

Native phlox species vary greatly in their growth habits, sizes, flower colors and flower forms. They are common passalong plants that have been cultivated continuously for generations. Moss Phlox, *Phlox subulatta*, for instance, was in the nursery trade by the late 1700s. It was soon followed in the early 1800s by Wild Sweet William, *Phlox maculata*, Woodland Phlox, *Phlox divaricata*, and Garden Phlox, *Phlox paniculata*. Today there are many improved cultivars of the native species offering even more variety for the native plant enthusiast. However, the flowers of seedlings produced from cultivars sometimes revert to hot pink, the characteristic color of the native species.

Phlox flowers are generally characterized as having five flat petals joined at their bases to form a narrow tube. Leaves are oval or lance-shaped with smooth edges and are arranged in pairs on stems.

To produce fertile seeds, phlox must be crossed with another seed-grown plant of the same species. They are self-sterile, so two plants of the same species grown from cuttings or division from the same plant cannot cross and produce fertile seeds.

There are 12 native phlox species found in the Southeast. Eight of these that are particularly garden-worthy are described here.

Hairy Phlox / *Phlox amoena*
Family: Phlox / *Polemoniaceae*

Life Cycle: Perennial

Characteristics: Leaves are opposite, lance-shaped and 2 inches long. They point upward along the stems. Both leaves and stems are hairy. Flowers are magenta or bright pink, ½ to 1 inch across, tubular and have five lobes. They are borne in terminal cymes in spring. Seeds are borne in papery capsules, ¼ inch in length.

Cultural Requirements: Hairy Phlox prefers full sun and well-drained soil. Once established, it is drought-tolerant and low-maintenance.

Landscape Uses: Hairy Phlox is a tough, drought-tolerant plant. Use it in wildflower meadows, cottage gardens and water-smart gardens.

Size: 1 foot high and 6 inches wide

Hardiness Zones: All of Georgia

Habitat: Dry woods, fields and roadsides

Native To: The Southeast, from Kentucky to Mississippi, east to Florida, north to North Carolina

Propagation: Seed or cuttings
Seed: Collect capsules when they turn brown. Place them in a paper bag, then crush the bag with a rolling pin to release the seeds from the capsules. Sow seeds in outdoor beds or flats and cover them lightly with the germination medium. They should germinate in three to six months.
Cuttings: Take root cuttings in late winter just as new buds are sprouting.

Comments: A cultivar named 'Cabot Blue' has lavender-blue flowers.

Images: Page 83

Carolina Phlox, Thickleaf Phlox / *Phlox carolina*
Family: Phlox / *Polemoniaceae*

Life Cycle: Perennial

Characteristics: Leaves are opposite, sessile, oval, leathery and about 4 inches in length. The upper leaf surface is shiny, while the lower leaf surface is golden green. The leaves are widely spaced along smooth stems that have red streaks. Flowers are pink to purplish-pink, about 1 inch across, and tubular with five lobes. They are borne in terminal clusters at the top of stems in June. Flowers continue to appear sporadically until frost. Seeds are borne in papery capsules that are ¼-inch-long.

Cultural Requirements: Carolina Phlox likes full sun to partial shade and moist, well-drained soil.

Landscape Uses: This is a good plant for woodland gardens, perennial borders and butterfly or hummingbird gardens.

Size: 1 to 3 feet tall and 6 inches wide

Hardiness Zones: All of Georgia

Habitat: Deciduous woods, woodland borders, grasslands and roadsides

Native To: Indiana, south to Texas, east to Florida, north to Virginia

Propagation: Seed, cuttings or division
Seed: Collect capsules when they turn brown. Place them in a paper bag, then crush the bag with a rolling pin to release the seeds from the capsules. Store the seeds dry at 40°F for two months before planting them in outdoor flats. Light enhances germination so cover the seeds lightly with the germination medium.
Cuttings: Take summer stem cuttings before plants bloom. Dip the cut ends in a rooting hormone to enhance rooting.
Division: Divide plants in fall or spring.

Comments: The plant attracts hummingbirds and butterflies. Powdery mildew disease can be a problem. A cultivar named 'Miss Lingard' bears white flowers in early summer.

Images: Page 84

Woodland Phlox / *Phlox divaricata*
Family: Phlox / *Polemoniaceae*

Life Cycle: Perennial

Characteristics: Leaves are opposite, sessile, hairy, lance-shaped and up to 2 inches long. They are widely spaced along a hairy, sticky stem. Stems tend to creep along the ground. From April to June, erect flowering stems emerge from basal runners and bear flat clusters of fragrant tubular flowers. Flower color ranges from lavender to blue, maroon or white. Each flower has five notched petals. Seeds are produced in three-sided capsules, ¼ inch in length.

Cultural Requirements: Woodland Phlox grows in sun, partial shade and loamy, moist, well-drained soil. Be prepared to irrigate the plant during dry periods. Powdery mildew disease can be a problem. Remove spent blossoms after flowering if re-seeding is not desired.

Landscape Uses: As the name implies, Woodland Phlox is a good choice for moist woodland gardens. It also is a good plant for perennial borders and cottage gardens.

Size: 2 feet tall and 6 inches wide

Hardiness Zones: All of Georgia

Habitat: Moist, nutrient-rich hardwood forests and open woods

Native To: Vermont, west to South Dakota, south to New Mexico, east to Texas

Propagation: Seed, cuttings or division
Seed: Collect capsules when they turn brown. Place them in a paper bag, then crush the bag with a rolling pin to release the seeds from the capsules. Store the seeds dry at 40°F for two months before planting them in outdoor flats. Light enhances germination so cover the seeds lightly with the germination medium. They should germinate in three to six months.
Cuttings: Take stem cuttings with three nodes in the fall. Dip the cut ends in a rooting hormone to enhance rooting.
Division: Divide plants in fall or late winter.

Comments: There are several cultivars available in the nursery trade, with flower colors ranging from purple to blue or white, and plant heights ranging from 6 to 22 inches.

Images: Page 84

Smooth Phlox / *Phlox glaberrima*
Family: Phlox / *Polemoniaceae*

Life Cycle: Perennial

Characteristics: Leaves are opposite, sessile, lance-shaped, about 5 inches long and widely spaced along smooth stems. Flowers are fragrant, pink to maroon, tubular, 1 inch across, with 5 lobes. They arise from the upper leaf axils from May to July. Seeds are borne in capsules that are ¼ inch in length.

Cultural Requirements: This plant is best grown in moist, loamy, well-drained soils and full sun to partial shade. Remove old flowers if self-seeding is not desired. This species tolerates more moisture than others, so it can be used in moist sites. Powdery mildew disease and spider mites can be problems. To minimize these problems, avoid overhead irrigation.

Landscape Uses: Use Smooth Phlox in perennial borders, cottage gardens, butterfly gardens, along pond edges or in wet meadows or bog gardens.

Size: 2 to 4 feet tall and 1 foot wide

Hardiness Zones: All of Georgia

Habitat: Wet depressions, wet meadows and low prairies

Native To: Michigan, Illinois, Missouri and Oklahoma, south to Louisiana, east to Florida, north to Maryland

Propagation: Seed, cuttings or division
Seed: Collect capsules when they turn brown. Place them in a paper bag, then crush the bag with a rolling pin to release the seeds from the capsules. Store the seeds dry at 40°F for two months before planting them in outdoor flats. Light enhances germination so cover the seeds lightly with the germination medium.
Cuttings: Take stem-tip cuttings with three nodes in May or June as new growth hardens. Dip the cut ends in a rooting hormone to enhance rooting.
Division: Root division can be done in fall or early spring.

Comments: This striking plant attracts hummingbirds and butterflies. Smooth Phlox is similar to Garden Phlox (*P. paniculata*), but it can be distinguished from Garden Phlox by its smooth stems, narrower leaves and more slender growth habit.

Images: Page 84

Wild Sweet William, Meadow Phlox / *Phlox maculata*
Family: Phlox / *Polemoniaceae*

Life Cycle: Perennial

Characteristics: Leaves are dark green, opposite, sessile, oblong in shape and 2 to 5 inches long. Stems are round and smooth and have numerous purple spots or streaks. Flowers are sweetly aromatic, pink to maroon, occasionally white, 1 inch wide and tubular with five spreading lobes. They are borne in clusters at the top and sides of stems from June to July. Seeds are borne in three-sided capsules, ¼ inch long. The plant has a taproot and colonizes by rhizomes and dispersed seeds.

Cultural Requirements: Wild Sweet William prefers full sun to partial shade and moist, loamy soils. Remove spent flowers to prolong bloom and to prevent re-seeding.

Landscape Uses: Use this plant in rain gardens, bog gardens, perennial borders, moist meadows and hummingbird gardens.

Size: 1 to 3 feet high and 1 foot wide

Hardiness Zones: All of Georgia

Habitat: Moist forests, wet meadows and riverbanks

Native To: Maine to Minnesota, south to Mississippi, east to Georgia

Propagation: Seed, cuttings or root division
Seed: Collect capsules when they turn brown. Place them in a paper bag, then crush the bag with a rolling pin to release the seeds from the capsules. Store the seeds dry at 40°F for two months before planting them in outdoor flats. Light enhances germination so cover the seeds lightly with the germination medium.
Cuttings: Take stem-tip cuttings with three nodes in May or June as new growth hardens. Dip the cut ends in a rooting hormone to enhance rooting.
Division: Root division can be done in fall or early spring.

Comments: Hummingbirds love the flowers. This species has a good resistance to powdery mildew and is a good alternative to Garden Phlox (*P. paniculata*), which is mildew-susceptible.

Images: Page 84

Garden Phlox, Summer Phlox / *Phlox paniculata*
Family: Phlox / *Polemoniaceae*

Life Cycle: Perennial

Characteristics: Stems are smooth with streaks of red. Leaves are opposite, short-stalked, lance-shaped to oval and 4 to 6 inches long. They are hairy underneath and minutely toothed along their margins. Flowers are bright pink to lavender, 1 inch across, tubular, with five lobes. They are borne in clusters at the top of stems from July to September. Seeds form in capsules that are ¼ inch long.

Cultural Requirements: Garden Phlox requires moist loamy soil and sun to partial shade (at least six hours of sunlight per day). Provide good air circulation between plants and avoid overhead irrigation to prevent powdery mildew disease. Deadhead to maintain compact growth and to minimize re-seeding.

Landscape Uses: Garden Phlox is a favorite plant for perennial borders, cottage gardens, woodlands and hummingbird or butterfly gardens. It also looks nice along pond edges.

Size: Up to 4 feet tall and 1 foot wide

Hardiness Zones: 6, 7

Habitat: Stream banks, rich forests, woodlands and woodland borders

Native To: Maine to Minnesota, Nebraska, Kansas and Oklahoma, south to Louisiana, east to Georgia. Also found in Utah and Washington State.

Propagation: Seed, cuttings or division
Seed: Collect capsules whey they turn tan. Place them in a paper bag to dry and release their seeds. Sow the seeds directly in outdoor beds. No pre-treatment is required. Light enhances germination so cover the seeds lightly with the germination medium.
Cuttings: Take cuttings having three to four nodes in fall or spring. Dip the cut ends in a rooting hormone to enhance rooting.
Division: Plants can be divided in fall or late winter.

Comments: Flowers attract hummingbirds and butterflies. There are dozens of cultivars, many having a high resistance to powdery mildew disease. 'Robert Poore,' for instance, is a selection from Mississippi. It has rosy red flowers and a high degree of mildew resistance. It received a Georgia Gold Medal Award in 2000.

Images: Page 85

Creeping Phlox / *Phlox stolonifera*
Family: Phlox / *Polemoniaceae*

Life Cycle: Perennial

Characteristics: This is a mat-forming, creeping plant with semi-evergreen foliage. Leaves are oblong to oval, up to 3 inches long. From July to September, clusters of fragrant lavender flowers, ¾ inch long, are borne on the tops of flowering stalks. Each flower consists of a short tube and five rounded, spreading lobes. The plant spreads by stolons that creep along the ground.

Cultural Requirements: Creeping Phlox prefers partial shade and moist, well-drained soil.

Landscape Uses: Use Creeping Phlox as a groundcover in moist woodlands.

Size: ½ to 1 foot tall and spreading

Hardiness Zones: All of Georgia

Habitat: Rich hardwood forests, wooded areas and stream banks, especially on nutrient-rich substrates

Native To: Vermont to Ohio, south to Alabama, east to Georgia

Propagation: Seed, cuttings or division
Seed: Collect capsules when they turn brown. Place them in a paper bag, then crush the bag with a rolling pin to release the seeds from the capsules. Store the seeds dry at 40°F for two months before planting them in outdoor flats. Light enhances germination so cover the seeds lightly with the germination medium.
Cuttings: Take stem cuttings with three to four nodes from August to September. Dip the cut ends in a rooting hormone to enhance rooting.
Division: Plants can be divided in fall or winter.

Comments: Creeping Phlox does poorly in full sun and drought-prone sites. Under good cultural conditions, it can become weedy and creep into areas where it is not wanted.

Images: Page 85

Moss Phlox, Moss Pink / *Phlox subulata*
Family: Phlox / *Polemoniaceae*

Life Cycle: Perennial

Characteristics: Moss Phlox is a spreading, mat-forming groundcover. Leaves are opposite or in whorled bundles. They are ½ inch long, awl-shaped and pointed. In late March or early April, a profusion of fragrant, tubular flowers, ¾ inch across, rise above the foliage. Flowers are violet purple, pink or occasionally white. Each flower consists of a short tube and five flat, petal-like lobes with distinct notches on their ends. Seeds are borne in capsules. Each capsule is about ¼ inch long.

Cultural Requirements: Moss Phlox adapts to hot, dry locations. It prefers morning sun and afternoon shade. Good drainage is essential. Cut back plants to half their size after flowering to promote dense growth. Spider mites can be a problem in hot, dry weather.

Landscape Uses: This is a great plant for rock gardens, dry beds or banks.

Size: 6 to 10 inches tall and spreading

Hardiness Zones: All of Georgia

Habitat: Dry, rocky slopes and clearings, primarily in the mountains

Native To: Maine to Minnesota, south to Louisiana, east to Georgia

Propagation: Cuttings
Cuttings: Take stem cuttings in August and September. A rooting hormone enhances rooting.

Comments: This is a highly cultivated species and a widely available plant. There are several cultivars with flower colors ranging from white to blue, scarlet or rose.

Images: Page 86

Obedient Plant / *Physostegia virginiana*
Family: Mint / *Lamiaceae*

Life Cycle: Perennial

Characteristics: Square stems bear lance-shaped leaves, 4 to 6 inches long. In fall, pink to lavender tubular flowers are borne in spike-like clusters at the top of stems. Each flower has five triangular lobes: two forming an upper lip and three forming a lower lip (see Figure 4). Creeping stolons help the plant spread several feet in all directions.

Cultural Requirements: Obedient Plant prefers moist, loamy soils and sun or partial shade. It spreads aggressively by stolons but the shallow roots are easy to pull out.

Landscape Uses: Use this plant in perennial borders, wildflower gardens or butterfly and hummingbird gardens. This plant spreads aggressively, so it is best to plant it in a confined space, such as an area between the foundation of a building and a sidewalk.

Size: 3 to 6 feet and spreading

Hardiness Zones: All of Georgia

Habitat: River banks, wet thickets, rock outcrops and swamps. It is usually found over mafic or calcareous rocks

Native To: Maine to Florida, west to New Mexico, north to North Dakota

Propagation: Seed or division
Seed: Harvest seeds in fall and provide them cold stratification (three months at 40°F) before planting.
Division: Divide clumps in fall or spring.

Comments: Obedient Plant attracts hummingbirds and butterflies. The name "obedient plant" is derived from the way an individual flower can be swiveled back and forth on its axis, then stays in the position in which it is placed.

Images: Page 86

Grass-leaved Goldenaster, Narrowleaf Silkgrass / *Pityopsis graminifolia*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: There is a basal rosette of leaves. Each leaf is 6 to 12 inches long and 1 inch wide with linear veins. Stem leaves are silvery-green, alternate along the stem, grass-like and point upward. They are 2 to 3 inches long, 1 inch wide and sessile. Flowers are borne in loose clusters at the tops of stems in September/October. They are daisy-like, ½ inch across, with yellow disk and yellow ray flowers. Fruit are small, dry, reddish-brown to black seed-like achenes surrounded by fine, white bristles. The plant colonizes an area by rhizomes or self-seeding.

Cultural Requirements: Grass-leaved Goldenaster prefers full sun or partial shade and dry sites. It is a tough evergreen plant that does well in poor soils and dry conditions. Cut back plants in early spring before new leaves emerge.

Landscape Uses: Use Grass-leaved Goldenaster in perennial borders, wildflower meadows, natural areas or butterfly gardens. Its spreading habit makes it an excellent groundcover.

Size: 3 feet high and 1 foot wide

Hardiness Zones: All of Georgia

Habitat: Sand hills, old fields, roadsides, dry pinelands and sandy deciduous forests

Native To: Ohio, West Virginia, Maryland, south to Florida, west to Texas, north to Oklahoma

Propagation: Seed, cuttings or division
Seed: Harvest seeds in October or November. They can be planted directly in a warm greenhouse, or they can be stored dry at 40°F and held for spring planting in outdoor beds or flats.
Cuttings: Stem cuttings of hardened new growth can be taken in spring.
Division: Plants can be divided in winter or spring.

Comments: The grass-like foliage covered with silky hairs is both unusual and attractive. The flowers attract a variety of butterflies.

Images: Page 86

Mayapple, American Mandrake / *Podophyllum peltatum*
Family: Barberry / *Berberidaceae*

Life Cycle: Perennial

Characteristics: Mayapple produces one to two palmately lobed, umbrella-like leaves, 8 to 15 inches across, at the top of a single stem. In April, plants with two leaves give rise to a single nodding white flower, 2 to 3 inches across, from the node between the two leaves. Plants with a single leaf seldom flower. The flower is followed by a fleshy green fruit (the Mayapple) that turns golden when ripe. The plant colonizes by spreading rhizomes.

Cultural Requirements: Mayapple prefers moist soils high in organic matter and partial shade to full shade. The foliage turns golden yellow in summer before going dormant and dying down.

Landscape Uses: Mayapple is a good plant for naturalizing in shaded, moist woodlands. When provided its ideal growing conditions, it will thrive and colonize an area.

Size: 16 inches high and 24 inches wide

Hardiness Zones: All of Georgia

Habitat: Rich hardwood forests, bottomlands and moist meadows

Native To: Maine to Minnesota, south to Texas, east to Florida

Propagation: Seed or division
Seed: Seed propagation is difficult, requiring warm stratification followed by cold stratification. Harvest fruit in May or June, remove the seeds from the pulp, then plant them in outdoor flats or beds. No pre-treatment is required before planting. They should germinate the following March. It may take nine years or more to produce a flowering plant from seed.
Division: Root division is the easiest propagation method. Divide plants in the fall, leaving at least one bud on each piece of rhizome.

Comments: The leaves, immature fruit and roots are poisonous when ingested.

Images: Page 87

Solomon's-seal, Small Solomon's Seal, Smooth Solomon's Seal / *Polygonatum biflorum*
Family: Lily / *Liliaceae*

Life Cycle: Perennial

Characteristics: Leaf stalks are zigzag and arching. Leaves are alternate, oval in shape, up to 4 inches long with parallel veins. In spring, small tubular greenish-white flowers are bone in pairs at the leaf axils on the upper portion of the stalks. Flowers hang down and are somewhat hidden by the foliage. Flowers are followed by dark blue to black berries, approximately ½ inch across. Rhizomes spread slowly and will colonize an area when growing conditions are favorable.

Cultural Requirements: Solomon's-seal requires shade and consistent moisture. When given these conditions, the plant will thrive.

Landscape Uses: Use Solomon's-seal as an understory plant in shaded, moist woodlands or in wildlife gardens.

Size: 1 to 3 feet tall and 1 to 1½ feet wide

Hardiness Zones: All of Georgia

Habitat: Rich, moist hardwood forests, thickets and calcareous hammocks

Native To: Montana, New Mexico, east to New England, south to Florida

Propagation: Seed, cuttings or division
Seed: Collect seeds in the fall when fruit are dark blue and becoming soft. Remove the seeds from the pulp, then sow them in outdoor seedbeds or flats. Seed propagation is difficult because the seeds have double dormancy and require a period of cold stratification followed by warm stratification, then another period of cold stratification before they germinate. For this reason, germination may take up to two years.
Cuttings: Root cuttings may be taken in the fall.
Division: The plants can be divided in early spring as new growth begins.

Comments: Native Americans and European colonists used the starchy rhizomes of Solomon's-seal as food. The flowers attract butterflies, the berries attract birds and mammals eat the roots.

Images: Page 87

Dwarf Cinquefoil / *Potentilla canadensis*
Family: Rose / *Rosaceae*

Life Cycle: Perennial

Characteristics: Dwarf Cinquefoil has a low-spreading growth habit and can colonize a large area over time. A single plant may spread up to 20 inches in all directions by creeping stolons that root at their nodes. The stolons are covered with silver hairs. Leaves are palmately compound with five wedge-shaped leaflets approximately 1½ inches long. Each leaflet has pronounced teeth along its upper margin. From early spring to early summer, single yellow flowers with five heart-shaped petals, approximately ½ inch long, are borne on long stems from the axils of lower leaves.

Cultural Requirements: Dwarf Cinquefoil prefers sunny locations and well-drained soil. It will adapt to dry sites and poor soils.

Landscape Uses: This plant is a good groundcover for sunny, drought-prone sites and hummingbird gardens.

Size: 2 to 6 inches high and 3 feet wide

Hardiness Zones: All of Georgia

Habitat: Dry to mesic open woodlands, forests and fields

Native To: Eastern Canada, south to Georgia, west to Texas, north from Arkansas to Wisconsin

Propagation: Division
Division: Separate rooted stolons from the mother plant.

Comments: Dwarf Cincquefoil is a larval host and/or nectar source for the Grizzled-skipper butterfly. Native Americans used a tea made from this plant to cure diarrhea.

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Southern Mountain Mint, White Horse Mint / *Pycnanthemum pycnanthemoides*
Family: Mint / *Lamiaceae*

Life Cycle: Perennial

Characteristics: Leaves are opposite, dark green, lance-shaped to oval, 1 to 4 inches long and aromatic when crushed. The upper leaf surface is covered with white, curly hairs that give the plant a silvery appearance. From June to September, small white to lavender flowers, 1/4 to 3/8 inch wide with two lips are borne in dense clusters up to 1 inch across at the tops of stems. Below the flowers are distinctive bracts that are covered with silvery-white curly hairs.

Cultural Requirements: Southern Mountain Mint prefers light shade. It will grow in average garden soil and is drought tolerant once established. Cut plants back in late winter to encourage new spring growth.

Landscape Uses: This plant is best used as a background plant in perennial borders and open woodlands.

Size: 3 to 6 feet tall

Hardiness Zones: All of Georgia

Habitat: Forest thickets, fields, open woodlands and along roadsides

Native To: Illinois, Indiana and Ohio, south to Florida

Propagation: Seed, cuttings or division
Seed: Collect seeds in the fall. Store them dry at 40°F for two months before planting. They germinate in about two weeks when held at 70°F or higher.
Cuttings: Take cuttings when new growth is four to six weeks old.
Division: Divide plants in early spring.

Comments: Like many members of the mint family, Southern Mountain Mint has been used to treat colds, fevers and digestive disorders. The Cherokee Indians used a poultice made from the leaves to cure headaches and heart trouble. This plant can be somewhat aggressive in the garden, so it may need to be planted in a confined space.

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Maryland Meadow Beauty / *Rhexia mariana*
Family: Melastome / *Melastomataceae*

Life Cycle: Perennial

Characteristics: Hairy, slender, square stems bear hairy, lance-shaped leaves with distinct veins. Leaves are opposite, oval, 1 to 2 inches long, with numerous bristled teeth along their margins. In August, pale-pink flowers, 1-inch across with four petals, are borne in loosely arranged clusters at the tops of stems. The petals emerge from a hairy calyx that is urn-shaped in appearance. Flowers have yellow-orange stamens with curved anthers that contrast with the petals. Seeds are borne in urn-shaped capsules.

Cultural Requirements: Maryland Meadow Beauty prefers partial shade and moist, acidic soils. It spreads rapidly in moist areas.

Landscape Uses: Use this plant at the edges of water gardens or ponds, in bogs or along wet ditches.

Size: 2½ feet tall

Hardiness Zones: All of Georgia

Habitat: Savannahs, wet meadows, marshes and bogs

Native To: The Coastal Plain, from eastern Massachusetts to Virginia, across the southern states to Texas, north to southern Indiana, Missouri and Kansas

Propagation: Seed, cuttings or division
Seed: Harvest seed capsules in the fall when they turn brown. Place them in a paper bag to dry and to release their seeds. Store seeds dry at 40°F for six months before planting them in outdoor beds or flats. Cover the seeds lightly with the germination medium because they require light to germinate.
Cuttings: Stem or root cuttings can be taken in the spring.
Division: The plant can be divided most any time of year.

Comments: The flowers open in the morning and their petals often drop by mid-day.

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Meadow Beauty, Handsome Harry / *Rhexia virginica*
Family: Melastome / *Melastomataceae*

Life Cycle: Perennial

Characteristics: Stems are square and have narrow wings along their sides. Leaves are opposite, oval, 1 to 2 inches long, with small bristly teeth along their margins. From summer to fall, vibrant rose-pink flowers with four petals are borne loosely in clusters from leaf axils. The pistil (female flower part) is surrounded by eight yellow stamens (male parts) with curved anthers. Flowers open in the morning and are shed by mid-day. Fruit are urn-shaped capsules with four pointed lobes at their tops. They change color from green to copper as they mature. Plants spread by rhizomes and seeds.

Cultural Requirements: Meadow Beauty prefers partial shade and moist, acidic soils enriched with organic matter. It spreads aggressively under moist conditions.

Landscape Uses: Plant Meadow Beauty along the edges of water gardens, ponds or streams, in bogs or in shaded bottomlands.

Size: 2 to 3 feet tall

Hardiness Zones: All of Georgia

Habitat: Wetlands, wet meadows, stream banks and seepage slopes

Native To: Nova Scotia to northern Florida, west to Texas, north to Wisconsin

Propagation: Seed, cuttings or division
Seed: Harvest seed capsules in the fall when they turn brown. Place them in a paper bag to dry and to release their seeds. Store seeds dry at 40°F for six months before planting them in outdoor beds or flats. Cover the seeds lightly with the germination medium because they require light to germinate.
Cuttings: Stem or root cuttings can be taken in the spring.
Division: Plants can be divided most any time of year.

Comments: The leaves and roots of Meadow Beauty are edible. Leaves can be eaten raw in salads. Roots have a nutty flavor and can be eaten raw or cut up in salads. Flowers of this species are larger than those of Maryland Meadow Beauty.

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Coneflower, Genus *Rudbeckia*

Coneflowers are among the most common herbaceous plants in Southern landscapes. They have a wide variety of growth habits, plant sizes and flower forms. Some are annuals and some are perennials. There are at least 15 species native to North America, but just a few are commonly cultivated. Described here are four that are excellent choices for Georgia landscapes.

Orange Coneflower, Brown-eyed Susan / *Rudbeckia fulgida*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Leaves are alternate, oval to lance-shaped, 2 to 4 inches long and 1 to 2 inches wide. They have three main veins and toothed leaf margins. Basal and lower stem leaves have longer petioles than those further up the stem. The leaves are covered with bristly hairs that make them feel like sandpaper when touched. From July to October, daisy-like flower heads with yellow-orange ray flowers and brownish-purple disk flowers are borne at the top of branched stems. Flowers are 2 to 3 inches across.

Cultural Requirements: Orange Coneflower prefers full sun and well-drained soils. Cut plants back after flowering to encourage repeat blooms and more compact growth. The plant spreads by seeds and rhizomes; however, it is not aggressive.

Landscape Uses: Orange Coneflower looks particularly nice when used in mass plantings to create bold, colorful drifts in perennial borders and naturalized areas. Some states are using it for highway plantings because it provides high-impact color.

Size: 2 to 4 feet tall and 2 to 2½ feet wide

Hardiness Zones: All of Georgia

Habitat: Open woods, meadows and pastures

Native To: New Jersey to Florida, west to Texas, north to Indiana

Propagation: Seed, cuttings or division
Seed: Collect seed capsules in fall when they turn brown. Crush them to remove seeds. Seeds require no pre-treatment, so plant them right away, or store them dry at 40°F for planting in outdoor beds or flats the following spring. Light enhances germination, so cover them lightly with the germination medium. They also require warm temperatures (80°F+) to germinate.
Cuttings: Take root cuttings in December.
Division: Plants can be divided in fall or spring.

Comments: There are several cultivars available in the nursery trade. It is an excellent cut flower for floral arrangements.

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Black-eyed Susan / *Rudbeckia hirta*
Family: Aster / *Asteraceae*

Life Cycle: Annual, Biennial or short-lived Perennial (depending on location)

Characteristics: Leaves are alternate, oval to lance-shaped, 2 to 7 inches long with bristle-like hairs on both surfaces that give them a sandpaper-like texture. Lower leaves are larger than upper leaves. Stems are hairy. From summer to early fall, daisy-like flower heads, 2 to 3 inches wide, are borne near the tips of stems. Flower heads consist of showy golden yellow ray flowers surrounding a raised central disk of dark brown flowers. Fruit are small dry four-angled seed-like achenes.

Cultural Requirements: Black-eyed Susan prefers full sun and moderate moisture. It may get leaf-spot disease in hot, humid weather so be prepared to spray with a fungicide, if necessary. The plant is drought-tolerant once established. Deadheading is necessary in high visibility areas to maintain a good appearance and to prevent self-seeding, if that is a concern. Cut plants back in early winter if they look unsightly.

Landscape Uses: Black-eyed Susan is a good plant for naturalized areas, wildflower meadows, cottage gardens, perennial borders or wildlife habitats.

Size: 1 to 3 feet tall with a spread of 1 to 2 feet

Hardiness Zones: All of Georgia

Habitat: Open fields, prairies, plains, savannahs, roadsides and woodland edges

Native To: Most of the Continental U.S., except Nevada and Arizona

Propagation: Seed
Seed: Collect seeds when flower heads turn brown in the fall. Store them dry at 40°F for sowing in February or March. Light and warm temperatures (80°F+) are required for germination.

Comments: There are several cultivars of Black-eyed Susan in the nursery trade. Some have larger flowers, more intense flower color or more compact growth than this species. The flower heads of Black-eyed Susan attract bees and butterflies. The plant is the larval host for the Gorgone Checkerspot butterfly and the Bordered Patch butterfly.

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Cutleaf Coneflower / *Rudbeckia laciniata*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Gray-green leaves have three to seven lobes and toothed margins. Leaves toward the top of the plant are more dissected than those at the bottom. Stems branch at the top and have short, stiff, sandpaper-like hairs. In late summer, flower heads, 3 to 4 inches across, are borne at the tips of stems. Flower heads consist of drooping yellow ray flowers surrounding a raised central disk of tiny greenish-yellow flowers. The center disk flowers elongate and become cone-like and brown as they mature. The plant colonizes an area by spreading rhizomes.

Cultural Requirements: Cutleaf Coneflower does best in full sun and soil having consistent moisture. In shade or under dry conditions, the plant tends to get leggy and flop, so it may require staking to hold it upright. It also spreads by rhizomes and seed, and it can be aggressive.

Landscape Uses: Use Cutleaf Coneflower in perennial borders, meadows, cottage gardens or naturalized areas. It thrives in sunny wetlands.

Size: 3 to 6 feet tall and 3 feet wide

Hardiness Zones: All of Georgia

Habitat: Low, rich woods, wet fields, seepage areas, alluvial thickets and grassy roadsides

Native To: Most of the Continental U.S. except Oregon, Nevada and California

Propagation: Seed, cuttings or division
Seed: Collect flower heads in the fall when they turn brown, then rush them to remove their seeds. The seeds can either be planted right away or stored dry for planting in outdoor beds or flats the following spring. The seeds require light to germinate, so cover them lightly with the germination medium. They also require warm temperatures (80°F+) to germinate.
Cuttings: Take root cuttings in December.
Division: Plants can be divided in the fall or spring.

Comments: Several cultivars are available in the nursery trade.

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Brown-eyed Susan, Three-lobed Coneflower / *Rudbeckia triloba*
Family: Aster / *Asteraceae*

Life Cycle: Perennial in South Georgia (self-seeding annual in North Georgia)

Characteristics: Stems are hairy and branched. Leaves at the base of stems have three lobes, while those ascending the stem have one or two lobes. Leaf surfaces have coarse hairs that make them feel rough to the touch. From June until frost, flower heads are borne near the stem tips. They consist of small yellow ray flowers, approximately 1½ inch long, surrounding a raised central disk of tiny brown flowers. The plant colonizes an area by self-seeding and by rhizomes.

Cultural Requirements: Brown-eyed Susan prefers full sun to partial shade and moist, well-drained soil. Deadhead after flowering to encourage repeat blooms. This plant self-seeds readily, so it is good for naturalizing in an area. Spent blossoms and seed heads provide food for birds. In high visibility areas, the plant may require staking to prevent it from flopping over and looking unsightly. It can be an aggressive spreader when provided its ideal growing environment.

Landscape Uses: Use Brown-eyed Susan in cottage gardens, mixed borders, informal gardens or meadows.

Size: 2 to 5 feet tall and 2 feet wide

Hardiness Zones: All of Georgia

Habitat: Low wet woods, thickets, roadsides and rock outcrops

Native To: Minnesota, east to Vermont and Massachusetts, south to Florida, west to Texas, north to Utah, Colorado and Nebraska

Propagation: Seed
Seed: Collect seeds when flower heads turn brown in fall. Store them dry at 40°F for sowing in February or March. Cover the seeds lightly with the germination medium because light is required for germination. Keep them warm (80°F+) during germination.

Comments: This plant is susceptible to powdery mildew disease. Slugs and snails also like to chew on young plants. Brown-eyed Susan is a 1997 Georgia Gold Medal Winner.

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Azure-blue Sage, Pitcher Sage / *Salvia azurea*
Family: Mint / *Lamiaceae*

Life Cycle: Perennial

Characteristics: Gray-green hairy leaves are lance-shaped, approximately 3 inches long at the base of the stems, becoming smaller as they ascend the stem. In fall, two-lipped sky-blue flowers with white centers are produced in spike-like clusters at the tips of branches. The clusters are arranged in whorls around square stems. Flowering continues until frost.

Cultural Requirements: Azure-blue Sage prefers full sun and well-drained soil. Cut plants back in early spring prior to the new growing season. Deadheading and light pruning after initial flowering encourages repeat bloom. The plant is drought-tolerant once established, making it a good choice for dry areas.

Landscape Uses: Use Azure-blue Sage in perennial gardens, cottage gardens, wildflower meadows or butterfly and hummingbird gardens.

Size: 3 to 5 feet tall with a spread of 2 to 4 feet

Hardiness Zones: All of Georgia

Habitat: Prairies, plains, meadows, sand hills, savannahs, woodland edges and openings

Native To: North Carolina, south to Florida, west to Texas, north to Nebraska and Minnesota

Propagation: Seed, cuttings or division
Seed: Cut off flower stalks when they turn brown, then place them in a paper bag to dry and to release their seeds. Store seeds dry at 40°F for planting the following February. Warm temperatures (70°F+) and light are required for germination.
Cuttings: Stem cuttings can be taken in the spring before flower buds form.
Division: Divide plants in the fall or spring.

Comments: The flowers attract butterflies and hummingbirds. Azure-blue Sage is a low-maintenance plant once it is established.

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Scarlet Sage, Tropical Sage, Blood Sage, Texas Sage / *Salvia coccinea*
Family: Mint / *Lamiaceae*

Life Cycle: Annual

Characteristics: Triangular leaves are opposite, 1 to 2 inches long on long petioles. Stems are square. Showy bright-red tubular flowers, about 1 inch long, are borne in loose whorls at the tops of branches from early summer until fall frost.

Cultural Requirements: Scarlet Sage is easy to grow in average well-drained soil and full sun to partial shade. It requires deadheading to keep it bushy and to encourage repeat flowering. It tends to re-seed readily. Deadheading also will discourage seed dispersal and spread.

Landscape Uses: Use Scarlet Sage in annual beds, borders, cottage gardens or hummingbird and butterfly gardens.

Size: 1 to 2 feet tall and 12 to 18 inches wide

Habitat: Open woodlands, hammocks and meadows in the Coastal Plain

Native To: Coastal areas from South Carolina to Florida, west to Texas

Propagation: Seed or cuttings
Seed: Cut off flower stalks when they turn brown, then place them in a paper bag to dry and release their seeds. Store seeds dry at 40°F for planting the following February. Warm temperatures (70°F+) and light are required for germination.
Cuttings: Stem cuttings can be taken in the spring before flower buds form.

Comments: This plant attracts hummingbirds and butterflies. It also is deer tolerant. It is the only native sage in the U.S. to have red flowers. A variety called “Lady in Red” was a Georgia Gold Medal Winner in 2002.

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Lyre-leaf Sage / *Salvia lyrata*
Family: Mint / *Lamiaceae*

Life Cycle: Perennial

Characteristics: This plant has a low-growing clumping growth habit. It has a basal rosette of purplish-green leaves, 4 to 8 inches long. The leaves are widest above their middle and deeply lobed. Stems are square. Stem leaves are few, small and in pairs. The leaves are evergreen and aromatic when crushed. Flowers are borne in small whorls around the upper parts of stems in early spring. They are pale blue to white. The plant spreads by seeds.

Cultural Requirements: Plant Lyre-leaf Sage in full sun to partial shade. It is tolerant of a wide range of soil moisture levels, from dry to wet. It is also low-maintenance, easy to cultivate and self-seeding. Mow the planting after seed formation to scatter the seeds and to encourage its spread. If self-seeding is not desired, deadhead after flowering.

Landscape Uses: This is an easy plant to establish from seed in dry or seasonally wet sites in partial shade or full sun. Plant it in open meadows, along roadsides and in thin woodlands for a striking spring color show. It also is a favorite plant of hummingbirds and butterflies.

Size: The basal rosette of leaves is low-growing, 2 to 4 inches high. Flower spikes rise 1 to 2 feet above the leaves.

Hardiness Zones: All of Georgia

Habitat: Roadsides, meadows, forests and open woodlands

Native To: Eastern half of the U.S.

Propagation: Seed, cuttings or division
Seed: Cut off flower stalks when they turn brown, then place them in a paper bag to dry and release their seeds. Store seeds dry at 40°F for planting the following February. Warm temperatures (70°F+) and light are required for germination.
Cuttings: Stem cuttings can be taken in spring before flower buds form.
Division: Divide plants in fall or spring.

Comments: This plant spreads readily from seed and can be aggressive.

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Bloodroot, Red Puccoon, Indian Paint, Pauson, Tetterwort / *Sanguinaria canadensis*
Family: Poppy / *Papaveraceae*

Life Cycle: Perennial

Characteristics: Bloodroot is a clump-forming plant with basal leaves up to 8 inches across. Leaves have five to nine wavy, irregular lobes. Flowers are borne in spring on stalks rising 8 to 10 inches above the basal leaves. They are white, approximately 2 inches across, with eight to 12 petals surrounding yellow centers. Fruit are two-parted capsules pointed at both ends, with each part containing rows of seeds. A reddish orange root contains blood-red sap, hence the name Bloodroot.

Cultural Requirements: Bloodroot prefers moist, shady sites rich in organic matter.

Landscape Uses: This is a nice plant for use on banks and slopes along shaded woodland streams.

Size: 10 inches high and 8 inches wide

Hardiness Zones: All of Georgia

Habitat: Nutrient-rich woodlands and hardwood forests, usually on banks adjacent to streams

Native To: Most of North America east of the Rocky Mountains

Propagation: Division
Division: Divide rhizomes in late winter or early spring. Make certain each rhizome piece has some attached roots.

Comments: Native American Indians used the juice from the root of Bloodroot as a fabric dye. A powder made from the root's juices was used to treat skin ailments, including warts, ringworm and fungal growths. Researchers are currently investigating the root's value in treating certain forms of cancer.

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Hairy Skullcap / *Scutellaria elliptica*
Family: Mint / *Lamiaceae*

Life Cycle: Perennial

Characteristics: Stems are square, hairy and have white pith. Leaves are opposite, oval and have bluntly toothed margins. They are 2 to 3 inches long and 1½ to 2 inches wide, deep green on top and silvery green underneath. Purple flowers appear in May and June in racemes at the top of a flower stalk. The flowers resemble those of snapdragons, with three upper lobes and a two-lobed lower lip arising from a tube. The lower lip is often folded downward with a white splotch near its base. Petals are hairy.

Cultural Requirements: Hairy Skullcap prefers morning sun, afternoon shade and moist, well-drained soil. It is easy to grow.

Landscape Uses: Use this plant in perennial borders, wildflower meadows or cottage gardens.

Size: 2 to 3 feet tall and 1 foot wide

Hardiness Zones: All of Georgia

Habitat: Hardwood forests, dry rocky woods, bluffs and wooded slopes

Native To: New York to Florida, west to Texas, north to Michigan

Propagation: Seed, cuttings or division
Seed: Harvest capsules when they turn yellow. Place them in a paper bag to dry and release their seeds. Then put the seeds in a coffee filter inside a sieve under dripping water for 24 hours to remove a germination inhibitor, then plant.
Cuttings: Stem cuttings taken in May or June and treated with a rooting hormone will root in about two months.
Division: Plants can be divided in spring or fall.

Comments: The name "skullcap" describes the shape of the calyx at the base of the flowers, which resemble miniature medieval helmets called skullcaps. Plants in the genus *Scutellaria* have a rich history as medicinal herbs used by American Indians for a variety of ailments and by Europeans to treat epilepsy.

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Hyssop Skullcap, Rough Skullcap, Helmet Flower / *Scutellaria integrifolia* L.
Family: Mint / *Lamiaceae*

Life Cycle: Perennial

Characteristics: Plants are usually branched at their base with erect, square, hairy stems. Leaves are opposite, approximately 1¼ inch long at the base of the stem and up to 2 inches long at the top of the stem. Bottom leaves are oval with toothed margins, while upper leaves are narrow and lack teeth. Flowers are borne in early to mid-summer and are bluish-lavender, approximately 1 inch long, with two lips. They are borne in the axils of the upper leaves.

Cultural Requirements: Plant Hyssop Skullcap in moist, well-drained soils and full sun to partial shade. Afternoon shade is preferred in the Deep South.

Landscape Uses: Perennial borders

Size: 1 to 2 feet

Hardiness Zones: All of Georgia

Habitat: Open, moist woodlands, low meadows, wetlands, moist roadsides and hammocks

Native To: New England and New York, south to Florida, west to Alabama and Missouri, north to Kentucky and Ohio

Propagation: Seed or cuttings
Seed: Harvest capsules when they turn yellow. Place them in a paper bag to dry and release their seeds. Place seeds in a coffee filter inside a sieve under dripping water for 24 hours to remove a germination inhibitor, then plant. When maintained at a temperature of 70°F or higher, they will germinate in about 20 days.
Cuttings: Stem cuttings taken in May or June and treated with a rooting hormone will root in about two months.

Comments: Skullcaps are recognized by the tiny projection, or hump, on the top of the calyx (the small green cup surrounding the base of the flower), which resembles a miniature medieval helmet.

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Wild Pink, Sticky Catchfly, Carolina Campion / *Silene caroliniana*
Family: Pink / *Caryophyllaceae*

Life Cycle: Perennial

Characteristics: Basal evergreen leaves are spoon-shaped and approximately 4 inches long. Stem leaves are lance-shaped and approximately 3 inches long. Loose clusters of rose-pink flowers, 1 inch across with five wedge-shaped petals, are borne in mid-summer on sticky stems rising 10 inches above the plant. Flowers consist of five wedge-shaped petals. Seeds are borne in capsules.

Cultural Requirements: Wild Pink prefers moderately dry, sandy or gravely soil and morning sun followed by afternoon shade. It likes acidic soil and good drainage.

Landscape Uses: This is a good plant for perennial borders and rock gardens.

Size: 1 foot high and 1 foot wide

Hardiness Zones: All of Georgia

Habitat: Acidic granite outcrops in the Piedmont

Native To: Eastern and Central North America

Propagation: Seed, cuttings or division
Seed: Collect seed capsules when they turn tan and begin to open at their tip (April to May). Place them in a paper bag to dry and release their seeds. The seeds require no pretreatment and can be planted right away. A temperature of 70°F or higher enhances germination.
Cuttings: Take stem cuttings when new growth begins to harden.
Division: Divide plants in the fall.

Comments: An annual form of this plant, called Hot Pink, is available in the nursery trade.

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Starry Campion, Widow's Frill / *Silene stellata*
Family: Pink / *Caryophyllaceae*

Life Cycle: Perennial

Characteristics: The lowermost and uppermost leaves are usually opposite on the stem, while the middle leaves are in whorls of four around the stem. Leaves are approximately 2 inches long, 1-inch wide and lance-shaped. The base of the leaves is swollen and reddish-purple. Stems are hairy. Flowers appear from mid- to late summer near the ends of the stalks and arise from green cup-shaped calyxes. They are borne individually or in groups of two to three. Each flower is about ¾ inch across and consists of five white petals with eight to 12 narrow lobes. Flowers remain open during the night and tend to close in the bright midday sun. They persist about a month. Fruit are capsules containing several seeds.

Cultural Requirements: Plant Starry Campion in partial shade and moist, well-drained soil. It will not tolerate wet sites.

Landscape Uses: Use this plant in perennial borders, rock gardens or woodlands.

Size: 1 to 2½ feet tall and 12 inches wide

Hardiness Zones: All of Georgia

Habitat: Deciduous hardwoods and river flats, especially nutrient-rich sites

Native To: Vermont, south to Georgia, west to Texas, north to Minnesota

Propagation: Seed, cuttings or division
Seed: Collect capsules when they turn tan and begin to open at the tip (late summer to early fall). Place them in a paper bag to dry and to release seeds. Store them dry at 40°F, then plant them in mid-December in outdoor beds.
Cuttings: Take stem cuttings in the spring when new growth begins to harden.
Division: Divide plants in late winter.

Comments: This is a beautiful plant that should be grown more often in gardens.

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Fire Pink, Scarlet Catchfly / *Silene virginica*
Family: Pink / *Caryophyllaceae*

Life Cycle: Perennial

Characteristics: This is a clump-forming perennial with sprawling hairy stems that exude a sticky sap. Leaves are opposite, lance-shaped and up to 4 inches long. Scarlet-red flowers, up to 2 inches across with five notched petals, are borne from April to June in loose clusters at the end of slender stems. Stems are 12 to 18 inches long. Seeds are borne in capsules.

Cultural Requirements: Fire Pink prefers well-drained acidic soil and partial shade. It does not do well in full shade.

Landscape Uses: Use Fire Pink in rock gardens, wildflower gardens, native plant gardens, cottage gardens or woodland gardens.

Size: 1 to 1½ feet high and 1½ feet wide

Hardiness Zones: All of Georgia

Habitat: Rocky wooded slopes, roadsides, open woods and thickets

Native To: Eastern North America

Propagation: Seed, cuttings or division
Seed: Collect seed capsules when they turn tan and begin to open at the tip (April to May). Place them in a paper bag to dry and to release their seeds. Store the seeds dry at 40°F for planting in outdoor beds or flats in mid-December. Germination should occur the following spring.
Cuttings: Take stem cuttings when new growth begins to harden.
Division: Divide plants in the fall.

Comments: Fire Pink is pollinated by the Ruby-throated Hummingbird, which is attracted to the bright-red flowers. This plant has the reputation of being a short-lived perennial, usually persisting only two to three years. The common name "catchfly" comes from the short sticky hairs on the petiole and base of the flowers, which often trap insects.

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Starry Rosinweed / *Silphium asteriscus*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Leaves are alternate, hairy and lance-shaped with toothed margins. They are approximately 6 inches long and 2 inches wide and borne on hairy stems. From May through September, daisy-like yellow flowers are borne in terminal clusters. Each flower consists of nine or 10 outer ray flowers, 1 to 1½ inches long and ½ inch wide, surrounding a center disk of tiny green flowers. All *Silphium* species have fertile ray flowers and sterile disk flowers.

Cultural Requirements: Starry Rosinweed prefers full sun and dry soil. Pruning to remove spent blossoms encourages repeat flowering. The plant tends to grow lanky when it is fertilized.

Landscape Uses: Use Starry Rosinweed in perennial borders, wildflower gardens or open meadows. Because of its large size, it is best used as a background plant.

Size: 4 to 6 feet high and 2 feet wide

Hardiness Zones: All of Georgia

Habitat: Dry rocky open woods, glades and roadsides

Native To: Maryland to Florida, west to Texas, north to Arkansas and Missouri

Propagation: Seed, cuttings or division
Seed: Collect seeds when flower heads begin to crumble in September or October. Fertile seeds are plump and look like a horned mask. Store seeds dry at 40°F, then plant them in December in outdoor beds or flats. Germination should occur in about three months.
Cuttings: Take cuttings from firm new growth.
Division: Plants can be divided in fall or early spring.

Comments: Broken stems of Starry Rosinweed exude a bitter resin ("rosin") that Native Americans used as a mouth-cleansing chewing gum. The plant is attractive to butterflies and bees. Starry Rosinweed seeds are a favorite food of goldfinches.

Images: Page 92

Kidneyleaf Rosinweed / *Silphium compositum*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Kidneyleaf Rosinweed bears a rosette of large deeply lobed basal leaves with distinct red veins. They stand stiffly erect in a vase-like shape. Each leaf has a rough texture, particularly on its underside. Leaf margins are coarsely toothed. In late summer, a flowering stalk emerges from the base of the plant, rising 6 to 10 feet in height above the basal foliage. The upper part of the stalk divides into a panicle of yellow daisy-like flowers. Each flower is approximately ½ inch across. It has a deep taproot and is difficult to transplant.

Cultural Requirements: Kidneyleaf Rosinweed requires full sun or light shade and well-drained soil. Once established, it has good drought tolerance.

Landscape Uses: Plant Kidneyleaf Rosinweed in groups of several plants in the background of perennial borders or in hummingbird and butterfly gardens.

Size: 6 to 10 feet tall

Hardiness Zones: All of Georgia

Habitat: Sand hills and dry, sandy, thin woodlands of the Coastal Plain as well as dry locations in the Piedmont and Blue Ridge

Native To: Virginia, south to Georgia

Propagation: Seed, cuttings or division
Seed: Collect seeds when flower heads begin to crumble in September and October. Fertile seeds are plump and look like a horned mask. Store seeds dry at 40°F, then plant them in December in outdoor beds or flats. Germination should occur in about three months.
Cuttings: Take cuttings from firm new growth.
Division: Plants can be divided in fall or early spring.

Comments: Rosinweed attracts hummingbirds, bees and butterflies. It is a tough plant, once established. Another species, Broadleaf Prairie Dock, *S. terebinthinaceum*, can be grown in calcium-rich soils. It has larger flowers and larger leaves than Kidneyleaf Rosinweed. Still another species, Cutleaf Prairie Dock, *S. pinnatifidum*, has single leaves that are always oriented north-south.

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Cup Plant / *Silphium perfoliatum*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Erect, square stems grow 4 to 8 feet tall. Leaves are opposite, rough textured, coarsely toothed along their margins and triangular to oval. Lower leaves are up to 14 inches long, becoming smaller as they ascend the stem. Upper leaves are sessile (lack petioles) and leaf pairs are united at their base to form a cup. The cups collect rainwater that attracts birds. From June to September, yellow sunflower-like flower heads, about 3 inches across, are borne on stem terminals. Each flower consists of 20 to 30 fertile ray flowers and a central disk of dark yellow sterile flowers. Stems exude a gummy sap when cut.

Cultural Requirements: Cup Plant prefers full sun and moist, well-drained soil. It is somewhat slow to establish. It self-seeds under optimum conditions, so deadheading is recommended if seed dispersal is not desired.

Landscape Uses: This is a large plant that needs to be used as a background plant in perennial borders, wildflower gardens, naturalized areas, or butterfly and hummingbird gardens. It also can be used effectively along the edges of ponds and streams.

Size: 4 to 8 feet tall and 1 to 3 feet wide

Hardiness Zones: All of Georgia

Habitat: Moist woods, meadows and bottomlands

Native To: Maine to Georgia, west to Louisiana, north to the Dakotas

Propagation: Seed, cuttings or division
Seed: Harvest seeds in the fall and plant them right away, or stratify them for three months at 40°F for planting in late winter.
Cuttings: Cuttings can be taken from new spring growth once it begins to harden.
Division: Offshoots from parent plants can be removed and transplanted in the spring.

Comments: Birds are attracted to the plant because its leaves hold water like cups and provide a drinking reservoir. Hummingbirds and butterflies are attracted to the flowers.

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Blue-eyed-grass, Narrowleaf Blue-eyed-grass / *Sisyrinchium angustifolium*
Family: Iris / *Iridaceae*

Life Cycle: Perennial

Characteristics: Narrow, sword-shaped, grass-like leaves form dense clumps at the base of the plant. Branched flowering stems, up to 18 inches long, emerge in March or April and produce showy, star-shaped blue flowers, approximately 1 inch across with yellow centers. Each stalk bears several flowers, but only one flower blooms at a time. Fruit is a brown capsule.

Cultural Requirements: Blue-eyed-grass prefers sun to partial shade and moist, well-drained soils. Plants will decline when they are allowed to dry out. Lanky growth will result from too much organic matter, and heavy mulch encourages crown rot. Divide plants every two years to maintain their vigor.

Landscape Uses: Use Blue-eyed-grass as a ground cover where it can naturalize. It looks nice when planted along paths. It will self-seed.

Size: 1 to 2 feet high and 1 foot wide

Hardiness Zones: All of Georgia

Habitat: Meadows, damp fields and low, open woods and forests

Native To: The eastern U.S.

Propagation: Seed or division
Seed: Collect seeds when capsules turn tan. Store them dry at 40°F for December planting. Sow seeds in outdoor beds or flats. They should germinate the following spring.
Division: Plants can be divided in the fall or spring.

Comments: This is a good plant for naturalizing in moist woodlands.

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Goldenrod / Genus *Solidago*

Goldenrod provides one of the last big color shows of late summer and fall. Like Indian corn, pumpkins and corn shocks, goldenrod is one of the true harbingers of fall. It is the state flower of Nebraska.

Just about every insect with an interest in flowers finds its way to goldenrod, including many beneficial insects that are predators of harmful insects.

Goldenrods are self-sterile, so they must cross with different plants of the same species to produce viable seed.

Goldenrod is often wrongly accused of causing hay fever and allergic reactions. The real culprit is usually wind-borne pollen from ragweed that blooms during the same time.

There are 10 Goldenrod species native to the Southeast. Five of the most common ones worthy of garden culture are described below.

Blue-stemmed Goldenrod, Axillary Goldenrod, Wreath Goldenrod / *Solidago caesia*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Long arching stems bear dark green lance-shaped leaves that are 2 to 5 inches long. The leaves are sharply pointed, serrated and tapered at both ends. Stems are greenish-purple and covered with a silvery-white waxy coating. From late summer to early fall, clusters of tiny daisy-like yellow flowers emerge from leaf axils along the stems.

Cultural Requirements: Blue-stemmed Goldenrod prefers morning sun and afternoon shade. It also likes moist, well-drained soil. Cut back plants in early spring to encourage new growth for the season.

Landscape Uses: Use Blue-stemmed Goldenrod in native plant gardens, perennial borders, woodland gardens, meadows or wildlife habitats.

Size: 1 to 3 feet tall with equal spread

Hardiness Zones: All of Georgia

Habitat: Deciduous hardwood forests, open woodlands and clearings

Native To: Wisconsin, south to Texas, east to Florida

Propagation: Seed, cuttings or division
Seed: Collect seeds in the fall when flower heads dry and become fluffy. Seeds either can be planted right away or held dry at 40°F for later planting. Temperatures of 70°F or higher will enhance germination.
Cuttings: Take stem cuttings of new spring growth when it begins to harden.
Division: Divide plants in late winter or early spring.

Comments: Flowers hold up well in cut flower arrangements. Butterflies are attracted to the flowers and birds like the seeds. The plants are undesirable to deer.

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Gray Goldenrod / *Solidago nemoralis*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Gray Goldenrod forms a single flowering stem that is reddish in color and covered with lines of short white hairs. Leaves are alternate, up to 4 inches long and ¾ inch wide, becoming smaller as they ascend the stem. Leaf margins are smooth or slightly serrated. The narrow inflorescence consists of numerous showy yellow compound flowers, each about ¼ inch across. The inflorescence is shaped like a wand, becoming wider in the middle and tapering toward the top. Flowering occurs in the fall and lasts about a month. Fruit are small, dry seed-like achenes surrounded by fine white bristles. Seeds are dispersed by wind. The plant also spreads by underground rhizomes and tends to form colonies.

Cultural Requirements: Gray Goldenrod prefers full sun or morning sun with afternoon shade and dry soils. Cut the plant back in early spring to make way for new spring growth.

Landscape Uses: This is a good plant for wildflower meadows, sunny perennial gardens, dry sites as well as butterfly and hummingbird gardens. It is easy to grow.

Size: 1½ to 2 feet tall and 1 foot wide

Hardiness Zones: All of Georgia

Habitat: Dry, open woods and upland prairies, old fields, pastures and roadsides

Native To: Maine to northern Florida, west to New Mexico, north to Montana

Propagation: Seed, cuttings or division
Seed: Collect seeds in the fall when flower heads dry and become fluffy. Seeds either can be planted right away or held dry at 40°F for later planting. Temperatures of 70°F or higher will enhance germination.
Cuttings: Take stem cuttings of new spring growth when it begins to harden.
Division: Divide plants in late winter or early spring.

Comments: The flowers attract hummingbirds and butterflies, and Goldfinches relish the seeds.

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Licorice Goldenrod, Anise-scented Goldenrod, Sweet Goldenrod / *Solidago odora*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Narrow, lance-shaped leaves, 2 to 4 inches long and ½ inch wide, are arranged alternately up arching stems. They emit a licorice-like scent when crushed. From July to October, cylindrical clusters of yellow flower heads are borne along one side of the upper portion of the stems. Fruit are small, dry, seed-like achenes surround by fluffy white bristles. They are dispersed by wind.

Cultural Requirements: Licorice Goldenrod prefers sun and moist, sandy, acidic soil. It adapts to poor sites. Cut back plants in late winter to make way for new spring growth.

Landscape Uses: Use this plant in native plant gardens, perennial borders, cottage gardens or butterfly gardens. It is an excellent choice for fragrance gardens or wildlife habitats.

Size: 2 to 3 feet tall and 1 to 2 feet wide

Hardiness Zones: All of Georgia

Habitat: Savannahs, pinelands, sand hills and dry woods

Native To: New Hampshire, south to Florida, west to Texas, north to southeast Missouri

Propagation: Seed, cuttings or division
Seed: Collect seeds in the fall when flower heads dry and become fluffy. Seeds either can be planted right away or held dry at 40°F for later planting. Temperatures of 70°F or higher will enhance germination.
Cuttings: Take stem cuttings of new spring growth when it begins to harden.
Division: Divide plants in late winter or early spring.

Comments: Licorice Goldenrod is easy to grow, naturalize and keep in bounds. Leaves are used to flavor tea.

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Wrinkle-leaf Goldenrod, Rough-stemmed Goldenrod / *Solidago rugosa*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Tall, rough, hairy stems arch outward from the base. Basal leaves are broad, raggedly toothed, rough textured and have winged petioles. Upper leaves are lance-shaped, toothed and less hairy. Leaves have a wrinkled appearance. In late summer, small light yellow flower heads are borne on the upper portion of the stems. The plant spreads by rhizomes.

Cultural Requirements: Wrinkled-leaf Goldenrod prefers full sun and moist, well-drained soils. Remove spent flower clusters to encourage repeat bloom. This is one of the easiest species of goldenrod to cultivate.

Landscape Uses: Use Wrinkled-leaf Goldenrod in perennial borders, meadows, wildlife gardens and flood plains where moisture is available.

Size: 2 to 6 feet tall (extremely variable)

Hardiness Zones: All of Georgia

Habitat: Low woods, meadows, old once-cultivated fields, pine barrens and bogs

Native To: Eastern North America from Maine to Florida, west to Texas, north to Michigan

Propagation: Seed, cuttings or division
Seed: Collect seeds in the fall when flower heads dry and become fluffy. Seeds either can be planted right away or held dry at 40°F for later planting. Temperatures of 70°F or higher will enhance germination.
Cuttings: Take stem cuttings of new spring growth when it begins to harden.
Division: Divide plants in late winter or early spring.

Comments: Wrinkle-leaf Goldenrod is not an aggressive spreader like some of the other Goldenrod species. There is a cultivar called 'Fireworks' that is shorter and more compact than this species. Flowers attract butterflies, and birds eat the seeds.

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Showy Goldenrod / *Solidago speciosa*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: A smooth reddish-green stem bears alternate leaves up to 6 inches long and 1½ inch wide. Leaves become slightly smaller as they ascend the stem. They are lance-shaped to oval and have smooth margins. On the upper half of the plant, small leaves with a wing-like appearance develop at the upper axils of the primary leaves. In late summer, small yellow flowers are borne in clusters along the top 12 inches of branched stems. The flowering stalks are held upright and do not flare outward and arch downward like those of many other goldenrods. Fruit are small, dry, seed-like achenes surrounded by fine white bristles. They are dispersed by wind.

Cultural Requirements: Showy Goldenrod prefers full sun to partial shade and well-drained soil. It can become aggressive in moist soils. Cut back plants in early spring to make way for new growth.

Landscape Uses: Use Showy Goldenrod in perennial borders, meadows, native plant gardens, naturalized areas or wildlife habitats.

Size: 2 to 4 feet high and 2 to 3 feet wide

Hardiness Zones: All of Georgia

Habitat: Open woodlands and prairies

Native To: Massachusetts to the north Georgia mountains, west to Texas, north to Wyoming

Propagation: Seed, cuttings or division
Seed: Collect seeds in the fall when flower heads dry and become fluffy. Seeds either can be planted right away or held dry at 40°F for later planting. Temperatures of 70°F or higher will enhance germination.
Cuttings: Take stem cuttings of new spring growth when it begins to harden.
Division: Divide plants in late winter or early spring.

Comments: This is one of the showiest of all the goldenrods. It attracts butterflies and several species of birds. Erect Goldenrod, *S. erecta*, also grows in Georgia and is similar to Showy Goldenrod. It bears its flowers on a single unbranched stem, while Showy Goldenrod bears its flowers on branched stems.

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Indian-pink, Woodland Pinkroot / *Spigelia marilandica*
Family: Logania / *Loganiaceae*

Life Cycle: Perennial

Characteristics: Glossy lance-shaped leaves are arranged in four to seven pairs along stems. Crimson-red tubular flowers appear at stem terminals in the spring. Each flower is approximately 1½ inch long and has five pointed lobes that flair slightly backwards to expose a bright yellow throat.

Cultural Requirements: Indian-pink prefers partial shade and moist, well-drained acidic soils.

Landscape Uses: Use Indian-pink in perennial borders, partially shaded woodlands, meadows or wildlife habitats.

Size: 12 to 18 inches tall and 6 to 8 inches wide

Hardiness Zones: All of Georgia

Habitat: Shaded hardwood forests, shaded woodlands and woodland edges

Native To: Kentucky, southern Illinois and southern Missouri, south to Texas, east to Florida

Propagation: Seed, cuttings or division
Seed: Harvest seed capsules in June or July when they are still green. Place them in a paper bag to dry and release their seeds. No pre-treatment of the seeds is required before planting. Sow them in outdoor beds or flats. Germination should occur the following spring.
Cuttings: Stem cuttings from new growth that has hardened can be taken in the spring.
Division: Plants can be divided in the fall.

Comments: The flowers attract hummingbirds. Deer do not like the plant.

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Star Chickweed / *Stellaria pubera*
Family: Pink / *Caryophyllaceae*

Life Cycle: Perennial

Characteristics: Broad, elliptical-shaped sessile leaves, up to 3 inches across, are arranged in opposite pairs along the stem. Stems have two distinct lines of fine hairs. White star-shaped flowers, approximately 1 inch across, arise from the leaf axils in the spring. Flowers have five deeply notched petals.

Cultural Requirements: Star Chickweed prefers shade and moist, well-drained soil.

Landscape Uses: Use Star Chickweed as a groundcover in a shaded, moist woodland or a wildlife habitat.

Size: 6 to 16 inches

Hardiness Zones: All of Georgia

Habitat: Rich mesic forests and rocky slopes

Native To: This plant is found from Illinois to New York, south to Florida, west to Louisiana. It is also found in Nebraska and Minnesota.

Propagation: Seed, cuttings or division
Seed: Collect seed capsules when they turn tan and begin to open at the tip. Place them in a paper bag to dry and release seeds. Store seeds dry at 40°F for planting in outdoor beds or flats in mid-December. Germination should occur the following spring.
Cuttings: Take stem cuttings when new growth begins to harden.
Division: Divide plants in the fall.

Comments: Leaves can be eaten in salads or cooked as a substitute for spinach. Birds relish the seeds.

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Asters, Genus *Symphyotrichum*

Asters are considered an enchanted flower. In ancient times, it was thought that the perfume from their burning leaves could drive away evil serpents. Also known as Starworts, Michaelmas Daisies or Frost Flowers, the name aster is derived from the Greek word for "star." Its star-like flowers can be found in a rainbow of colors, from white to red, pink, purple, lavender or blue.

Asteraceae is one of the largest families of vascular plants, totaling an estimated 1,150 genera and 25,000 species. They are distributed over most of the earth and in almost all habitats and climates. North American genera number about 230, of which 20 are believed to be imported from Europe.

Asters have composite flower heads consisting of many small flowers in a central disk surrounded by an outer ring of petal-like ray flowers. Each flower head is supported by a series of small green bracts (modified leaves) arranged in whorls around the base of the flower head. The fruit is an achene (a small, dry fruit with one seed that does not split open when ripe).

The plant spreads by stolons (aboveground runners). Plants are self-sterile and must cross with other plants of the same species to produce viable seeds. Three or more plants are required to produce fertile seeds.

At least eight species of native asters are common wildflowers in the Southeast. Four good candidates for landscape culture are described here.

Eastern Silvery Aster / *Symphyotrichum concolor*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Basal evergreen leaves with downy white hairs on both surfaces are oval, approximately 2 inches long and ½ inch wide. The basal leaves are densely arranged in a rosette around the base of the stem. Stem leaves become progressively smaller as they ascend the stem. In September and October, daisy-like lilac flowers are borne in narrow racemes from the leaf axils. The flower stalks look like long purple wands waving in the breeze. Fruit are achenes covered with silky hairs.

Cultural Requirements: Eastern Silvery Aster prefers full sun to partial shade and well-drained soil. It will adapt to dry locations. Prune the plant after flowering to encourage compact growth.

Landscape Uses: This plant looks best when planted in groups of five or more plants in the background of sunny perennial borders. It also is a good plant for wildlife habitats.

Size: 2 to 3 feet high with a spread of 1 to 2 feet

Hardiness Zones: All of Georgia

Habitat: Savannahs, sand hills and grassy openings in pine-oak woodlands with dry, sandy soil

Native To: Louisiana to Florida, north to Massachusetts and Rhode Island

Propagation: Seed, cuttings or division
Seed: Collect seeds when flower heads are puffy. Plant them in flats of well-drained germination medium and maintain the temperature at 70°F or higher. Cover the seeds lightly with the germination medium because they require light to germinate. Germination should occur in one to two weeks.
Cuttings: Take stem cuttings when new growth begins to harden. Dip the cut end in a rooting hormone.
Division: Divide plants in early spring.

Comments: Birds, butterflies and deer are attracted to the plant. In Massachusetts and other areas of the New England coast, Eastern Silvery Aster is becoming endangered.

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Calico Aster / *Symphyotrichum lateriflorum* (syn. *Aster lateriflorus*)
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Alternate lance-shaped leaves are 5 inches long and ½ inch wide, becoming smaller as they ascend the stem. The margins of the large leaves have a few teeth, while those of the small leaves are smooth. There are a few noticeable hairs on the mid-veins of the leaves. In late summer, daisy-like flower heads, approximately 1/3 inch across with yellow disk flowers borne in branched clusters along one side of the stems. They have yellow disk flowers and white to pale-purple ray flowers. The disk flowers turn dark red-purple with age. Flowers are followed by small pubescent achenes.

Cultural Requirements: Calico Aster prefers partial shade and moist organic soil. During dry weather, lower leaves often wither and become susceptible to many kinds of foliar diseases. Pruning back plants after flowering will encourage compact growth.

Landscape Uses: Use this plant in moist woodlands with filtered sun.

Size: 1 to 5 feet (variable)

Hardiness Zones: 6, 7

Habitat: Moist meadows near woodlands and rivers, floodplain forests and flatwoods, seepages and swamps, semi-shaded sloughs near fields and moist depressions in waste areas

Native To: New England to Georgia, west to Arkansas, north to Minnesota

Propagation: Seed, cuttings or division
Seed: Collect flower heads when they are white and fluffy. Crush them to remove the seeds. No pre-treatment of the seeds is required before planting. Maintain a temperature at 70°F or higher during germination. Light is required for germination, so cover the seeds lightly with the germination medium. Seeds should germinate in one to two weeks.
Cuttings: Take stem cuttings when new growth begins to harden. Dip the cut end in a rooting hormone.
Division: Divide plants in early spring.

Comments: Calico Aster gets its name from the way the flowers fade gradually from white to pink, creating an array of different colors as they mature.

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New England Aster /
Symphyotrichum novae-angliae (Syn. *Aster novae-angliae*)
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Stout, erect stems bear rough, hairy, sessile, lance-shaped leaves up to 5 inches long and ¾ inch across. The stems branch near their top and produce terminal clusters of daisy-like flowers, 1½ inches wide, from late summer to early fall. Color of the ray flowers is variable, ranging from pink to purple, lavender or white. Disk flowers are yellow. Self-seeding occurs readily in the fall if plants are left unpruned.

Cultural Requirements: New England Aster prefers moist, well-drained soil and full sun to partial shade. Provide good air circulation among plants to prevent powdery mildew disease. Pruning plants lightly before July will encourage more compact growth. Otherwise, staking may be required to prevent plants from flopping over. Cut plants back to ground level after flowering if self-seeding is not desired.

Landscape Uses: Use New England Aster in perennial borders, cottage gardens or butterfly gardens.

Size: 6 to 8 feet tall and 2 to 3 feet wide

Hardiness Zones: All of Georgia

Habitat: Moist, open woodlands, meadows, mesic prairies, disturbed sites and stream banks

Native To: Most of North America, with the exception of Florida, Texas, Arizona, New Mexico and Idaho

Propagation: Seed, cuttings, division
Seed: Collect flower heads when they are white and fluffy. Crush them to remove the seeds. No pre-treatment of the seeds is required before planting. Maintain a temperature of 70°F or higher during germination. Light is required for germination, so cover the seeds lightly with the germination medium. Seeds should germinate in one to two weeks.
Cuttings: Take stem cuttings when new growth begins to harden. Dip the cut end in a rooting hormone.
Division: Divide plants in early spring.

Comments: The plant is a nectar source for bees and butterflies. There are several cultivars of this plant in the nursery trade.

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Late Purple Aster / *Symphyotrichum patens* (syn. *Aster patens*)
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Leaves are alternate, lance-shaped and sessile. The stem appears to be passing through the leaves. Stems and leaves are slightly hairy. Flowers are approximately 1 inch wide and consist of deep purple ray flowers surrounding small yellow disk flowers. Flowering time varies from August to October, depending on location.

Cultural Requirements: Late Purple Aster prefers full sun to partial shade and well-drained soil. It adapts to dry sites. Cut plants back after flowering to encourage more compact growth and to prevent self-seeding if that is a concern.

Landscape Uses: Dry woodlands or meadows. It is a tough plant suitable for dry, difficult sites, like roadsides and rights-of-ways.

Size: 1 to 3 feet tall

Hardiness Zones: All of Georgia

Habitat: Use Late Purple Aster in dry open woodlands, meadows and roadsides

Native To: Maine, south to Florida, west to Texas, north to Minnesota

Propagation: Seed, cuttings or division
Seed: Collect flower heads when they are white and fluffy. Crush them to remove the seeds. No pre-treatment of the seeds is required before planting. Maintain a temperature of 70°F or higher during germination. Light is required for germination so cover the seeds lightly with the germination medium. Seeds should germinate in one to two weeks.
Cuttings: Take stem cuttings when new growth begins to harden and dip the cut end in a rooting hormone.
Division: Divide plants in early spring.

Comments: Flowers attract butterflies. This is a tough plant and is easy to grow.

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Foamflower, Heartleaf Foamflower, Allegheny Foamflower / *Tiarella cordifolia*
Family: Saxifrage / *Saxifragaceae*

Life Cycle: Perennial

Characteristics: Leaves are semi-glossy, heart-shaped, approximately 4 inches across with three to five lobes. They are all basal, forming a mound at the base of the plant. The leaves turn reddish-bronze in winter and are evergreen in mild winters. In spring, flower stalks, 6 to 12 inches in height, rise above the foliage and bear numerous star-shaped flowers. Flower color ranges from white to pale pink. Long slender stamens give the inflorescence a frothy appearance, hence the name foamflower.

Cultural Requirements: This plant must have shade and moist, well-drained acidic soil.

Landscape Uses: Use Foamflower as a groundcover in shady woodlands, shaded rock gardens, shady perennial borders or shady stream banks.

Size: 6 to 12 inches tall and 1 to 2 feet wide.

Hardiness Zones: All of Georgia

Habitat: Shaded, moist woodlands, stream banks, seepages and wet rocky areas

Native To: Maine, south to Georgia, west to Mississippi, north to Ohio, Michigan, Wisconsin and Minnesota

Propagation: Seed or division
Seed: Collect flower heads when they are white and fluffy. Crush them to remove the seeds. No pre-treatment of the seeds is required before planting. Light is required for germination, so cover the seeds lightly with the germination medium. Seeds should germinate in about a month.
Division: Divide plants in the fall.

Comments: Many cultivars of this plant are available in the trade.

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Bluecurls / *Trichostema dichotomum*
Family: Mint / *Lamiaceae*

Life Cycle: Annual

Characteristics: Stems are erect, square and hairy. Leaves are opposite, oval, up to 2 inches long and 1 inch wide, hairy and finely toothed along their margins. Fragrant blue flowers, ½ to ¾ inch long, appear in August or September. They have long curled stamens and styles that protrude above the petals. Flowers are two lipped: the upper lip has four fused lobes and the lower lip has one large drooping lobe with dark blue spots.

Cultural Requirements: This plant prefers partial shade to full shade and dry, sandy soil.

Landscape Uses: Use Bluecurls in shaded meadows, shaded wildflower gardens, shaded areas of rock gardens or in wildlife habitats.

Size: 2 to 3 feet tall and 1 foot wide

Habitat: Dry, sandy areas, pastures and thin soils around rock outcrops

Native To: Maine to Florida, west to Texas, north to Missouri and Michigan

Propagation: Seed
Seed: Collect seeds in the fall and store them dry at 40°F for planting after the last frost in early spring.

Comments: Bees and butterflies are attracted to the flowers, and birds like to eat the seeds.

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Trillium

Trillium (from the Latin word for "three") has all its parts in threes or multiple of three: three leaves (or bracts), three petals, three stigmas and six stamens. Most trillium species are characterized by a set of three whorled horizontal leaves at the top of stalks that are 8 to 12 inches long. A single flower is borne at the center of the three leaves. Seeds are generally spread by native ants. Ants are attracted to a tiny fleshy appendage on the seed that is high in fat. The ants take the seeds to their nest, feed the appendages to their young and discard the seeds in a trash pile within their nest where they germinate in the nutrient-rich compost.

Trillium species have very specific habitat requirements and are difficult to grow unless their native environment can be simulated. They require moist organic soil and shade or partial shade. They are generally difficult to propagate from seed, sometimes taking up to two years to germinate and three or more years to produce a flowering plant. They are also difficult to transplant. Fortunately, many species are available in the nursery trade.

Trillium species are often divided into two distinct categories based on the presentation of their flowers: *sessile flowered* trilliums have stalkless flowers borne on top of the leaves (e.g., *Trillium cuneatum*) or *pedicellate flowered* trilliums that bear their flowers on stalks (pedicels) that are either held above the foliage (e.g., *Trillium gradiflorum*) or below the foliage (e.g., *Trillium catesbaei*).

There are about 30 Trillium species native to North America. There are 21 native species in Georgia. Seven are described below.

Catesby's Trillium, Bashful Wakerobin, Rose Trillium / *Trillium catesbaei*
Family: Lily / *Liliaceae*

Life Cycle: Perennial

Characteristics: Three elliptical-shaped leaves, 1½ to 3 inches long with wavy margins, are arranged in a whorl on the top of stems that rise 8 to 20 inches from the base of the plant. In spring, a solitary pink to dark-rose colored flower, 1½ inch across with three petals reflexed backward, emerges on a short stalk at the top of the stem. The anthers are yellow and irregularly twisted outward. At the base of the flower are three sepals. Seeds are borne in fleshy capsules.

Cultural Requirements: Catesby's Trillium prefers shaded, dry woodlands that have had little disturbance.

Landscape Uses: Use this plant in shaded woodlands and shaded perennial borders.

Size: 8 to 20 inches tall and 8 to 12 inches wide

Hardiness Zones: All of Georgia

Habitat: Dry acidic oak and oak/pine woodlands

Native To: North Carolina and Tennessee, south to Georgia, west to Alabama

Propagation: Seed or division
Seed: Collect seeds when the capsule becomes soft, about 10 to 12 weeks after flowering. Sow them directly in outdoor beds or flats. Seeds may take up to two years to germinate, so patience is a virtue.
Division: Divide plants in fall or winter by breaking apart segments of the rhizomes. Each segment should have at least one growing point and fibrous roots. Dust the cut ends with a fungicide before planting.

Comments: This is a common species in the Piedmont and Blue Ridge, but it is somewhat rare in the Coastal Plain.

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Sweet Betsy, Toad Trillium, Whippoorwill Flower / *Trillium cuneatum*
Family: Lily / *Liliaceae*

Life Cycle: Perennial

Characteristics: Three large oval leaves, 6 inches long and 4 inches wide, are arranged in a whorl at the top of stalks rising 3 to 12 inches above the ground. The leaves are sessile and mottled gray-green. In spring, a single maroon, bronze or sometimes chartreuse flower with three petals that are 1 to 3 inches long is borne upright above the leaves. Some say the flower has a banana scent, while others say the odor is offensive. There are three erect sepals below the flower. Seeds are borne in fleshy capsules.

Cultural Requirements: Plant Sweet Betsy in moist, well-drained soil and shady areas.

Landscape Uses: Use this plant in moist, shaded woodlands and shaded perennial borders.

Size: Usually 6 to 12 inches tall, but mature specimens may reach 24 inches

Hardiness Zones: All of Georgia

Habitat: Moist woodlands, hardwood forests and bottomland sites high in organic matter

Native To: North Carolina, south to Georgia and east Mississippi

Propagation: Seed or division
Seed: Collect seeds when the capsule is soft, about 10 to 12 weeks after flowering. Sow them directly in outdoor beds or flats. They may take up to two years to germinate.
Division: Divide plants in fall or winter by breaking apart segments of the rhizomes. Each segment should have a growing point and fibrous roots. Dust the cut ends with a fungicide before planting.

Comments: This is one of the most common Trillium species in Georgia. There are two other species that are very similar to this plant: *T. luteum* has bright yellow or green petals and more mottled leaves than *T. cuneatum*; *T. stamineum* is endemic to Alabama, Mississippi and Tennessee and has a somewhat hairy stem and twisted purple petals. The flowering of *T. cuneatum* is said to signal the arrival of Whippoorwill songbirds in the spring, hence the common name Whippoorwill Flower.

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Lance-leaved Trillium, Narrow-leaved Trillium / *Trillium lancifolium*
Family: Lily / *Liliaceae*

Life Cycle: Perennial

Characteristics: Sturdy unbranched stems up to 18 inches tall terminate in three sessile, lance-shaped, mottled, gray-green leaves with purple specks. The leaves are approximately 2 inches wide and 4 to 6 inches long. In March or April a single brownish-maroon flower with erect petals and curved sepals appears above the foliage. Rhizomes are long, thin and brittle. Seeds are borne in a capsule that follows the flower.

Cultural Requirements: Plant Lance-leaved Trillium in shaded areas having moist, well-drained soil enriched with organic matter. It can be planted in dry shaded areas if moisture can be provided during periods of limited rainfall.

Landscape Uses: This plant prefers shaded, moist woodlands and shaded stream banks.

Size: Up to 18 inches tall

Hardiness Zones: All of Georgia

Habitat: Calcareous forests, along creeks and in floodplains

Native To: South Carolina, Alabama, Mississippi, Tennessee, southwest Georgia and the panhandle of Florida

Propagation: Seed or division
Seed: Collect seeds when the capsule is soft, about 10 to 12 weeks after flowering. Sow them directly in outdoor beds or flats. They may take up to two years to germinate, so patience is a virtue.
Division: Divide plants in the fall or winter by breaking apart segments of the rhizomes. Each segment should have at least one growing point and fibrous roots. Dust the cut ends with a fungicide before planting.

Comments: This plant is an endangered species in Florida and Tennessee.

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Yellow Wakerobin, Yellow Trillium / *Trillium luteum*
Family: Lily / *Liliacae*

Life Cycle: Perennial

Characteristics: Unbranched stems are topped by three lance-shaped to oval dark green leaves that are up to 4 inches long. The leaves are sessile and mottled silvery green. A single yellow flower with three petals and three narrow greenish sepals appear above the leaves in April or May. Flowers have a faint lemon scent. Underground rhizomes spread slowly to form a clump.

Cultural Requirements: This plant prefers moist, well-drained soil high in organic matter and partial shade to full shade.

Landscape Uses: Plant Yellow Wakerobin in shaded woodland gardens, naturalized areas or wildflower gardens.

Size: 1 to 1½ feet tall with an equal width

Hardiness Zones: All of Georgia

Habitat: Moist, shaded nutrient-rich hardwood forests and floodplains

Native To: This plant is found from Maryland, south to Georgia, west to Alabama, north to Kentucky. It is primarily an Appalachian endemic.

Propagation: Seed or division
Seed: Collect seeds when the capsule is soft, about 10 to 12 weeks after flowering. Sow them directly in outdoor beds or flats. Seeds may take up to two years to germinate.
Division: Divide plants in the fall or winter by breaking apart segments of the rhizomes. Each segment should have at least one growing point and fibrous roots. Dust the cut ends with a fungicide before planting.

Comments: This is one of the easiest trilliums to grow.

Images: Page 98

Spotted Wakerobin, Spotted Trillium / *Trillium maculatum*
Family: Lily / *Liliaceae*

Life Cycle: Perennial

Characteristics: Three horizontal sessile leaves are attached directly to the top of stems that are 6 to 12 inches tall. Leaves are heart-shaped, 3 to 6 inches long and 2 to 3 inches wide and mottled. From February to early April a solitary erect flower is borne at the top of the stem above the leaves. The flower has three strap-like, upright red-maroon petals that are 1 to 2 inches long. They are subtended by three horizontal maroon sepals. The flower lacks the brown overtones that the flowers of several other species have. Seeds are borne in a single fleshy capsule that follows the flower.

Cultural Requirements: Spotted Wakerobin prefers moist soil high in organic matter and partial shade.

Landscape Uses: Use this plant in shaded moist woodlands or on shaded stream banks.

Size: 6 to 12 inches tall and 12 inches wide

Hardiness Zones: All of Georgia

Habitat: Moist, shaded calcareous forests and bottomlands high in organic matter

Native To: South Carolina, Florida, Georgia, Alabama

Propagation: Seed or division
Seed: Collect seeds when the capsule is soft, about 10 to 12 weeks after flowering. Sow them directly in outdoor beds or flats. Seeds may take up to two years to germinate.
Division: Divide plants in the fall or winter by breaking apart segments of the rhizomes. Each segment should have at least one growing point and fibrous roots. Dust the cut ends with a fungicide before planting.

Comments: The species name *maculatum* means "mottled leaves."

Images: Page 98

Southern Nodding Trillium, Illscented Wakerobin / *Trillium rugelii*
Family: Lily / *Liliaceae*

Life Cycle: Perennial

Characteristics: Three green lance-shaped leaves, approximately 6 inches wide and 8 to 10 inches long, are arranged in whorls at the top of a stem that is 12 to 18 inches tall. Solitary cream-colored flowers with three petals, 1½ to 3 inches long, appear in April and May. They droop downward from the terminal leaves, hence the name nodding trillium. The stamens have white filaments and purple anthers. Sepals curve backward.

Cultural Requirements: Southern Nodding Trillium prefers moist soil high in organic matter and shade.

Landscape Uses: Plant Southern Nodding Trillium in shaded, moist woodlands or shaded stream banks.

Size: 12 to 18 inches high

Hardiness Zones: All of Georgia

Habitat: Nutrient-rich deciduous forests, hillsides, coves and alluvial soils along stream banks and rivers

Native To: Alabama, Georgia, North Carolina, South Carolina, Tennessee

Propagation: Seed or division
Seed: Collect seeds when the capsule is soft, about 10 to 12 weeks after flowering. Sow them directly in outdoor beds or flats. Seeds may take up to two years to germinate.
Division: Divide plants in the fall or winter by breaking apart segments of the rhizomes. Each segment should have at least one growing point and fibrous roots. Dust the cut ends with a fungicide before planting.

Comments: Southern Nodding Trillium is rarely encountered in the wild, but it is becoming more common in cultivation. Some say the plant is ill-scented, while others say it smells sweet and spicy.

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Underwood's Trillium / *Trillium underwoodii*
Family: Lily / *Liliaceae*

Life Cycle: Perennial

Characteristics: Three horizontal sessile leaves are joined at the top of a flowering stem that is 8 to 12 inches tall. The leaves are mottled dark and light green. They are oval, 2 to 4 inches long and 1 to 2 inches wide. They tend to droop downward, almost touching the ground. In spring a solitary maroon and green flower with erect petals is borne at the top of the stem above the leaves. The flower has a spicy fragrance. Seeds are borne in a single fleshy capsule that follows the flower.

Cultural Requirements: This plant prefers partial shade and slightly alkaline soil that is moist and high in organic matter.

Landscape Uses: Use Underwood's Trillium in shaded woodlands where the soil remains moist in summer. Lime may be needed if the soil is too acidic.

Size: 6 to 12 inches and 12 inches wide

Hardiness Zones: All of Georgia

Habitat: Humus-rich calcareous soils in deciduous forests
Native To: North Carolina to north Florida, west to Mississippi

Propagation: Seed or division
Seed: Collect seeds when the capsule is soft, about 10 to 12 weeks after flowering. Sow them directly in outdoor beds or flats. Seeds may take up to two years to germinate.
Division: Divide plants in the fall or winter by breaking apart segments of the rhizomes. Each segment should have at least one growing point and fibrous roots. Dust the cut ends with a fungicide before planting.

Comments: This plant closely resembles Sweet Betsy, *T. cuneatum*; however, most authorities agree that they are separate species.

Images: Page 99

Narrowleaf Ironweed, Tall Ironweed / *Vernonia angustifolia*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: Narrow lance-shaped leaves, 1½ to 4½ inches long and ⅛ to ¼ inch wide, are borne on the top of a solitary stem growing 2 to 4 feet tall. In mid-summer, maroon flowers appear in branched clusters at the top of the stem. Petals are bristled and arranged in two whorls. White stamens with brown anthers rise above the flowers.

Cultural Requirements: This plant prefers sun and well-drained soil. Once established, it has good drought tolerance.

Landscape Uses: Narrowleaf Ironweed is an excellent plant for dry sandy perennial borders where little else will grow. It is an excellent choice for rock gardens and butterfly gardens.

Size: 2 to 4 feet tall and 1 foot wide

Hardiness Zones: All of Georgia

Habitat: Sand hills and scrub-oak woodlands

Native To: Louisiana, Mississippi, Alabama, Georgia, Florida, North and South Carolina

Propagation: Seed, cuttings or division
Seed: Harvest seeds when flower heads become white and fluffy in the fall. Store them dry at 40°F for one to three months before sowing them outside in beds or flats in December or January. Germination should occur the following spring.
Cuttings: Cuttings can be taken in the spring after new growth hardens.
Division: Plants can be divided in early spring as new growth emerges.

Comments: Narrowleaf Ironweed is attractive to butterflies. A cultivar called 'Plum Peachy' is available in the trade. It grows 4 feet tall and has dark purple flowers. Ironwood species need to be separated because they will hybridize readily and their offspring may not resemble the parents.

Images: Page 99

Ironweed, New York Ironweed / *Vernonia noveboracensis*
Family: Aster / *Asteraceae*

Life Cycle: Perennial

Characteristics: This clump-forming perennial has stiff branched stems bearing dark-green lance-shaped leaves up to 11 inches long. In August and September, small flower heads appear in large, loosely branched, flat-topped clusters at the top of the stems. Flower heads consist of maroon disk flowers.

Cultural Requirements: Ironweed prefers full sun and moist acidic soil, but it also will adapt to dry soil. It tolerates clay and neutral to acid conditions. It does not like to be over-watered. Remove flower heads before seeds develop to avoid unwanted self-seeding. Cutting back stems close to ground level in late spring will encourage more compact growth.

Landscape Uses: Use Ironweed as a background plant in perennial borders, cottage gardens, wildflower gardens, butterfly gardens or meadows. It will naturalize where planted.

Size: 4 to 7 feet tall with a spread of 3 to 4 feet

Hardiness Zones: All of Georgia

Habitat: Marshy areas, wet open bottomlands and moist pastures

Native To: Massachusetts to Ohio, south to Georgia and Mississippi

Propagation: Seed, cuttings or division
Seed: Harvest seeds when the flower head becomes fluffy in the fall. Store them dry at 40°F for one to three months before sowing them outside in flats or beds in December or January.
Cuttings: Cuttings can be taken in the spring after new growth hardens.
Division: Plants can be divided in early spring as new growth emerges.

Comments: The name Ironweed refers to plant's tough stems, rusty color of fading flowers and rusty colored seeds. Butterflies are attracted to the flowers.

Images: Page 99

Halberdleaf Yellow Violet / *Viola hastata*
Family: Violet / *Violaceae*

Life Cycle: Perennial

Characteristics: Stems up to 10 inches long bear alternate leaves approximately 4 inches long. The leaves are triangular in shape, widest at their bases and tapering toward their tips. They are dark green and often have blotches of silvery-gray between their veins. Single yellow flowers with five petals appear in early spring on a stalk arising from leaf axils on the upper portion of the stems. There is only one flower at each leaf axil. The centers of the flower petals have dark lines, and the backs of the petals have a purple tinge. The plant spreads by rhizomes. Seeds are borne in capsules.

Cultural Requirements: Halberdleaf Yellow Violet prefers woodland soil high in organic matter and partial shade.

Landscape Uses: Use this plant in deciduous woodlands with filtered shade.

Size: 4 to 10 inches tall and 6 inches wide

Hardiness Zones: All of Georgia

Habitat: Dry to mesic acidic forests and open woodlands

Native To: New York to Florida, west to Mississippi, north to Tennessee, Kentucky and Ohio

Propagation: Seed or cuttings
Seed: Collect seed capsules before they explode and cast their seeds. Place them in a paper bag to dry and release their seeds, then sow the seeds in outdoor beds or flats. No pre-treatment of the seeds is required before planting. They should germinate the following spring.
Cuttings: Root cuttings can be taken in February.

Comments: The name "Halberdleaf" comes from the resemblance of the leaves to the blade of a halberd (a combination spear and battle-ax used as a weapon in the 15th and 16th centuries.) This is an easy plant to grow, and the attractive foliage is worth the effort.

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Alpine Violet, Woods Violet / *Viola labradorica* (Syn. *Viola conspersa*)
Family: Violet / *Violaceae*

Life Cycle: Perennial

Characteristics: Small, dark-green, heart-shaped leaves grow from the crown of the plant on short stalks. From April to June, two to four flowering stalks emerge bearing pale blue to purple flowers. Seeds are borne in capsules.

Cultural Requirements: Alpine Violet prefers moist, well-drained soil and sun to partial shade. It will adapt to dry sites.

Landscape Uses: Alpine Violet may be used as a ground-cover between stepping stones in butterfly gardens or rock gardens. It will naturalize.

Size: 4 to 6 inches tall

Hardiness Zones: All of Georgia

Habitat: Rich flood plains and seepage slopes

Native To: Maine, south to Florida, west to Alabama, north to Minnesota. It is also found in Colorado and Montana.

Propagation: Seed or cuttings
Seed: Collect capsules before they burst and cast their seeds. Place them in a paper bag to dry and release their seeds. Sow the seeds in outdoor beds or flats. No pre-treatment of the seeds is required before planting. They should germinate the following spring.
Cuttings: Root cuttings can be taken in February.

Comments: The flowers attract butterflies.

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Bird's Foot Violet / *Viola pedata*
Family: Violet / *Violaceae*

Life Cycle: Perennial

Characteristics: Leaves are oval to round, ¾ to 2 inches long, and deeply cut into three to five narrowly lobed segments. Leaf petioles are 4 to 6 inches long. In spring, pale purple pansy-like flowers, 1 to 1½ inches across, are borne above the leaves. They have two upper petals and three lower petals. The upper petals are smaller than the lower petals. Seeds are borne in capsules.

Cultural Requirements: Bird's Foot Violet likes full sun or partial shade and dry, rocky or sandy soil. It does not like competition from other plants and must have good drainage.

Landscape Uses: Use this plant in rock gardens, as a ground cover on slopes, in open woodlands, along paths or in sunny areas of wildflower gardens.

Size: 4 to 12 inches high with an equal spread

Hardiness Zones: All of Georgia

Habitat: Rocky open woodlands, roadsides, sandy prairies and pinelands

Native To: Maine to Georgia, west to Texas, north to Nebraska and Minnesota

Propagation: Seed or cuttings
Seed: Collect capsules before they burst and cast their seeds. Place them in a paper bag to dry and release their seeds. Sow the seeds in outdoor beds or flats. No cold treatment of the seed is required prior to sowing. They should germinate the following spring.
Cuttings: Root cuttings can be taken in February.

Comments: Bees and butterflies pollinate the flowers.

Images: Page 100

Longspur Violet / *Viola rostrata*
Family: Violet / *Violaceae*

Life Cycle: Perennial

Characteristics: Basal leaves are heart-shaped and 1 to 1½ inches wide. Stem leaves are slightly smaller than the basal leaves and oval in shape. Both the basal leaves and stem leaves have toothed margins. Flowers open in April and May and consist of five lilac-purple petals with dark veins and a dark purple base that forms a dark center eye. A long spur rises from the bottom petal and extends behind the flower. The distinctly long spur and dark spots on the petals help distinguish this plant from other purple violets. Fruit are capsules that contains brown seeds. The plant spreads by rhizomes.

Cultural Requirements: Plant Longspur Violet in full sun or partial shade and moist organic soil.

Landscape Uses: Use Longspur Violet in moist woodlands and along the edges of perennial borders.

Size: 4 to 8 inches tall and 6 inches wide, spreading

Hardiness Zones: All of Georgia

Habitat: Moist, organic shaded woodlands. It is often found growing in hemlock forests.

Native To: New Hampshire, south to Georgia, west to Alabama, north to Minnesota

Propagation: Seed or cuttings
Seed: Collect capsules before they burst and cast their seeds. Place them in a paper bag to dry and release their seeds. Sow the seeds in outdoor beds or flats. No pre-treatment of the seeds is required before planting. They should germinate the following spring.
Cuttings: Root cuttings can be taken in February.

Comments: The species name "*rostrata*" means beaked and describes the long flower spur.

Images: Page 100

Atamasco Lily, Rain Lily / *Zephyranthes atamasca*
Family: Amaryllis / *Amaryllidaceae*

Life Cycle: Perennial

Characteristics: Narrow, linear, grass-like leaves emerge from the bulb in spring. A single showy, white, lily-like flower is borne on a leafless stalk in mid- to late spring. The flower turns pink with age. The fruit is a single green capsule that turns black with age.

Cultural Requirements: This plant prefers moist to wet soil high in organic matter. It also likes filtered shade or morning sun followed by afternoon shade.

Landscape Uses: Atamasco Lily is a great plant for moist perennial borders in partial shade.

Size: 8 to 15 inches tall

Hardiness Zones: 7, 8

Habitat: Bottomlands, granite and limestone outcrops, ditches, wet woods and moist meadows

Native To: Southeast Virginia to Florida and Mississippi

Propagation: Seed or division
Seed: Collect seeds when capsules turn yellow and split, then sow them directly in outdoor flats. Germination should occur in about two weeks when the temperature is maintained at 70°F. Plants grown from seeds take two to three years to bloom.
Division: Bulblets can be separated from the mother bulb in the fall or early spring.

Comments: This plant tends to flower after rain, hence the common name Rain Lily.

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Golden Alexander, Golden Zizia / *Zizia aurea*
Family: Carrot / *Apiaceae*

Life Cycle: Perennial

Characteristics: Leaves are 1 to 2 inches long, divided and sometimes re-divided into lance-shaped or oval leaflets that are finely toothed along their margins. Stems are reddish. In the spring, small yellow flowers with five petals are borne in a large flat-topped flower head, looking much like Queen Anne's Lace. Seed heads turn purple as they dry, adding interest to the summer landscape.

Cultural Requirements: Golden Alexander prefers partial shade and moist, well-drained, sandy or sandy-clay soil.

Landscape Uses: Use this plant in perennial borders, wildflower meadows or butterfly gardens. It will naturalize in open woodlands.

Size: 1 to 3 feet tall

Hardiness Zones: All of Georgia

Habitat: Moist prairies, thickets, alluvial flood plains and stream banks

Native To: The eastern U.S., west to Texas, north to North Dakota and Montana

Propagation: Seed or division
Seed: Collect seeds when they turn brown in the fall. Store them dry for four months at 40°F before planting them in outdoor beds or flats. Germination should occur in the spring.
Division: Plants can be divided from late fall through winter.

Comments: Flowers hold up well in floral arrangements. The flowers attract butterflies, and the plant has good deer tolerance. Another species, *Thaspium trifiliatum*, is also called Golden Alexander and is sometimes confused with this plant.

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Glossary

Achene: A small, dry fruit with one seed that does not split open when ripe.

Alluvial: Referring to a soil made up of sand, clay, silt, etc. that was gradually deposited by moving water.

Anther: The organ at the upper end of a flower stamen that secretes and discharges pollen.

Appressed: Lying flat or closely pressed against something.

Awl-shaped: Tapering upward from the base to a slender rigid point.

Axil: The angle between a stem and the upper side of a leaf.

Axillary: Pertaining to or growing from the axil.

Beard: A beard-like growth at the base of each of the three lower, recurved petals of many varieties of iris.

Biennial: A plant that requires two growing seasons to complete its life cycle. It grows vegetatively the first growing season, then flowers, fruits and dies at the end of the second growing season.

Bipinnate: Once divided.

Bulb scales: Rudimentary modified leaves, overlapping and thickened, that constitute the bulb.

Bulblet: Small bulb growing from the main bulb, which can be removed to propagate additional plants.

Bract: A modified leaf, usually smaller than the ordinary foliage leaves, that occurs just below a flower or inflorescence.

Calcareous: Containing calcium carbonate, calcium or limestone; chalky.

Calyx: The undermost series of flower parts composed of sepals, which are usually green and leaflike but may be colored.

Capsule: A fruit containing two or more seeds that dries and splits open.

Cauline: Having or growing on a stem.

Corm: A short, broad, fleshy underground stem with a vertical axis.

Corolla: The second lowest series of flower parts, composed of petals.

Corymb: A flat-topped flower cluster in which the individual stalks grow upward from various points of the main stem to approximately the same height. The stalks of the individual flowers are of varying lengths, longer on the outside of the corymb and shorter towards the center.

Crown: The point at or just below the ground where the stem and the root join.

Cyme: An often flat-topped flower cluster that blooms from the center toward the edges and whose main axis is always terminated by a flower.

Decumbent: Trailing on the ground and rising at the tip.

Disk flower: Any of the tiny tubular flowers forming the center of the flower head of certain plants of the *Asteraceae* family, such as the daisy.

Elliptic: Narrow at the ends and broad near the center.

Falls: Pendulous outer petals, such as those on an iris.

Flatwoods: Low-lying flat timberlands.

Globose: Spherical

Habit: Tendency of a plant to grow in a certain way.

Internode: The region of the stem between two successive nodes.

Involucre: A ring of small leaves or bracts at the base of a flower, flower cluster or fruit. Involucres are found in all plants of the *Asteraceae* family.

Lance-shaped: Elongated, broadest below the middle and gradually pointed toward the tip. Lanceolate: Tapering from a rounded base toward an apex. Lance-shaped.

Lip: A lip-shaped corolla, calyx or petal.

Lobe: A subdivision, as of a leaf, distinguishable by some structural boundary.

Mafic: Pertaining to rocks containing magnesium and iron and a comparatively low level of silica.

Node: A point on a stem where a leaf and its axillary bud are borne.

Nutlet: One of several small, nut-like parts of a compound fruit.

Obovate: A leaf that is egg-shaped, with the narrow end attached to the stalk.

Ovate: A leaf that is egg shaped, broad and rounded at the base and tapering toward the end.

Palmate: A leaf that is radially lobed, like the spokes of a wheel. Imagine a leaf shaped like the palm of the hand, with lobes radiating outward from one central point.

Panicles: Loose, irregularly compound inflorescence flowers borne on short stems or pedicels.

Pappus (pl. pappi): A bristly, feathery or fluffy whorl crowning the ovary or fruit of plants in the *Asteraceae* (syn. *Compositae*) family. The pappi are adapted for the dispersal of seed by wind or other means.

Pedicel (also spelled Pedicle): The stalk of a single flower.

Perfoliate: Having a stem that seems to pass through the blade of a leaf.

Petaloid: Resembling a flower petal in form, texture and color.

Petiole: A leaf stalk.

Pinnate: Feather-like in structure, with the parts (leaflets) arranged on both sides of a center line (midrib or midvein).

Pistil: The seed-bearing organ of a flower, including the stigma, style and ovary.

Pith: Soft spongy tissue in the center of some plant stems.

Plumose: Feathery or plume-like.

Pocosin: A depression in open areas of pine savannahs and seepage slopes near streams.

Pubescent: Covered with a soft down.

Raceme: An elongate cluster of flowers along the main stem in which the flowers at the base open first.

Ray flower: Any of the flat, strap-shaped marginal flowers around the head of certain composite flowers, such as the daisy.

Recurved: Curved downward or backward.

Rhizome: (noun) An underground stem that is usually horizontal in position and frequently woody or fleshy. (adjective: rhizomatous)

Scape: A leafless flower stalk growing from the crown of the root.

Scarification: To slit or soften the outer covering of seed to hasten germination.

Sepal: One of the lower cycle of flower parts (the calyx), often green and leaflike. May be colored like the petal in some species.

Serrate / serrated: Toothed along the leaf margins.

Sessile: Attached directly, without a stalk.

Spadix: A fleshy spike on which the flowers of certain plants are borne. It is usually surrounded by a leaflike spathe.

Spathe: A bract or leaf enclosing a flower cluster or spadix.

Stamen: The male reproductive part of a flower, usually consisting of a slender threadlike filament and the pollen-bearing anther.

Staminate: A flower lacking female parts, having only stamens (male parts).

Stigma: The tip of a pistil, usually expanded and sticky, that receives pollen.

Stolon: An elongated horizontal branch stem that creeps along the surface of the ground and roots at the tip and nodes to produce a new plant.

Stratify: To enhance seed germination by providing seeds a period of cool or warm temperatures. It is also sometimes referred to as after-ripening.

Style: That part of the pistil between the stigma (tip) and ovulary (expanded hollow portion containing ovules).

Swale: A shallow depression or low area of land.

Tepal: A petal-like part of a flower, such as tulips, in which the calyx and corolla are not clearly differentiated.

Umbel: A flower cluster, usually rounded or flat-topped, with all stems springing from the same point.

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Guide to Selecting Wildflowers

Botanical Name	Common Name	Plant Type[z]	Bloom Time[y]	Plant Size			Light Level[x]			Moisture Preference				Flower Color
		A/P	Sp,Su,F	<1 ft.	1-3 ft.	> 3 ft.	○	◉	●	Well-Drain	Dry	Moist	Wet	
Actea pachypoda	Doll's Eyes	P	Sp		x			x	x	x		x		white
*Actaea racemosa (*syn. *Cimicifuga racemosa*	Black Cohosh, Black Bugbane	P	Sp, Su			x		x	x	x		x		white
Ageratina altissima, (syn. *Eupatorium rugosum*)	Common White Snakeroot	P	Su, F		x		x	x			x	x		white
Amianthium muscitoxicum	Fly Poison	P	Su		x		Morn		Aft			x		white
Amsonia ciliata	Fringed Blue Star	P	Sp		x		x	x		x				blue
Amsonia tabernaemontana	Wideleaf Blue-star, Eastern Blue Star	P	Sp,Su		x		x	x		x				blue
Anemone quinquefolia	Wood Anemone	P	Sp	x				x				x		white or pink
Anemone virginiana	Tall Thimbleweed	P	Sp		x		x	x			x	x		white
*Anemonella thalictroides, (*syn. *Thalictrum thalictroides)*	Rue-anemone	P	Sp	x				x	x			x		white
Angelica venenosa	Hairy Angelica	P	Su			x	x	x		x	x			white
Antennaria plantaginifolia	Plantain Pussytoes	P	Sp	x	x		x	x			x			white
Aquilegia canadensis	Eastern Columbine	P	Sp		x		x	x		x				red and yellow
Arisaema dracontium	Green Dragon	P	Sp		x			x				x		white
Arisaema triphyllum spp *quinatum*	Jack-in-the-pulpit	P	Sp		x			x				x		green to purple
Asarum canadense	Canadian Wild Ginger	P	Sp	x				x	x	x		x		purple
Asclepias amplexicaulus	Clasping Milkweed, Blunt-leaved Milkweed, Waxy-leaf Milkweed	P	Su		x		x			x		x		Greenish-purple pinkish-tan
Asclepias incarnata	Swamp Milkweed	P	Su			x	x			x		x		pink

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Asclepias syriaca	Common Milkweed	P	Sp, Su			x	x				x	x		Pinkish purple
Asclepias tuberosa	Butterfly Weed, Butterfly Milkweed	P	Sp, Su		x		x			x				orange
Asclepias variegata	White Milkweed	P	Sp		x			x			x			white
Baptisia alba	White Wild Indigo	P	Sp, Su		x		x			x				white
Baptisia australis	Blue Wild Indigo	P	Sp			x	x	x			x	x		purple
Baptisia bracteata	Longbract Wild Indigo, Cream Wild Indigo	P	Sp		x		x	x			x			white
Baptisia lanceolata	Gopherweed	P	Sp, Su		x		x			x		x		yellow
Baptisia tinctoria	Shoofly Indigo	P	Su		x		x	x			x	x		yellow
*Bidens aristosa,(*syn. *Bidens polylepsis)*	Bearded Wild Beggarticks, Bur Marigold	A	F		x	x	x	x				x		yellow
Bidens cernua	Nodding Beggarticks	A	F			x		x		x		x		yellow
*Cardamine diphylla (*Syn. *Dentaria diphylla)*	Toothwort, Crinkleroot	P	Sp	x	x			x				x		white to pink
Carphephorus odoratissimus	Vanillaleaf, Deer tongue	P	Su			x	x	x				x		purple
Caulophyllum thalictroides	Blue Cohosh	P	Sp		x				x	x		x		Brownish to yellowish green
Centrosema virginianum	Spurred Butterfly Pea	P	Sp, Su			x	x	x		x				lavender to white
Chamaecrista fasciculata	Partridge Pea	A	Su		x		x	x			x			yellow with red
Chamaelirium luteum	Fairy Wand, Devil's Bit	P	Sp		x			x	x			x		white
Chaptalia tomentosa	Woolly Sunbonnets, Pineland Daisy	P	Sp	x			x					x	x	pink and white

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Chelone glabra	White Turtlehead	P	Su, F		x			x				x	x	white
Chelone lyonii	Pink Turtlehead	P	Su		x			x	x			x		pink to rose purple
Chrysogonum virginianum	Green-and-gold	P	Sp	x				x		x		x		yellow
Chrysopsis mariana	Maryland Goldenaster	P	Su		x		x			x		x		yellow
Cocculus carolinus	Carolina Coralbead	P	Su	vine			x	x		x		x		white flower, red fruit
Conoclinium coelestinum	Blue Mistflower	P	Su, F		x		x	x		x		x		bluish purple
Coreopsis auriculata	Lobed Coreopsis, Tickseed, Eared Coreopsis	P	Sp		x		x	x		x				yellow
Coreopsis basalis	Goldenmane Tickseed, Golden Wave Tickseed	A	Su, F		x		x			x				yellow with maroon disk
Coreopsis grandiflora	Large-flowered Coreopsis	P	Su, F	x			x	x		x				yellow
Coreopsis major	Woodland Coreopsis, Pot of Gold Coreopsis	P	Sp, Su		x		x	x		x				yellow
Coreopsis pubescens	Star Tickseed, Downy Tickseed	P	Su		x		x	x			x	x		yellow
Coreopsis tinctora	Plains Tickseed, Golden Tickseed	A, P,Bi	Su		x		x			x		x		yellow with reddish disk
Crinum americanum	Crinum Lily, Seven Sisters, String Lily, Swamp Lily	P	Su			x	x	x				x		white with pink
Delphinium carolinianum	Carolina Larkspur	P	Sp		x		x	x		x		x		white to blue or violet
Dodecatheon meadia	Eastern Shooting Star	P	Sp	x					x			x		white to pink
Echinacea purpurea	Purple Coneflower	P	Sp, Su		x	x	x	x		x	x	x		Pink rays, purple disk
Elephantopus tomentosus	Hairy Elephant's-foot	P	Su	x			x	x			x	x		showy leaves

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Erigeron pulchellus	Robin's Plantain	P	Sp		x		x	x			x	x		White to pink ray, yellow disk
Eryngium yuccifolium	Rattlesnake-master, Button Snake-root	P	Su		x			x	x	x	x	x		white
Erythrina herbacea	Coral Bean, Cherokee Bean, Red Cardinal	P	Sp			x	x	x			x			red
Erythronium umbilicatum	Dimpled Trout Lily	P	Sp	x				x	x	x		x		yellow
Eupatorium perfoliatum	American Boneset	P	Su		x		x	x				x		white
Eupatorium serotinum	Late Boneset	P	Su			x	X	x				x		white
Eurybia divaricata, (syn. *Aster divaricatus)*	White Wood Aster, Heartleaf Aster	P	Su		x		x	x		x				white
Euthamia caroliniana (syn. *Euthamia minor)*	Carolina Flat-topped Goldenrod, Slender Goldentop	P	Su		x		x			x				yellow
*Eutrochium fistulosum (*syn. *Eupatorium fistulosum*)	Joe-pye Weed, Trumpetweed	P	Su			x	x					x		pink
*Gentiana saponaria (*syn. *Dasystephana saponaria)*	Soapwort Gentian	P	F		x			x	x	x		x		blue
Geranium maculatum	Wild Geranium, Cranesbill Geranium	P	Sp		x		x	x		x		x		pink
Helianthus angustifolius	Narrowleaf Sunflower, Swamp Sunflower	P	F		x		x	x			x	x		yellow
Helianthus divaricatus	Woodland Sunflower, Rough Sunflower	P	Su		x	x	x	x			x	x		yellow

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*Helianthus porteri, (*syn. *Viguiera porteri)*	Confederate Daisy, Stone Mountain Yellow Daisy	A	F		x		x			x				yellow
Hepatica americana (syn. *Anemone americana, Hepatica nobilis* var. *obtusa*)	Hepatica, Liverleaf Hepatica	P	Sp	x				x		x		x		blue, lavender, pink, white
Heuchera americana	Coral Bells, Alumroot	P	Sp		x			x	x	x				chartreuse
Hexastylis arifolia (syn. *Asarum arifolia*)	Littlebrownjug, Heartleaf, Evergreen Wild Ginger	P	Sp	x				x	x		x	x		Red-brown
*Hexastylis shuttleworthii (*Syn: *Asarum shuttleworthii)*	Largeflower Heartleaf	P	Sp	x				x	x	x		x		Purple brown
Hibiscus coccineus	Scarlet Rose Mallow	P	Su		x		x					x	x	scarlet
*Hibiscus laevis (*syn. *Hibiscus militaris)*	Halberd-leaf Rose Mallow	P	Su, F		x		x	x				x		White or pink petals, maroon throat
Hibiscus moscheutos	Crimson-eyed Rose Mallow, Marsh Mallow	P	Su, F		x		x					X		White pink petals, crimson throat
Hymenocallis occidentalis	Spider Lily, Carolina Spiderlily	P	Su		x		x	x				x	x	White
Impatiens capensis	Orange Jewelweed, Spotted Touch-me-not	A	Su, F		x			x	x			x		Orange to orange yellow
Impatiens pallida	Yellow Jewelweed, Pale Touch-me-not	A	Su, F			x	Morn.		Aft.			x	x	yellow

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Iris cristata	Dwarf Crested Iris	P	Sp	x				x	x			x		pale blue, gold crest
Iris fulva	Copper Iris	P	Sp	x			x	x				x	x	copper yellow
Iris verna	Dwarf Violet Iris	P	Sp	x			Morn.					x		lavender to deep blue
Iris virginica	Virginia Iris, Southern Blueflag	P	Sp			x	x	x				x	x	violet blue
Lespedeza virginica	Slender Lespedeza	P	F		x		x	x		x	x	x		pink
Liatris aspera	Tall Blazing Star, Rough Blazing Star	P	Su			x	x				x	x		lavender-pink
Liatris elegans	Pink-scale Blazing Star	P	Su, F		x	x	x			x	x			lavender-pink
Liatris pilosa (syn. Liatris graminifolium)	Shaggy Blazing Star, Grass-leaf Blazing Star	P	F		x		x	x		x		x		pink
Liatris spicata	Dense Blazing Star, Marsh Blazing Star	P	Su		x	x	x	x				x	x	deep purple
Liatris squarrosa	Scaly Blazing Star	P	Su		x	x	x			x	x	x		pink
Lilium michauxii	Carolina Lily	P	Su		x	x	x	x		x		x		orange red
Lilium superbum	Turk's Cap Lily	P	Su			x		x		x		x		orange
Lobelia cardinalis	Cardinal Flower	P	Su		x	x	Morn.		Aft.			x		red

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Lobelia puberula	Downy Blue Lobelia	P	Su, F	x	x	x	Morn.		Aft.	x		x		lavender purple, pink, blue or white
Lobelia siphilitica	Great Blue Lobelia	P	Su		x		Morn.		Aft.			x		blue
Maianthemum racemosum	Solomon's Plume, Feathery False Lily-of-the-Valley	P	Sp		x			x				x		white
Marshallia obovata var. *obovata*	Spoonshape Barbara's Buttons, Piedmont Barbara's Buttons	P	Su		x		x	x		x		x		white
Matelea gonocarpos	Angularfruit Milkvine, Climbing Milkvine	P	Su	vine			x	x				x		green, purple
Mimosa microphylla	Eastern Sensitive Briar	P	Su		x	x	x			x				pink with rose-purple stamens
Mitchella repens	Partridge-berry	P	Sp	x				x				x		white
Monarda didyma	Beebalm, Oswego Tea	P	Su			x	Morn.		Aft.	x		x		purple-red to pale pink, violet blue, scarlet, or rose pink
Monarda fistulosa	Appalachian Bergamot	P	Su		x	x	x	x		x		x		lavender
Monarda punctata	Spotted Horse-mint	P	Su		x		x	x		x	x	x		yellow with purple spots
Osmorhiza claytonii	Sweet-cicely, Anise-root	P	Sp		x			x				x		white
*Packera aurea (*syn. *Senecio aureus)*	Golden Ragwort, Golden Groundsel	P	Sp		x		x	x				x		yellow
Penstemon australis	Southern Beardtongue	P	Sp		x		x				x			rose pink

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Penstemon canescens	Beardtongue, Appalachian Beardtongue	P	Sp		x		x	x		x		x		violet, pale lavender
Penstemon digatalis	Smooth Beardtongue	P	Sp, Su		x		x			x		x		white
Penstemon smallii	Small's Beardtongue	P	Sp		x		x	x		x		x		dark-pink, lavender
Phlox amoena	Hairy Phlox	P	Sp		x		x			x				pink to maroon
Phlox carolina	Carolina Phlox, Thickleaf Phlox	P	Su		x		x	x		x		x		pink to maroon
Phlox divaricata	Woodland Phlox	P	Sp		x		x	x		x		x		lavender, reddish-purple or white
Phlox glaberrima	Smooth Phlox	P	Sp, Su		x		x	x		x				pink to maroon
Phlox maculata	Wild Sweet William, Meadow Phlox	P	Su		x		x	x				x		lavender, maroon, or white
Phlox paniculata	Garden Phlox, Summer Phlox	P	Su			x	x	x				x		pink to lavender
Phlox stolonifera	Creeping Phlox	P	Su	x				x		x		x		lavender
Phlox subulata	Moss Phlox, Moss Pink	P	Sp	x			Morn		Aft.	x	x	x		violet purple, pink, or white
Physostegia virginiana	Obedient Plant	P	F			x	x	x				x		Pink, lavender
Pityopsis graminifolia	Grass-leaved Goldenaster, Narrowleaf Silkgrass	P	F		x		x				x			yellow

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Podophyllum peltatum	Mayapple, American Mandrake	P	Sp		x			x	x			x		white
Polygonatum biflorum	Solomon's-seal, Small Solomon's Seal, Smooth Solomon's Seal	P	Sp		x			x				x		greenish white
Potentilla canadensis	Dwarf Cinquefoil	P	Sp, Su	x			x			x	x			yellow
Pycnanthemum pycnanthemoides	Southern Mountain Mint, White Horse Mint	P	Su			x		x		x				white to lavender
Rhexia mariana	Maryland Meadow Beauty	P	Su		x			x				x		white, rose, or purple
Rhexia virginica	Meadow Beauty, Handsome Harry	P	Su, F		x			x				x		rose, pale pink
Rudbeckia fulgida	Orange Coneflower, Brown-eyed Susan	P	Su, F		x	x	x			x				yellow orange rays, brownish purple disks
Rudbeckia hirta	Black-eyed Susan	A, P, Bi	Su, F		x		x			x	x	x		yellow rays, dark brown disks
Rudbeckia laciniata	Cutleaf Coneflower	P	Su			x	x					x		yellow
Rudbeckia triloba	Brown-eyed Susan, Three-lobed Coneflower	P	Su, F		x	x	x	x		x		x		yellow rays, brown disks
Salvia azurea	Azure-blue Sage, Pitcher Sage	P	F			x	x			x				blue
Salvia coccinea	Tropical Sage, Blood Sage, Scarlet Sage, Texas Sage	A	Su, F		x		x	x		x				red
Salvia lyrata	Lyre-leaf Sage	P	Sp	x			x	x			x	x	x	pale blue to white
Sanguinaria canadensis	Bloodroot, Red Puccoon, Indian Paint, Pauson, Tetterwort	P	Sp	x					x			x		white with yellow centers

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Scutellaria elliptica	Hairy Skullcap	P	Sp		x			x	x	x		x		purple
Scutellaria integrifolia.	Hyssop Skullcap, Rough Skullcap, Helmet Flower	A	Su		x			x		x		x		bluish lavender
Silene caroliniana	Wild Pink, Sticky Catchfly, Carolina Campion	P	Su		x		Morn		Aft.	x	x			rose pink
Silene stellata	Starry Campion, Widow's frill	P	Su		x			x		x		x		white
Silene virginica	Fire Pink, Scarlet Catchfly	P	Sp		x			x		x				scarlet
Silphium asteriscus	Starry Rosinweed	P	Su			x	x				x			yellow
Silphium compositum	Rosinweed, Kidneyleaf Rosinweed	P	Su			x	x	x		x	x			yellow
Silphium perfoliatum	Cup Plant	P	Su			x	x			x		x		yellow
Sisyrinchium angustifolium	Blue-eyed-grass, Narrowleaf Blue-eyed Grass	P	Sp		x		x	x		x		x		blue with yellow center
Solidago caesia	Blue-stemmed Goldenrod, Axillary Goldenrod, Wreath Goldenrod,	P	Su, F		x		Morn		Aft.	x		x		yellow
Solidago nemoralis	Gray Goldenrod	P	F		x		Morn		Aft.		x			yellow
Solidago odora	Licorice Goldenrod, Anise-scented Goldenrod, Sweet Goldenrod	P	Su, F		x		x					x		yellow

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Solidago rugosa	Wrinkle-leaf Goldenrod, Rough Stemmed Goldenrod	P	Su		x	x	x			x		x		yellow
Solidago speciosa	Showy Goldenrod	P	Su		x	x	x	x		x				yellow
Spigelia marilandica	Indian-pink, Woodland Pinkroot	P	Sp		x			x		x		x		crimson red
Stellaria pubera	Star Chickweed	P	Sp	x	x				x	x		x		white
Symphyotrichum concolor	Eastern Silvery Aster	P	F		x		x	x		x	x			lilac
*Symphyotrichum lateriflorum (*syn. *Aster lateriflorus)*	Calico Aster	P	Su, F		x	x		x				x		white or pale purple rays yellow disks turn dark reddish purple with age
Symphyotrichum novae-angliae	New England Aster	P	Su, F			x	x	x		x		x		Purple, lavender, white
*Symphyotrichum patens (*syn. *Aster patens)*	Late Purple Aster	P	Su, F		x		x	x		x		x		purple rays, yellow disks
Tiarella cordifolia	Foamflower, Heartleaf Foamflower, Allegheny Foamflower	P	Sp	x					x	x		x		white to pale pink
Trichostema dichotomum	Bluecurls	A	Su		x			x	x		x			blue
Trillium catesbaei	Catesby's Trillium, Bashful Wakerobin, Rose Trillium	P	Sp		x				x		x			pink to deep rose
Trillium cuneatum	Sweet Betsy, Toad Trillium, Whippoorwill Flower	P	Sp	x					x	x		x		maroon, bronze, or chartreuse

[z] Plant Type: A=Annual, P=Perennial, Bi=Biennial
[y] Bloom Time: Sp=Spring, Su=Summer,F=Fall
[x] Light Level: ○=full sun, ⦿=partial shade, ●=shade

Guide to Selecting Wildflowers

Botanical Name	Common Name	Plant Type[z]	Bloom Time[y]	Plant Size			Light Level[x]			Moisture Preference				Flower Color
		A/P	Sp,Su, F	<1 ft.	1-3 ft.	> 3 ft.	○	◉	●	Well-Drain	Dry	Moist	Wet	
Trillium lancifolium	Lance-leaved Trillium, Narrow-leaved Trillium	P	Sp		x				x			x		brownish maroon
Trillium luteum	Yellow Wakerobin, Yellow Trillium	P	Sp		x			x	x	x		x		yellow
Trillium maculatum	Spotted Wakerobin, Spotted Trillium	P	Sp	x				x				x		reddish maroon
Trillium rugelii	Southern Nodding Trillium, Illscented Wakerobin	P	Sp		x				x			x		cream
Trillium underwoodii	Underwood's Trillium	P	Sp	x				x				x		maroon/green
Vernonia angustifolia	Narrowleaf Ironweed, Tall Ironweed	P	Su		x	x	x			x	x			maroon
Vernonia noveboracensis	Ironweed, New York Ironweed	P	Su			x	x			x		x		maroon
Viola hastata	Halberdleaf Yellow Violet	P	Sp	x				x		x				yellow petals with purple backs
Viola labradorica	Alpine Violet, Woods Violet	P	Sp	x			x	x		x		x		pale blue to purple
Viola pedata	Bird's Foot Violet	P	Sp	x			x	x		x	x			pale purple
Viola rostrata	Longspur Violet	P	Sp	x			x	x				x		lilac purple
Zephyranthes atamasca	Atamasco Lily, Rain Lily	P	Sp	x	x		Morn	x	Aft.			x	x	white turning pink
Zizia aurea	Golden Alexander, Golden Zizia	P	Sp		x			x		x		x		yellow

[z] Plant Type: A=Annual, P=Perennial, Bi=Biennial
[y] Bloom Time: Sp=Spring, Su=Summer,F=Fall
[x] Light Level: ○=full sun, ◉=partial shade, ●=shade

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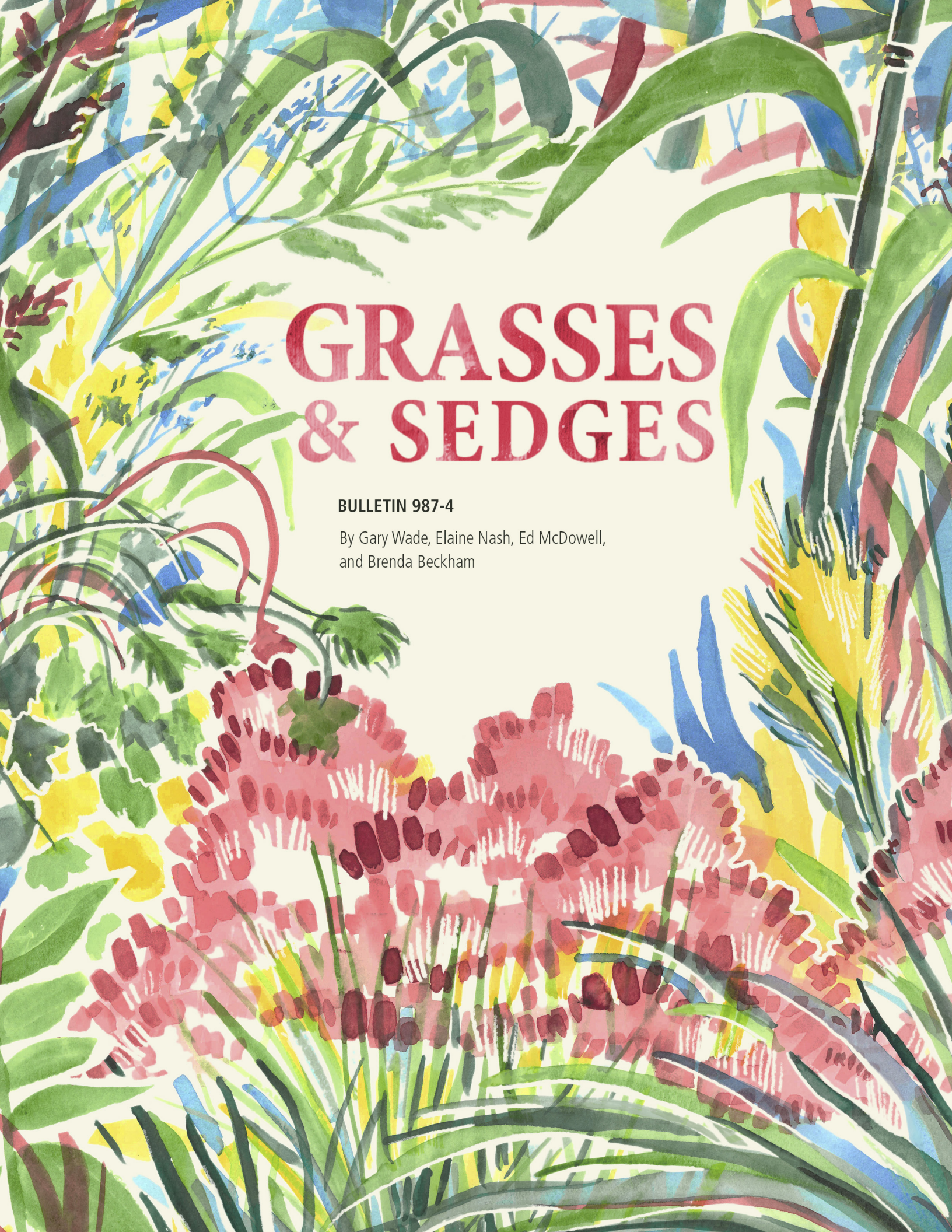


GRASSES & SEDGES

BULLETIN 987-4

By Gary Wade, Elaine Nash, Ed McDowell,
and Brenda Beckham

"Grasses are the hair of Mother Earth"
Karl Foerster

Few plants on Earth are more versatile or have a greater impact on the environment than grasses. They are major contributors to the total net photosynthesis and production of biomass in the world. They tame the erosive splash of raindrops, stabilize soil and assist the infiltration of water into the ground and aquifers. They interact ecologically with a diverse number of flora and fauna, both above and below ground, including insects, fungi, birds and mammals. Many insects, for example, rely on native grasses as a substrate on which they lay their eggs or as a larval food source in order to complete their life cycles. These same insects, in turn, are eaten by birds and mammals higher up the food chain. Many species of mammals, birds and insects also rely on grasses for shelter and nesting materials.

No other plant has played a more vital role in the development of civilization than grasses. For thousands of years, wild grasses have been cultivated and domesticated for human consumption and as feedstock for livestock and herds of wild animals. Most of the cultivated grains we use today, including wheat, barley, rye, oats, corn, rice, millet and sorghum, were developed from wild native grasses. Over the years, plant breeders and agronomists have made dramatic improvements in grain yields. One of the most notable was Norman Borlaug, an Iowa-born scientist and winner of the 1970 Nobel Peace Prize. He developed a high-yielding disease-resistant wheat that helped feed the world and saved millions of people in impoverished nations from starvation.

The grass family, Poaceae, is the fourth-largest plant family on Earth, with more than 10,000 species. Globally, grasses grow in all terrestrial habitats, including forests, glades, savannas, open deserts, prairies, wetlands, stream banks and floodplains. Yet grasses are relatively young plants in terms of their evolutionary history. The earliest evidence of fossilized grass pollen was found in South America and dates to the Paleocene Epoch, 55 to 65 million years ago. To put this in perspective, dinosaurs never ate grasses because grasses evolved after dinosaurs were extinct.

The southeastern United States is home to about 1,400 native grass species. Many of these species are managed for erosion control or wildlife habitats. Others have been domesticated as pasture grasses and other types of animal forage, such as grain or baled hay. A few species, such as Muhly Grass, Switchgrass and River Oats, have become popular in the landscape trade.

This publication describes and illustrates 48 grasses and 10 sedges native to Georgia. It is not the intent of the authors to describe all native grasses and sedges, but those that are most widespread or those having practical application for wildlife habitats, erosion control, restoration projects or landscape culture. A few of the plants are noted as being weedy or invasive and may not be appropriate for use in cultivated landscapes. Nonetheless, they are included to assist the reader in identifying them because they are abundant in the wild.

This publication further separates grasses into two categories: warm-season grasses and cool-season grasses. Warm-season grasses begin growing when daily temperatures are between 60°F and 65°F. They grow in the summer, flower and fruit in the fall, and then go dormant after the first frost. Examples are Broomsedge, Bluestems and Indian Grasses. Cool-season grasses grow in the late fall, winter and early spring, flower and fruit in the late spring, then go dormant in the summer. Examples include Oatgrasses, Witchgrasses and Bluegrasses.

Grasses vs. Sedges

Grasses and sedges belong to two different plant families. They are sometimes difficult to tell apart, but they can be distinguished from one another by differences in their structures, habitats or life cycles.

- Grass stems are typically round or flat and hollow inside, while those of sedges are triangular and solid inside.
- Grasses have swollen nodes or joints along their stems, while sedges do not.
- Grasses produce both vegetative and floral stems, while sedges produce only floral stems.
- The leaves of grasses are usually two-ranked, which means they occur in two rows on opposite sides of the stems, while the leaves of sedges are three-ranked and occur in three vertical planes along the stems.
- The flowers of many grasses are showy, but those of many sedges tend to be inconspicuous.
- Grasses are most abundant in dry, open habitats, while sedges prefer moist to wet areas.
- Grasses can be either annuals or perennials, but sedges are primarily perennials.

Establishing and Managing a Native Grass Meadow

Whether one is interested in the ecological management of an existing native grassland, converting an old pasture to a more diverse mixture of forbs (broadleaf herbaceous plants) and native grasses, establishing native grasses under utility easements or incorporating native grasses into a cultivated landscape, a great deal of planning is required to do the job properly. Creating a native grass meadow is a lot different from planting a mono-culture lawn with just one type of grass. Natural grass communities are diverse ecosystems with many different grasses growing in harmony with a variety of forbs. Grasses typically occupy between 65 percent and 70 percent of the total space.

Listed below are some suggested guidelines for planning, establishing and managing a native grass meadow. Each one has many alternatives and options.

Analyze the site

- Identify and make a list of ALL of the existing plants on the site, including native plants, exotic plants and weeds, as well as cool-season and warm-season annuals or perennials.
- Determine the sunlight exposure throughout the day.
- Note the topography and drainage of the site, including slopes, elevated areas that might stay drier than surrounding areas, and low spots where water can collect after rain.
- Determine the size of the area to be planted. There are 43,560 square feet in 1 acre.
- Take a sample of the soil and have it tested through the state soil testing laboratory. There is a nominal fee for this service (for information on soil sampling and testing, see http://aesl.ces.uga.edu/soiltest123/Georgia.htm). A soil test provides recommendations for lime and fertilizer prior to planting. However, while lime may be required to achieve the proper pH in the soil for optimum plant growth, fertilizer is not recommended for native grass meadows because it will encourage weeds that compete with grasses.
- Make note of any existing plants that have to be eliminated before the meadow can be established. If the site is overgrown with invasive plants, brush or scrub trees, it may be a candidate for restoration instead of rehabilitation. On the other hand, if the site contains a significant number of native plants, then adding a few native grasses to increase the diversity of the site may be all that is needed.
- Right-of-ways under power lines will require frequent monitoring during establishment because birds roosting on the lines and mammals grazing on plants in the open field may introduce unwanted weed seeds.
- Observe plant communities adjacent to the planting site and the potential for wind, water or wildlife to transport seeds from those communities into the grass meadow.

Determine your budget and equipment needs

- Determine early in the planning process how much money the project costs and how much time and energy must be devoted to the project, not only for the initial installation, but also for follow-up management.
- Determine the types of plants or seeds needed and their costs. Some grasses can be established from seeds, while others can be established from plugs (small well-rooted plants grown from seed). Consider the cost of each of these alternatives. Seeds or plugs will need to be ordered in advance. Some native grasses simply are not available in the trade, so seeds or plants must be harvested from the wild. Often this requires the assistance of a knowledgeable botanist to identify plants and to determine the best time to harvest seeds or plants. Sometimes the Georgia Native Plant Society (www.gnps.org) or the Georgia Botanical Society (www.gabotsoc.org) sponsor field trips for persons interested in collecting native plants or seeds. It is illegal to harvest seeds or plants from private property without first obtaining permission from the landowner, and the collection of plants or seeds from land owned by federal or state agencies is prohibited. Most native grasses available from nurseries are propagated from seed.
- A mower will be required during establishment to prevent annual weeds from competing with and shading out the new plants. A mower that can be adjusted to a cutting height of 5 to 6 inches is ideal.
- A sprayer for applying herbicides will be needed to eliminate unwanted vegetation prior to planting or to target specific weeds during establishment.
- Large restoration sites may require cultivation at two-week intervals prior to planting to eliminate unwanted vegetation. A contractor may be required for these large tasks, which will add to the cost.

Plan for a diverse plant community that matches the site conditions

- The typical Southeastern grass meadow is a mixture of both cool-season grasses and warm-season grasses, a few sedges and a variety of forbs, like legumes, sunflowers, mints, goldenrods and milkweeds. Make certain the newly introduced plants require the same sunlight exposure, soil type and drainage as that of the existing native vegetation.
- Including a variety of forbs along with grasses will create a more natural balanced environment. However, make certain the mature heights of the forbs added to the mix do not exceed those of the grasses. Otherwise, shading can occur, and the grasses will struggle to get established.
- Where weeds are a problem, a mixture of grasses and forbs that are taller or more aggressive than the weeds may be needed.

Options when preparing the site

- If any type of soil disturbance is done, expect weed seed germination. Regular cultivation for one or two growing seasons prior to planting may be necessary to reduce weed competition. A combination of disking and shallow cultivation can be effective. Disking places some weed seeds too deeply in the soil to germinate. Light cultivation six to eight weeks after disking will kill any newly geminated weeds on the soil surface. Repeat these steps as necessary.
- Sites dominated by weeds may require an aggressive approach using a combination of cultivation to encourage weed seed germination and herbicide applications to kill the newly germinated weeds. Repeated herbicide applications will gradually deplete the weed seed bank in the soil and reduce successive weed populations.
- In some areas, controlled burning to eliminate existing vegetation is allowed. Check with your local office of the Georgia Forestry Commission to determine whether controlled burning is allowed in your area and the requirements for doing it.
- Heat sterilization (solarization) is another option for small areas. This involves placing sheets of clear plastic over the unwanted vegetation and sealing it along the edges with soil or rocks. The elevated temperatures under the plastic will kill herbaceous weeds, but it may not eliminate established woody vegetation. This technique works best during the warm summer months.

Planting

- When purchasing seeds or plants, make certain they are adapted to your geographical region. Plants produced from seed harvested from native grasses growing in the western prairies or desert regions of the U.S. may not be well adapted to the Southeast, even if the species is recommended for the area. Botanists and horticulturists often refer to “ecotypes” that are subspecies or varieties adapted to a particular set of environmental conditions. A plant’s place of origin or “provenance” is known to influence the adaptability of its offspring to a particular set of environmental conditions.
- Warm-season grasses are best planted from April to June, while cool-season grasses do best when planted from September to October.
- On sites prone to erosion, a cover crop, such as winter wheat (an annual), may need to be planted along with the grasses and forbs to help stabilize the soil during establishment.
- Plant forbs in colonies of several plants between the grasses. Clusters of forbs will not only be more visible, but also will do a better job of attracting pollinators.
- Seeds need to be in contact with the soil for best germination. When planting plugs, place the crown (the area between the base of grass blades and the roots) slightly below ground level.
- Native grasses grow well in soils having low fertility. Avoid fertilizing after planting because it will encourage weed competition.
- Supplemental irrigation may be necessary during periods of limited rainfall for at least three to six weeks while the seeds are germinating and the plants are establishing.

Management

Managing a grass meadow requires annual observations as to how the plants are moving around, re-seeding and spreading. Also observe the balance of grasses to forbs and make note of unwanted weeds. A grass meadow is an ever-changing panorama as the balance of grasses to forbs is influenced by changing weather patterns and new plants introduced by passing wildlife or wind. Unlike a highly manicured cultivated landscape that is carefully managed and manipulated by mowing, pruning and fertilization, Mother Nature manages a native grass meadow.

- One of the greatest challenges is to distinguish the good weeds from the bad weeds. Some weeds are tame and offer little competition for the grasses and forbs. Others are considered “thugs” that spread rapidly from rhizomes or seeds

and are hard to control. Examples are Burdock, Yellow Star Thistle (annual), Canada Thistle, Bermudagrass, Nutgrass, Crab Grass (annual), Crown Vetch, Canada Goldenrod, Johnsongrass and Chinese Lespedeza.

- In natural environments, grass meadows are managed by grazing from wildlife or livestock, or they are burned back by wildfires or controlled burns. Occasional mowing to a height of 5 to 6 inches can substitute for grazing. Mowing from late May through June will scatter seeds and rejuvenate cool-season grasses, then mowing again in late winter will scatter seeds and rejuvenate warm-season grasses. To encourage forbs to seed in and multiply, rake off the residue after mowing. Raking scatters the seeds of forbs, helps seed-to-soil contact and allows light to reach the new plants. Otherwise, if the planting is well-balanced with grasses and forbs, leave the mowing residue in place to act as natural mulch.
- Controlled burning is an alternative to mowing in areas where outdoor burning is allowed. Check with your local division of the Georgia Forestry Commission for laws and regulations regarding controlled burns. Annual burning once the grass meadow is fully established (three to five years after planting) will rejuvenate the planting.

Guide to Plant Descriptions

Native grasses and sedges described in this publication are listed alphabetically according to their botanical name. Grasses are divided into two categories: warm-season grasses and cool-season grasses. The appendix contains a Guide for Selecting Native Grasses and Sedges according to their growing requirements and usages. Information on each plant is provided according to the following criteria:

Common Name(s) / Botanical Name
Life Cycle
Characteristics
Cultural Requirements
Time of Bloom
Suggested Uses
Georgia Hardiness Zones
Size
Habitat
Native To
Propagation
Comments

Common Name(s) / Botanical Name: Many of the plants have more than one common name. Those that are most often used are listed. For this publication, *Flora of Southern and Mid-Atlantic States* by Alan S. Weakley, North Carolina Herbarium, was used as the definitive source for botanical names. Plants that were re-classified into a new genus also show the previous botanical name in the form of a synonym (syn.) after the current name.

Life Cycle: Native grasses may be annuals or perennials, while sedges are perennials. Annuals flower, fruit and die in one growing season. Perennials flower and fruit each year, and they live for several years.

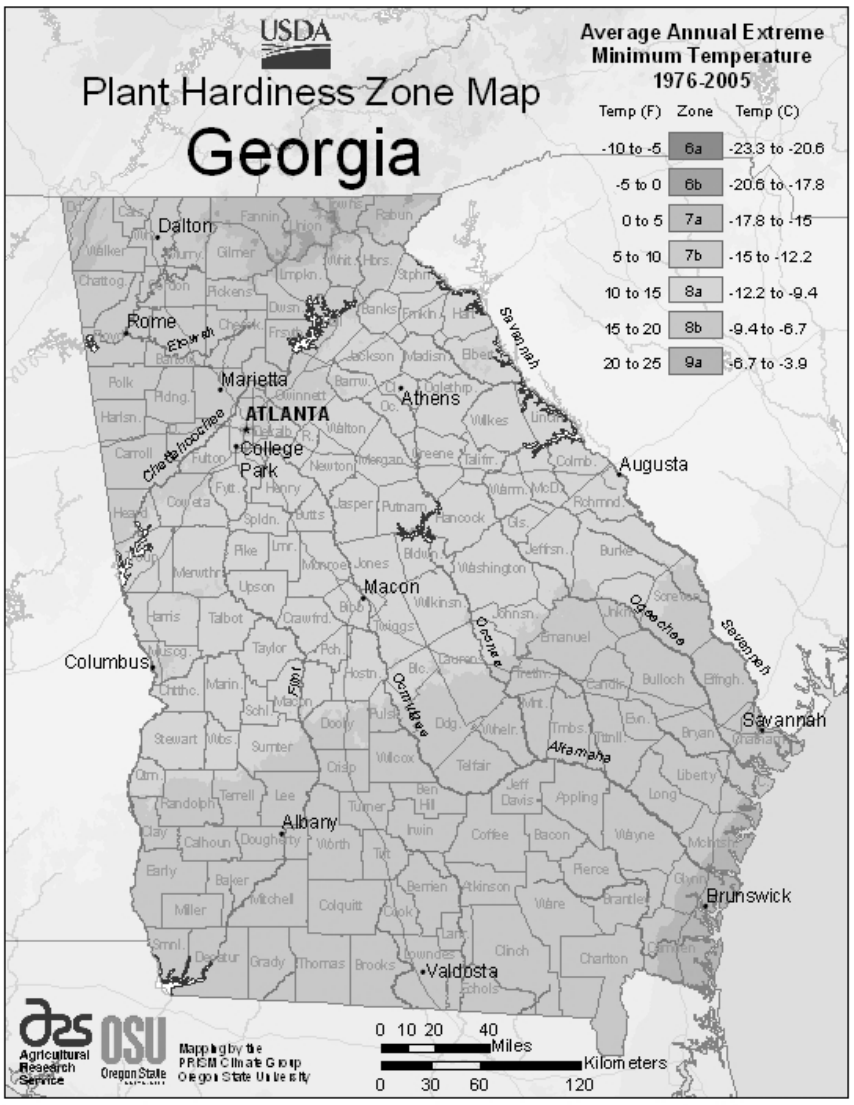
Characteristics: This section provides a botanical description of the plant that will assist the reader in identifying it. Noteworthy characteristics such as growth habit, leaf arrangement or shape, flower type and color, and seed structure are provided.

Cultural Requirements: A description of the type of growing environment the plant needs to thrive, such as the light level, soil type and soil conditions, is provided. Other information useful in managing the plant, such as pruning to remove old foliage prior to new growth or pruning before seed set to prevent seed dispersal, is included where appropriate.

Time of Bloom: The months of the year when the plant typically flowers in Georgia.

Suggested Uses: Some grasses are used for controlling erosion or restoring disturbed sites. Others are used in wildlife habitats. Still others may have ornamental value and are used in cultivated landscapes. The growing requirements and native habitat of the plant are considered when providing suggested uses.

Georgia Hardiness Zones: The Cold Hardiness Zones in Georgia to which the plant is adapted are shown here. These zones are based on the 2012 U.S. Department of Agriculture Hardiness Zone Map for the United States. Figure 2 shows the 2012 Cold Hardiness Zones for Georgia.



Cold Hardiness Zones in Georgia (Credit: U.S. Department of Agriculture, 2012).

Size: The expected mature height and/or spread of the plant under ideal cultural conditions.

Habitat: The environment(s) in which the plant is found in the wild.

Native To: A general description of the region within the continental U.S. where the plant is presently found in its native habitat.

Comments: Additional information about the plant that the reader may find interesting.

Botanical Terms Used to Describe Grass and Sedge Plants

Terminology used to describe the parts of grasses and sedges differs from that of herbaceous or woody plants. The illustrations in figures 1, 2 and 3 show terms commonly used to describe the parts of grasses and sedges, followed by definitions of the terms used in the figures. A glossary at the end of this publication provides the reader with additional definitions of terms used elsewhere in this publication.

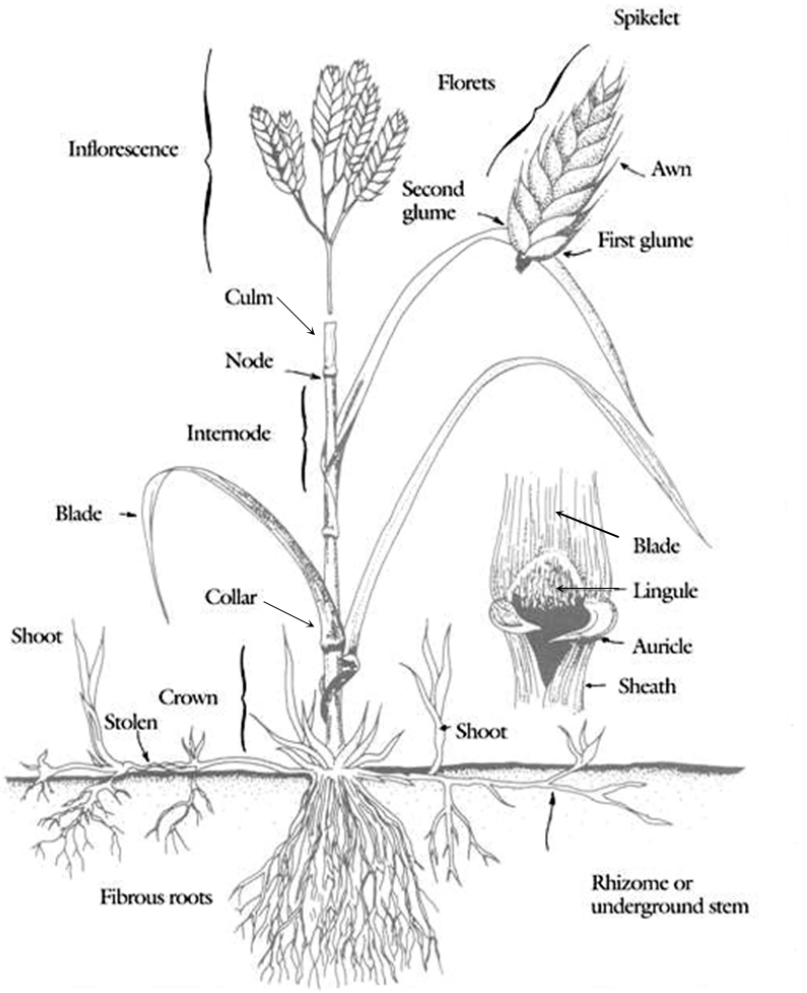


Figure 1. Parts of Grass and Sedge Plants (Credit: National Drought Mitigation Center, Lincoln, Neb.).

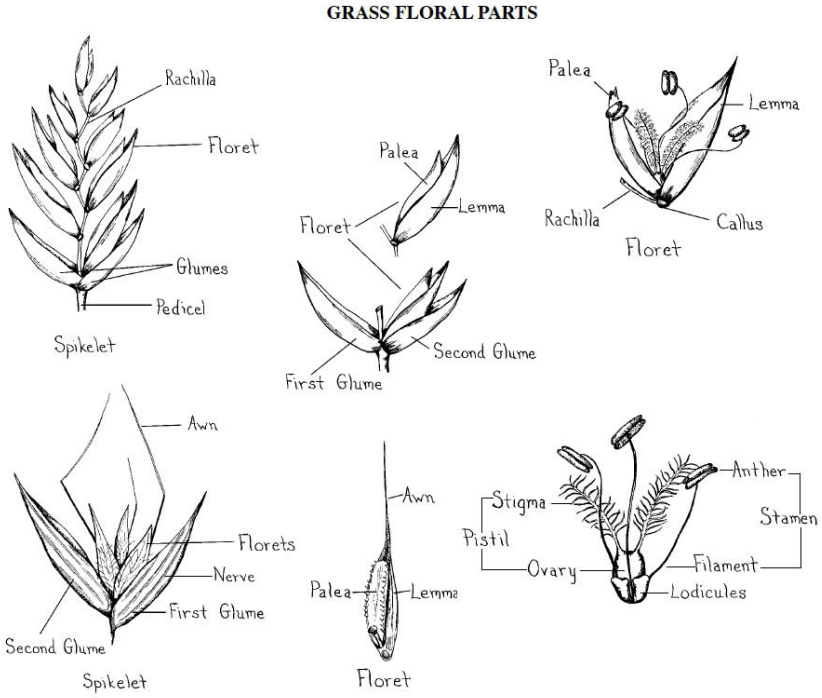


Figure 2. Grass Floral Parts (Credit: Norman Melvin, USDA Cold Region Research and Engineering Laboratory).

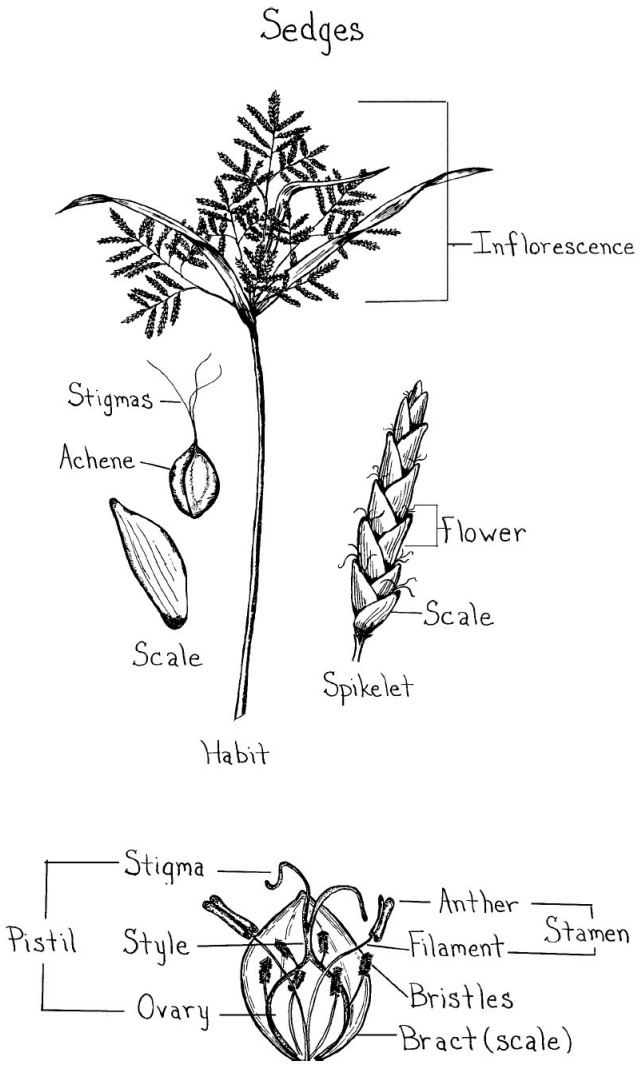


Figure 3. Sedge Floral Parts (Credit: Norman Melvin, USDA Cold Region Research and Engineering Laboratory).

Definitions of Terms Shown in the Figures

Achene: A dry single-seeded fruit.
Awn: A bristle-like appendage on a floret or seed, often the extension of veins in glumes or lemmas.
Anther: The male floral part in which pollen is produced.
Blade: The broad, flattened portion of the leaf.
Bract: A modified leaf at the base of the ovary. It is also called a scale.
Bristles: Reduced or modified leaves with numerous hairs, usually in association with the ovary.
Callus: A thickened raised area of hardened tissue.
Collar: The outside area of a grass leaf where the blade and sheath join.
Crown: The basal portion of the plant just above ground level.
Culm: A hollow or pithy stalk or stem.
Filament: The stalk of the male portion of a flower to which the anther is attached.
First glume: The lower of the two glumes and just below the first floret. It is usually the smaller of the two glumes, or it may be entirely absent.
Floret: A unit within a grass spikelet usually comprised of a lemma, palea, two to three lodicules and the grass reproductive parts.
Glumes: The lower one or two sterile bracts at the base of a spikelet.
Inflorescence: A collective term used to describe the overall floral part of the plant.
Internode: The portion of the culm between two nodes.
Lemma: The lower of the two bracts enclosing a flower (floret) above the glumes. It is the most modified of the bracts and the last to disappear.
Ligule: A membranous structure on the adaxial leaf surface adjacent to the sheath.
Lodicules: Modified (reduced) perianth parts.
Nerve: The vein of a glume.
Node: The joint of a grass stem (culm) where the leaves and branches originate.
Ovary: Part of the flower that encloses the ovules containing seeds.
Palea: The inner of the two bracts, enclosed by the edges of the lemma.
Pedicel: The stalk of a single flower.
Pistil: The female floral part.
Rachilla: The secondary axis of a compound leaf or inflorescence.
Scale: Leaflike structure found at the base or outside of the flower. It is also called a bract.
Second glume: The glume opposite to the first, usually larger glume. When the first is lacking, the second glume is on the opposite side of the first floret.
Sheath: The lower part of a grass leaf that encloses the stem.
Shoot: The above-ground portion of a plant.
Spikelet: An inflorescence with one or two glumes at the base and containing one or more florets.
Stamen: The male part of a flower.
Stigma: The distal end of the style, which is receptive to pollen.
Style: Pollen tube connecting the stigma to the ovary.
Stolon: A horizontal above-ground stem that roots along its nodes. It is also called a runner.
Rhizome: A horizontal underground stem.

Warm-season Grasses

Upland Bentgrass, Autumn Bentgrass / *Agrostis perennans*

Life Cycle: Perennial

Characteristics: A tufted grass having unbranched, leafy light-green culms. Leaf blades are medium green, ⅛ to ¼ inch wide and 2 to 10 inches long. At the junction of each blade and sheath there is a white membranous liqule. The nodes along each culm are green and swollen. Each fertile culm terminates in an open branched panicle, 3 to 12 inches long and 1½ to 6 inches wide, having a zigzag rachis. Each spikelet has two prominent glumes that resemble a pair of tiny claws. The green inflorescence is more open and airy in shady locations, and it turns tan in fall. The plant self-seeds and forms small colonies. The root system is fibrous.

Cultural Requirements: This grass adapts to a wide variety of cultural conditions, from moist to dry soils in full sun to light shade.

Time of Bloom: September, with spikelets persisting through October.

Suggested Uses: Use Upland Bentgrass in open areas, such as right of ways and meadows.

Georgia Hardiness Zones: All of Georgia

Size: 1 to 3 feet tall

Habitat: Dry or moist thickets, rocky open woodlands, thinly wooded bluffs, wooded openings, prairie swales. In woodlands, it is often found growing at the base of deciduous trees.

Native To: Maine, south to Florida, west to Texas and north to North Dakota.

Comments: A number of caterpillars feed on the foliage, and the seeds are eaten by a variety of birds and mammals. The foliage is grazed by livestock.

Images: Page 23

Big Bluestem, Turkeyfoot / *Andropogon gerardii*

Life Cycle: Perennial

Characteristics: Big Bluestem is a tall bunch prairie grass often used for grassland restoration in the central and southern plains. It makes premium hay. Leaves are up to 2 feet long and ½ inch wide. Lower leaves are hairy near their bases. Flower clusters are spike-like racemes with purple, brownish purple, yellow or brownish yellow coloration. The flowers rise above the foliage in late summer and branch from one central point into three 4-inch-long segments that some say resemble a turkey's foot. The internodes of flowering stems have a barber-pole appearance with rosy or creamy coloration alternating with green. Leaves take on a purple hue in fall and are russet in winter.

Cultural Requirements: Big Bluestem prefers full sun to partial shade and moist, well-drained soils. Once established, it is drought-tolerant. It also can tolerate periodic flooding. When given too much shade, too much water or too much fertilizer it will flop over and look unsightly. It spreads by seed and can be aggressive under good cultural conditions. Mow or cut back the plant in late winter to make way for new spring growth. It also comes back well after controlled burning.

Time of Bloom: August through September, with showy fruit from late September through November.

Suggested Uses: Use Big Bluestem in sunny meadows, open woodlands, wildlife habitats or sunny perennial borders. Its large stature, blue-green foliage, branched seed-heads and russet winter color add visual interest to the landscape. The plant also provides winter protection and food for birds and small mammals. It also is useful for erosion control on slopes.

Georgia Hardiness Zones: All of Georgia

Size: 4 to 8 feet tall

Habitat: Low meadows, dry barrens and woodlands, cliffs, rock outcrops and prairies.

Native To: Most of eastern North America, as far west as Montana and Arizona.

Comments: The flowering stems and leaf sheaths of most of the *Andropogon* species have a bluish cast on their emerging culms in the spring, so the plants are commonly called Bluestems. Big Bluestem is a larval host for the Delaware Skipper and Dusted Skipper butterflies. It also provides cover and nesting sites for a variety of songbirds. Big Bluestem was once the dominant prairie grass covering a large portion of the Midwest. It was the predominant food source for the millions of bison that once roamed the Great Plains. When settlers plowed under Big Bluestem on their western migration, there was nothing left to keep the dirt from blowing away, so the loss of this plant is said to have contributed to the historic Dust Bowl of the 1930s. Big Bluestem is also a Southeastern grass, especially in the Coastal Plain. It is less common in the Piedmont. It is quick to establish from plugs or seeds planted in late winter or early spring.

Images: Page 23

Bushy Bluestem / *Andropogon glomeratus*

Life Cycle: Perennial

Characteristics: Bushy Bluestem is a narrow bunch grass with flattened blue-green linear leaf blades up to 10 inches long and ¼ to ½ inch wide. In late summer, dense, silvery pink to white panicles are borne on the terminals of culms. After the first frost, the foliage and panicles turn bronze and the panicles become fluffy.

Cultural Requirements: Bushy Bluestem prefers full sun and moist to wet soils. It is not tolerant of dry sites. Cut clumps back to the ground in late winter to make way for new spring growth.

Time of Bloom: September. Fruiting stalks linger through February.

Suggested Uses: Bushy Bluestem is a handsome grass for moist, low-lying areas. It provides good erosion control on slopes. Foliage is a larval food source for butterflies, and birds and other wildlife relish the seeds in winter. The plant can spread aggressively under ideal cultural conditions.

Georgia Hardiness Zones: All of Georgia

Size: 3 to 4 feet tall and 2 to 3 feet wide

Habitat: Peripheries of swamps, marshes, low pastures and moist areas.

Native To: New York, south to Florida, west to Arkansas, Oklahoma, New Mexico, Utah and California.

Comments: Flowering plumes hold up well in dried floral arrangements. Bushy Bluestem can be established from plugs or seeds.

Images: Page 24

Elliot's Bluestem, Elliot's Beardgrass, Elliot's Broomsedge / *Andropogon gyrans* (syn. *Andropogon elliottii*)

Life Cycle: Perennial

Characteristics: Elliott's Bluestem is not a very abundant grass where it is found, but it is one of the most conspicuous of all the bluestems. It is a small bunch grass. In the fall, large inflated spathes surround the inflorescences and give the plant a top-heavy look. Inner surfaces of these spathes are copper colored, smooth and shiny.

Cultural Requirements: Elliot's Bluestem prefers full sun to partial shade. It will grow on both moist and dry sites and poor soils.

Time of Bloom: September to October

Suggested Uses: Use Elliot's Bluestem in dry, open meadows, open woodlands, on hills or in wildlife habitats.

Georgia Hardiness Zones: All of Georgia

Size: 2 to 3 feet tall

Habitat: Dry to moist open pine or oak woodlands, fields and roadsides.

Native To: New Jersey, west to Illinois, south to Texas and east to Florida.

Comments: Elliot's Bluestem is grazed readily by cattle and has a high protein content when it is green. This grass is quick to establish from plugs. Seeds of this grass are expensive.

Images: Page 24

Splitbeard Bluestem, Silver Bluestem / *Andropogon ternarius*

Life Cycle: Perennial

Characteristics: Stems have alternating stripes of rose and green along their internodes. They bear narrow blue-green leaves that turn bronze in the fall. In late summer, silvery-white fluffy seed heads are borne along the upper portions of the stems.

Cultural Requirements: Splitbeard Bluestem likes hot, dry sites, full sun to partial shade and infertile sandy soil. Cut plants back in late winter to make way for new spring growth.

Time of Bloom: September

Suggested Uses: Splitbeard Bluestem is a good plant for wildflower meadows, open woodlands or wildlife habitats. It is often mixed with broomsedge in roadside fields. It looks striking in the early morning light.

Georgia Hardiness Zones: All of Georgia

Size: 4 feet tall and 2 feet wide

Habitat: Prairies, meadows, savannas and open woodlands.

Native To: New Jersey, south to Florida, west to Texas, and north to Kansas and Missouri.

Comments: Seeds are eaten by a variety of birds and small mammals. Rabbits browse the foliage. Seed tufts also are used by birds for nesting materials. Tufted stems hold up well in dry floral arrangements. The plant is somewhat slow to establish from plugs or seeds.

Images: Page 25

Little Bluestem, Bunchgrass (see *Schizachyrium scoparium*)

Broomsedge / *Andropogon virginicus*

Life Cycle: Perennial

Characteristics: Broomsedge is a bunch-forming grass. Young stems are green when young, turn coppery bronze as they mature, then fade to tan in fall and winter. Leaves are folded in the shoot and lack auricles at their bases. Leaf blades are approximately ¼ inch wide and 4 to 24 inches long. They are hairy near their bases. In the fall, thin panicles of flowers are produced on the upper half of stems, but they are surrounded by leaves and somewhat hidden. The flowers are inconspicuous until the hairy spikelets start to emerge, dispersing their seeds into the wind.

Cultural Requirements: Broomsedge prefers full sun or partial shade and well-drained soil. It will adapt to both moist and dry sites. It can be controlled with a herbicide should it escape to areas where it is not wanted.

Time of Bloom: September to November

Suggested Uses: Broomsedge is not recommended for cultivated landscapes because it can be invasive. It is considered an exotic invasive plant in Hawaii and California. However, it is an excellent plant for use in wildlife habitats as well as meadow and prairie restoration projects. It also is an excellent plant for reclaiming disturbed land, such as mining sites and landfills. It provides excellent erosion control on slopes.

Size: 3 feet tall and 2 feet wide

Georgia Hardiness Zones: All of Georgia

Habitat: Dry fields, thin woods and the shores of ponds.

Native To: Massachusetts, west to Michigan, Illinois and Iowa, south to Texas and east to Florida. It is also found in the District of Columbia.

Images: Page 25

Arrowfeather Threeawn / *Aristida purpurascens*

Life Cycle: Perennial

Characteristics: Arrowfeather Threeawn is a clumping grass with stiffly erect culms. Leaves are alternate, 4 to 8 inches long and less than ⅛ inch wide, curled, with a few hairs at their bases. In late summer, purplish-gray panicles, 4 to 12 inches long, are borne on the terminal of nodding culms. Flowers are minute and barely visible to the naked eye. Spikelets have pronounced awns, ½ to ¾ inch long. They drop off a few weeks after the seeds ripen. There are barb-like hairs at the base of seeds that help them anchor to the soil.

Cultural Requirements: Arrowfeather Threeawn grows in full sun to partial shade and dry, well-drained sandy or limestone soils. It adapts to poor soils and is drought-tolerant once established. It spreads readily by seed, so cut back plants before seed set to prevent re-seeding.

Time of Bloom: August to October

Suggested Uses: This grass is primarily used in natural landscapes and habitat restorations.

Georgia Hardiness Zones: All of Georgia

Size: 24 to 30 inches tall

Habitat: Pinelands, prairies and uplands. It is rare in the mountains.

Native To: The eastern United States.

Comments: Arrowfeather Threeawn is the larval host for Meske's Skipper butterfly. It is the most common wiregrass in the Piedmont. This grass is easy to establish from plugs. Seeds are not readily available.

Images: Page 26

Southern Wiregrass, Beyrich Threeawn / *Aristida stricta var. beyrichiana* (syn. *Aristida beyrichiana*)

Life Cycle: Perennial

Characteristics: Southern Wiregrass is a fine-textured bunch grass. Leaf blades are approximately 3 feet long and ⅛ inch wide. The blades are hairy, rolled and appear wire-like. The foliage turns chartreuse-yellow in fall. Fire during the growing season encourages flowering. Flowers are tiny and held close to the flower stalk. Each seed has three distinct hair-like awns protruding from one end that look like blades of a helicopter. They help the seeds float in breezes.

Cultural Requirements: Southern Wiregrass prefers sandy, dry soil and full sun to partial shade. Cut the plant back in late winter to encourage new growth. Controlled burning encourages flowering and production of mature seed.

Time of Bloom: Summer

Suggested Uses: Southern Wiregrass is used in habitat restoration projects. It also can be used in perennial borders, rock gardens, meadows and open woodlands.

Georgia Hardiness Zones: 8, 9 (Coastal Plain)

Size: 3 feet tall and 1 foot wide

Habitat: Sandhills, flatwoods and dry prairies in the Coastal Plain. It is a dominant understory plant in longleaf pine savannahs. It is an excellent plant for helping with vegetation management during controlled burning because it burns evenly at the appropriate intensity to kill unwanted vegetation in the understory.

Native To: South Carolina, Georgia, Florida, Alabama and Mississippi.

Comments: Wiregrass grows in habitats favored by gopher tortoises and quail. It provides valuable cover for birds, reptiles and small mammals. The Seminole Indians used this plant to make baskets. Several other *Aristida* species, both annual and perennial, grow in Georgia. All are characterized by three awns on their seed heads and tan curly leaves at their bases.

Images: Page 27

Side Oats Grama / *Bouteloua curtipendula*

Life Cycle: Perennial

Characteristics: This is a dense clumping grass with weeping foliage. Leaf blades are narrow, bluish-green, up to 12 inches long and ¼ inch wide. They turn golden brown with a rosy hue in fall. In late summer, numerous spikelets are borne along one side of arching stems that rise above the foliage. The spikelets turn tan in late summer and persist into fall.

Cultural Requirements: Side Oats Grama prefers full sun to partial shade and dry soil having a neutral to slightly alkaline pH. It adapts well to variety of soil types, from clay loams to sandy or rocky areas.

Time of Bloom: July and August

Suggested Uses: This is a good plant for erosion control on slopes or right-of-ways, prairie restoration, wildlife gardens or wildflower meadows. It also is a nice accent plant in perennial borders. Taller grasses often crowd out this grass, so plant it with small, non-aggressive species.

Georgia Hardiness Zones: 7, 8

Size: 3 feet tall and 2 feet wide

Habitat: Limestone glades, dry upland prairies and open rocky woodlands.

Native To: All the U.S., except Nevada, Massachusetts, New Hampshire and Vermont.

Comments: Side Oats Grama is the state grass of Texas. The plant is a food source for the larvae of several butterflies, and the seeds are eaten by a variety of birds. The foliage is grazed by a number of mammals and used by birds as nesting material. It is highly regarded in the shorter grasslands of North America as a forage plant. However, it also is an attractive ornamental plant for use in cultivated landscapes.

Images: Page 27

Sweet Wood Reed, Stout Wood Reed / *Cinna arundinacea*

Life Cycle: Perennial

Characteristics: Small tufts of erect blue-green culms bear grayish-green leaves 12 inches long and ½ inch wide. The leaf blades tend to droop toward their tips. In late summer, each culm terminates in a gray-green panicle up to 12 inches long and 5 inches across. The spikelets have a reddish-brown hue. The root system is fibrous and rhizomatous.

Cultural Requirements: Sweet Wood Reed prefers partial shade and moist soil having abundant organic matter.

Time of Bloom: August to September

Suggested Uses: Use Sweet Wood Reed for erosion control, in storm-water retention ponds or in wildlife habitats and natural areas.

Georgia Hardiness Zones: All of Georgia

Size: 3 to 5 feet tall

Habitat: Maine, south to Georgia, west to Texas and north to North Dakota and Montana.

Native To: Wooded floodplains, swamps, thickets and damp savannas.

Comments: This is a tall, attractive grass. Birds and small mammals use the plant for food, cover and nesting material.

Images: Page 28

Bigtop Lovegrass, Stout Lovegrass / *Eragrostis hirsuta*

Life Cycle: Perennial

Characteristics: Leaves are mostly basal, up to 12 inches long and ¼ to ½ inch wide. They are hairy where they join the stem. This bunch grass is barely visible until late August when showy panicles, 4 to 5 feet high and 2 feet wide, rise above the foliage. The silvery-green lacy plumes bear seeds tinged with purple. The inflorescence is airy and floats like a cloud above the foliage. The plant turns whitish-tan in fall.

Cultural Requirements: Bigtop Lovegrass prefers full sun and well-drained soil. It tolerates poor, infertile soil and has good drought tolerance. Seeds are dust-like, germinate readily and can be directly seeded.

Time of Bloom: Late August into October

Suggested Uses: This is an excellent grass for use with larger, more dominant grasses. The airy seed heads allow adjacent plants in bloom to be seen.

Georgia Hardiness Zones: All of Georgia

Size: 3 feet tall and 2 feet wide.

Habitat: Sandy, dry soils. It is mostly found in the Coastal Plain.

Native To: Maine, Massachusetts, New Jersey, south to Florida, west to Texas and north to Illinois and Ohio.

Comments: The fluffy panicles catch the morning dew and sparkle in the sun. This attractive fall bloomer could be used more often in grass seed mixes.

Images: Page 28

Purple Lovegrass / *Eragrostis spectabilis*

Life Cycle: Perennial

Characteristics: This is a fine-textured bunch-forming grass with a stiffly erect growth habit. The leaf sheaths are longer than the internodes and usually hairy at their tops. Leaf blades are up to 12 inches long and ⅛ to ⅜ inches wide, tapering to a fine point. In August, reddish-purple panicles, up to 15 inches long and 20 inches across, rise above the foliage. The panicles are open and airy and have a cloud-like appearance. The panicles turn purplish by late October, then detach from the plant in winter and disperse in the wind like tumbleweed to establish new colonies. Plants spread by seeds and short rhizomes.

Cultural Requirements: Purple Lovegrass prefers full sun to partial shade and well-drained soil. It tolerates poor, infertile soil and has good drought tolerance. It is intolerant of heavy, wet soils.

Time of Bloom: August to October

Suggested Uses: The plant makes an attractive showing when planted in groups in perennial borders, meadows or open woodlands. It is often used for erosion control on banks.

Georgia Hardiness Zones: All of Georgia

Size: 2 feet tall and 1 foot wide

Habitat: Disturbed sandy areas, upland prairies and savannas, limestone glades and along railroads.

Native To: Maine, south to Florida, west to Arizona and north to North Dakota.

Comments: This grass is generally inconspicuous until it blooms. The panicles have a purple glow when dew droplets on the spikelets reflect the morning sun. Purple Lovegrass is easy to establish from plugs. Seeds are expensive. Broadcast seeds on the surface of the soil in late winter or early spring.

Images: Page 29

Pink Muhly Grass, Hair-awn Muhly Grass / *Muhlenbergia capillaris*

Life Cycle: Perennial

Characteristics: Medium-green, erect leaves 2 feet long grow from a basal clump. The leaves are about $^{1}/_{16}$ inch wide and either flat or rolled inward. In the fall, masses of airy, pinkish flowers are formed in loosely branched inflorescences, up to 12 inches long. The flowers seem to float like pink clouds above the foliage and make a dramatic statement. The seed plumes are tan and persist throughout the winter.

Cultural Requirements: Pink Muhly Grass prefers full sun to partial shade and moist to dry, well-drained soil. Cut the plant back in late winter to make way for new spring growth.

Time of Bloom: September to October

Suggested Uses: Pink Muhly Grass makes a spectacular showing when planted in groups of three or more plants in perennial borders, wildflower gardens, roadsides, parks or golf courses.

Georgia Hardiness Zones: All of Georgia

Size: 3 feet tall and 3 feet wide

Habitat: Dry, exposed sites, such as rocky clay soils or open woodlands and savannas, in the Piedmont and Coastal Plain. It is restricted to calcareous outcrops in the mountains.

Native To: Massachusetts and New York, south to Florida, west to Texas and north to Kansas, Missouri and Illinois.

Comments: Pink Muhly Grass and Purple Muhly Grass, *Muhlenbergia sericea* (described below) are almost indistinguishable except by their location and habitat. Pink Muhly Grass is found in upland rocky and clay soils of the Piedmont and well-drained soils of the Coastal Plain, while Purple Muhly Grass is found in sandy areas between coastal dunes. Another species, Savannah Hairgrass or Cutover Muhly, *Muhlenbergia expansa*, grows in moist to wet acidic bogs, pine savannah and flatwoods in the Coastal Plain. Its flowers are similar to those of the other two species.

Images: Page 29

Purple Muhly Grass, Sweetgrass, Dune Hairgrass, Basket Grass / *Muhlenbergia sericea* (Syn. *Muhlenbergia filipes*)

Life Cycle: Perennial

Characteristics: Glossy, wiry dark-green leaves 2 feet long grow from a basal clump. In the fall, masses of small, pinkish-red flowers are formed in loosely branched inflorescences, up to 1 to 2 feet long. The airy panicles are an intense pinkish-purple color and appear to float like a cloud above the foliage, making a dramatic statement. After flowering, the seed plumes turn tan and remain on the plant throughout the winter. This species blooms somewhat later than *Muhlenbergia capillaris*.

Cultural Requirements: Purple Muhly Grass prefers full sun and sandy soil. It tolerates heat, humidity and a wide range of moisture regimes. It adapts to dry sites and is drought-tolerant. Cut the plant back in late winter to make way for new spring growth.

Time of Bloom: Late September to November

Suggested Uses: Purple Muhly Grass makes a dramatic showing when planted in groups in perennial borders, on banks and dry, exposed, full-sun sites. It is an excellent plant for use in parks, along roadsides or on golf courses.

Georgia Hardiness Zones: 8, 9

Size: 4 feet tall and 2 feet wide

Habitat: Purple Muhly Grass is found in the Coastal Plain on low-lying dunes, along the edges of brackish and freshwater marshes and on barrier islands.

Native To: Coastal areas from North Carolina, south to Florida and west to Texas.

Comments: The Gullah people of the Lowcountry in South Carolina, descendants of enslaved Africans, have used Purple Muhly Grass for centuries to make woven sweetgrass baskets. During recent years, urban development and over-harvesting have diminished the native population of Purple Muhly Grass in South Carolina and forced basket makers to Georgia and Florida to find an adequate supply of the grass. This plant is often mistaken for *Muhlenbergia capillaris* (and vice versa).

Images: Page 30

Nimblewill, Nimbleweed / *Muhlenbergia schreberi*

Life Cycle: Perennial

Characteristics: This is a small clumping perennial grass. Leaves are 1 to 3 inches long and ⅛ to ¼ inch wide and flat, somewhat resembling Bermudagrass. The upper leaf surface has a prominent mid-vein and two lateral veins. Culms are bent at an angle and sprawling. They are light green to pale purple and hairy. In the fall, elongated panicles of spikelets rise above the foliage. They are 3 to 15 inches long, 1 inch wide, purplish green and silky. Plants spread by creeping culms that root at their nodes and by seed dispersal.

Cultural Requirements: Nimblewill prefers full sun to partial shade, moist to mesic conditions and rich loamy soil. It is also adapted to acidic sands and moist rocky areas. It prefers sites that have been previously disturbed.

Time of Bloom: Fall, beginning in October.

Suggested Uses: Nimblewill is one of the few grasses that will thrive in shaded, moist sites. It can be used to suppress the invasive exotic Japanese Stiltgrass, *Microstegium vimineum*, which also thrives in shaded moist areas. Its non-uniform growth habit makes it an undesirable turfgrass alternative.

Georgia Hardiness Zones: 6, 7

Size: Vegetative parts are less than 8 inches tall. Bloom stalks can reach 15 inches.

Habitat: Moderately moist rocky slopes and ravines, open woodlands and along stream banks.

Native To: Throughout eastern North America, from Texas west to Arizona and north to Utah and South Dakota. It is found at elevations between 200 and 5,000 feet.

Comments: Nimblewill is on the noxious weed list in California where it is not native. It is a good grass for stabilizing soil and suppressing weeds, but it can be invasive in turfgrass. Nimblewill is easy to establish from plugs installed in the early spring or seed broadcast on the surface of the soil in the fall.

Images: Page 30

Beaked Panic Grass / *Panicum anceps* (Syn. *Coleataenia anceps*)

Life Cycle: Perennial

Characteristics: Leaf blades are elongated, flat, pubescent, ¼ to ½ inch wide and up to 4 feet long. The inflorescence is an open panicle, 6 to 14 inches long. Spikelets are ¼ to ⅛ inch long. The second glume of the spikelet is curved at the end and resembles a bird's beak. Rhizomes are scaly and resemble a chicken's foot. The plant spreads by seed and rhizomes and will form colonies.

Cultural Requirements: Plant Beaked Panic Grass in full sun to partial shade. It is less aggressive in shade. It adapts to a wide variety of soils and moisture conditions, from very wet to dry.

Time of Bloom: July to September

Suggested Uses: Beaked Panic Grass is a good plant for stabilizing disturbed erosion-prone areas. Its seed provides food for insects and birds. It also can be used in open woodlands and meadows.

Georgia Hardiness Zones: All of Georgia

Size: 4 feet tall and spreading

Habitat: Woodlands, meadows, margins of freshwater marshes, moist flatwoods, bottomlands, swamps, disturbed fields and roadsides.

Native To: New York, south to Florida, west to Texas and north to Kansas and Iowa.

Comments: Deer may graze the seed heads but do not eat the leaves. The seeds also are eaten by a variety of birds. Birds, reptiles and small mammals use the plant for cover. Beaked Panic Grass is sometimes planted in pastures for grazing by cattle and horses. It is quick to establish from plugs or bare-rooted plants planted in the early spring. It is difficult to establish from seed. This grass is more common in the Piedmont and mountains than *Panicum virgatum* (described below).

Images: Page 31

Redtop Panic Grass / *Panicum rigidulum* (Syn. *Panicum agrostroides*, Syn. *Coleataenia longifolia*)

Life Cycle: Perennial

Characteristics: Stems are erect and hairy. Leaf blades are strongly ribbed, flat, folded at their bases and hairy. They are 8 to 20 inches long and ½ inch wide. The inflorescence is a branched panicle borne at the end of the culm. Spikelets are lance-shaped, ⅛ inch long and stalked.

Cultural Requirements: Plant Redtop Panic Grass in full sun and moist to wet soil. It will grow at the edges of ponds and doesn't mind being flooded.

Time of Bloom: August to October

Suggested Uses: This is a wetland plant, so use it in moist meadows or other areas that stay moist or wet.

Georgia Hardiness Zones: 7, 8

Size: 2 to 4 feet tall

Habitat: Wet flatwoods, bogs, swamps and wet edges of ponds and lakes where there are fluctuating water levels. This species is common in the Coastal Plain and rarely encountered in the Piedmont and mountains.

Native To: Maine to Florida, west to Texas and north to Wisconsin. It is also found in California and Oregon.

Comments: Unlike *P. anceps* and *P. virgatum*, which spread by rhizomes, this plant does not produce rhizomes. Redtop Panic Grass is easy to establish using plugs or seed. Seed should be broadcast on the surface of the soil in late winter or early spring.

Images: Page 31

Switchgrass / *Panicum virgatum*

Life Cycle: Perennial

Characteristics: This is a clump-forming grass with a stiff vertical form. Leaf blades are flat, ⅓ inch wide, 2 to 3 feet long and glabrous. They are green in summer and turn pale yellow in the fall. In late summer, pink-tinged, branched flower panicles appear above the foliage like airy clouds. The panicles turn beige as the seeds mature in the fall, and the seed plumes persist well into winter. The plant spreads by seed and rhizomes.

Cultural Requirements: Switchgrass prefers full sun to partial shade and moist, well-drained soil. It will adapt to dry soils and both clay or sandy soils. It can be invasive under ideal growing conditions. If seed dispersal and spread are a concern in cultivated landscapes, it can be cut back before the seeds are mature or confined to a specific area where its spread can be managed.

Time of Bloom: August to November

Suggested Uses: Use Switchgrass in meadows, open woodlands, wildlife habitats, erosion-prone sites or right-of-ways.

Georgia Hardiness Zones: All of Georgia

Size: 3 to 6 feet tall and 2 to 3 feet wide

Habitat: Dry or moist prairies, bluffs, stream banks, pine savannas and open woodlands.

Native To: Most of the continental U.S., except California, Oregon and Washington.

Comments: Switchgrass is one of the most dominant plants in tallgrass prairies of the central and western U.S. Birds use the plant for cover and nesting material, and they eat the seeds. Switchgrass also is a larval host for the Delaware Skipper Butterfly and the Dotted Skipper Butterfly. There are a number of cultivars of this plant in the nursery trade, such as 'Heavy Metal,' 'Cloud Nine,' 'Shenandoah,' 'Northwind' and 'Dallas Blues.' Cultivars used as forage crops include 'Alamo' and 'Cave-in-Rock.' There are both dry and wet ecotypes. Therefore, when collecting seed from natural colonies, make note of the habitat where the plants are growing. The offspring of plants growing on wet sites will not grow well on dry sites and vice versa. Switchgrass establishes quickly from either plugs or seed installed in late winter or early spring.

Images: Pages 31-32

Silver Plumegrass / *Saccharum alopecuroides* (Syn. *Saccharum alopecuroidum, Erianthus alopecuroides*)

Life Cycle: Perennial

Characteristics: Leaves are linear, up to 24 inches long and ½ to 1 inch wide with silver hairs at their bases. They are borne on tall reed-like stems rising 5 to 9 feet. In the fall, silky silvery-purple panicles, 8 to 12 inches long, rise above the foliage. They become more silver as they age, and they persist into winter.

Cultural Requirements: Silver Plume Grass prefers full sun and moist to dry well-drained soil. The plant self-seeds readily, so deadheading is recommended to prevent seed dispersal. Cut the foliage to the ground in late winter to make way for new growth.

Time of Bloom: September to October

Suggested Uses: Plant Silver Plume Grass in open meadows, open woodlands, fields or wildlife gardens. It is often used for habitat restoration. It makes a dramatic statement when several plants are used in the background of perennial borders.

Georgia Hardiness Zones: All of Georgia up to 2,300 feet in elevation.

Size: 3 to 9 feet tall and 2 feet wide

Habitat: Dry open sandy or rocky woodlands, slopes and fields.

Native To: New Jersey, south to Florida, west to Texas and north to Oklahoma, Missouri and Illinois.

Comments: This is an attractive grass that should be used more in landscapes. It is easy to establish from plugs installed in late winter or early spring.

Images: Pages 32-33

Giant Plumegrass, Sugarcane Plumegrass / *Saccharum giganteum* (Syn. *Erianthus giganteus*)

Life Cycle: Perennial

Characteristics: Giant Plumegrass is a tall, coarse-textured erect plant. Plumes emerge pinkish-red in August, fade to light pink in the fall, then turn silvery tan in winter. Autumn foliage color is bronze-red.

Cultural Requirements: Plant Giant Plumegrass in full sun or partial shade and moist to wet soil. It adapts to both sandy and clay soils. It makes a dramatic statement when planted adjacent to ponds or in wet ditches. It self-seeds and spreads by rhizomes, so dead-head it before the seeds mature and plant it in a confined area where its growth can be controlled.

Time of Bloom: September to October

Suggested Uses: Giant Plumegrass is best suited for moist meadows, ditches, open woodlands, wildlife habitats, bogs or pond edges.

Georgia Hardiness Zones: 8

Size: 6 to 12 feet tall and 3 to 4 feet wide

Habitat: Moist, open sandy areas, bogs, flatwoods, marshes and swales. It is mainly found in the Coastal Plain.

Native To: New York, south to Florida, west to Texas and north to Oklahoma, Missouri and Illinois.

Comments: This is an attractive grass for moist locations.

Images: Page 33

Little Bluestem, Bunchgrass / *Schizachyrium scoparium* (Syn. *Andropogon scoparium*)

Life Cycle: Perennial

Characteristics: Little Bluestem is a dense mounding plant with fine-textured foliage and a distinctive blue-green color. Leaves are 6 to 10 inches long and ⅛ to ¼ inch wide. In August, purplish-bronze flowers appear on 3-inch-long racemes. They are borne singly or in pairs along a zigzag rachis. The flowering stems have alternating nodes colored wine red and green for a barber pole effect. The foliage turns reddish-brown in fall.

Cultural Requirements: Little Bluestem prefers full sun to partial shade and moderately moist to dry well-drained infertile soil. It will not tolerate wet sites, but it will thrive on poor soils. Mow or cut the plant to the ground in late winter to make way for new spring growth. It re-grows well after prescribed burns.

Time of Bloom: September to October

Suggested Uses: Use Little Bluestem in meadows, wildlife gardens and on erosion-prone sites, such as rights-of-ways and roadsides. Its small stature and bunching growth habit make it a perfect grass for combining with other forbs.

Georgia Hardiness Zones: All of Georgia

Size: 18 to 24 inches tall and 12 inches wide

Habitat: Woodland edges and open woodlands, slopes, prairies, meadows, pastures, rock outcrops, roadsides and savannas.

Native To: Most of the continental U.S., except Nevada and Oregon.

Comments: This plant is a larval host for a wide variety of butterflies, and it provides food, shelter and nesting material for a number of birds and small mammals. The Coastal Plain of Georgia, southeastern Alabama and the Florida panhandle are home to several endemic species of Little Bluestem. Pickett's Mill Historic Site in Paulding County, Ga., is an excellent place to see meadows of Little Bluestem complementing legumes and other forbs in their natural habitat. Little Bluestem is quick to establish from plugs planted in late winter or early spring. It is slow to establish from seed. If seed is used, the site must be completely clear of other vegetation.

Images: Page 34

Knotroot Bristlegrass, Knotroot Foxtail / *Setaria parviflora* (Syn. *Setaria geniculata*)

Life Cycle: Perennial

Characteristics: This is a clumping terrestrial (non-aquatic) species. Stems are purple, erect or leaning, 14 to 28 inches long, with swollen nodes. They sometimes root at their nodes when they touch the ground. Leaves are mostly basal, flat, opposite, ¼ to ½ inch wide and 2 feet long with a few hairs at their bases. They often have a glaucous appearance in early summer. Flowering culms rise to 3 feet and bear terminal green panicles, ¾ inch wide and 2½ to 3 inches long, that turn tan to brown as they mature. Spikelets are subtended by four to seven stiff golden bristles, ⅛ to ¼ inch long. Plants spread by seeds and rhizomes.

Cultural Requirements: Knotroot Bristlegrass prefers full sun or partial shade and moist soil.

Time of Bloom: Summer

Suggested Uses: Knotroot Bristlegrass is used for wetland and wildlife habitat restorations in coastal meadows near salt marshes. It also can be used at pond edges and on floodplains of streams and rivers.

Georgia Hardiness Zones: All of Georgia

Size: 1 to 3 feet tall

Habitat: Flatwoods, hammocks, fresh and brackish marshes, coastal swales and disturbed sites, such as roadsides.

Native To: Washington, Idaho, south to Arizona, east to Florida and north to Iowa and New York.

Comments: Seeds are grazed by finches. There are several exotic species within this genus, but only two native perennial species: *Setaria parviflora* and *S. macrosperma*. Both native species are found in upland and wetland habitats such as fresh or brackish marshes. Knotroot Bristlegrass is easy to establish from plugs or seeds planted in late winter or early spring.

Images: Page 34

Slender Indian Grass / *Sorghastrum elliottii*

Life Cycle: Perennial

Characteristics: Slender Indian Grass is a non-rhizomatous clumping bunchgrass. Leaf blades are 8 to 21 inches long and ¼ to ½ inch wide. The inflorescence is an open arching panicle, 5 to 12 inches long. Spikelets are chestnut brown when they mature. Seeds have twisted awns that are 1 to 1½ inches long.

Cultural Requirements: Plant Slender Indian Grass in full sun to partial shade and dry to moist, well-drained sites. This species tolerates more shade and less moisture than *S. nutans*.

Time of Bloom: September to October

Suggested Uses: Because of its shorter stature and clumping habit, Slender Indian Grass is a good companion plant for forbs and legumes that grow between the grass clumps. Use it in open woodlands, meadows and wildlife habitats. It is an attractive grass for use in perennial borders of cultivated landscapes.

Georgia Hardiness Zones: All of Georgia. In the mountains, it is found in elevations up to 2,000 feet.

Size: 2 to 6 feet tall

Habitat: Dry or mesic open and shaded forests and sandy terraces on river scour areas. The grass is rare in the Blue Ridge Mountains.

Native To: Maryland, south to Florida, west to Texas and north to Oklahoma. It is also found in Indiana.

Comments: Indian grasses have two stiff and straight auricles (ears) at their ligules. This is a good way to distinguish them from other native grasses. Slender Indian Grass is easy to establish from either plugs or seed planted in late winter or early spring. Its seeds have long awns that should be removed before placing them in a seed drill.

Images: Page 35

Yellow Indian Grass / *Sorghastrum nutans*

Life Cycle: Perennial

Characteristics: Yellow Indian Grass is a tall clumping grass with green or blue-green leaves that are ½ inch wide and 2 feet long. The leaf blades have a pair of prominent auricles at their bases. The foliage turns orange-yellow in the fall and is quite striking in the fall landscape. In late summer, flowering culms rise above the foliage and terminate in narrow feathery, light golden-yellow panicles up to 12 inches long. Seed clusters persist throughout the fall. The plant spreads by seeds and rhizomes.

Cultural Requirements: Yellow Indian Grass will grow in sun or partial shade and is tolerant of a wide range of soils, from sands to heavy clays. It requires abundant moisture during establishment, but it adapts to both dry and moist areas and tolerates occasional flooding. During dry periods, bluish-colored ecotypes have a much more intense bluish color. Mow or cut back plants in late winter to encourage new spring growth. It comes back well after prescribed burns.

Time of Bloom: August to October

Suggested Uses: Use Yellow Indian Grass in wildflower meadows, open woodlands and wildlife habitats. It also is an attractive grass for use in the background of perennial borders. Its rhizomatous root system helps control erosion.

Georgia Hardiness Zones: All of Georgia

Size: 3 to 5 feet tall and 3 feet wide

Habitat: Dry and mesic prairies, open mesic woodlands, fields and dry slopes.

Native To: Most of the continental U.S., except California, Nevada, Oregon, Washington and Idaho.

Comments: Along with Little Bluestem, Big Bluestem and Switchgrass, Yellow Indian Grass is an important species in tallgrass prairies. Cultivars used as forages include 'Cheyenne' and 'Americus.' Birds and small mammals relish the seeds, and the plant parts are used for nesting materials. The plant is a larval host for the Pepper and Salt Skipper Butterfly. Yellow Indian Grass is the state grass of South Carolina. It is easy to establish from either plugs or seeds planted in late winter or early spring. The seeds have a significant beard that should be removed if they are planted with a seed drill.

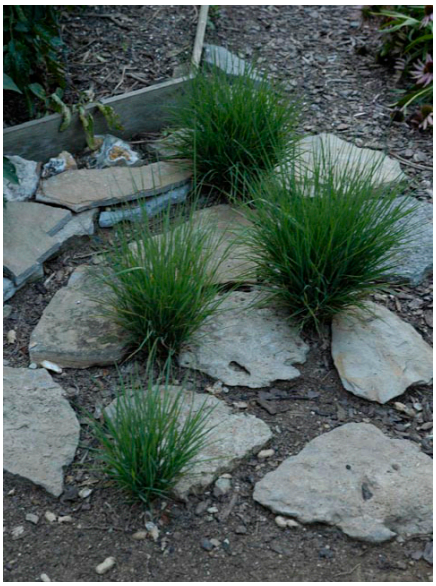
Images: Page 35

Warm-season Grasses

Upland Bentgrass, Autumn Bentgrass /
Agrostis perennans

N. L. Britton and A. Brown, NRCS-USDA Plants Database

Illinois Wildflowers



Dropseed Native Plant Nursery

Jennifer Anderson

Gary P. Flemming, *Digital Atlas of Virginia Flora*

Lady Bird Johnson Wildflower Center

Big Bluestem, Turkeyfoot /
Andropogon gerardii

A.S. Hitchcock, USDA PLANTS Database

Ed McDowell

Ed McDowell

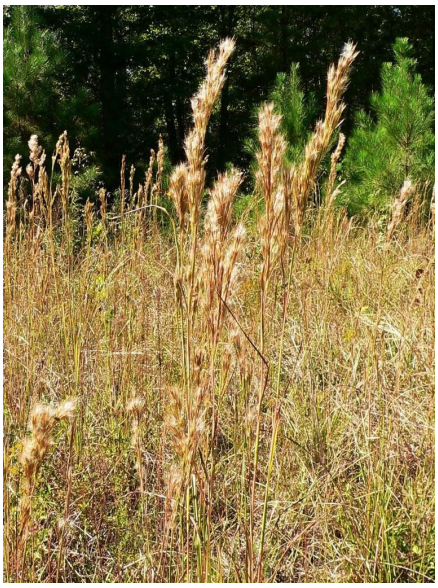
Ed McDowell

Bushy Bluestem /
Andropogon glomeratus

N.L. Britton and A. Brown,
USDA PLANTS Database

Ed McDowell

Lady Bird Johnson Wildflower Center



Richard Ware

James Miller, USDA PLANTS Database

Elliot's Bluestem, Elliot's Beardgrass,
Elliot's Broomsedge /
Andropogon gyrans
(Syn. *Andropogon elliottii*)

A.S. Hitchcock, USDA PLANTS Database

Ed McDowell

Florida Grasses.org

Splitbeard Bluestem, Silver Bluestem /
Andropogon ternarius

A.S. Hitchcock, USDA PLANTS Database

James Miller, USDA Forest Service, Bugwood.org

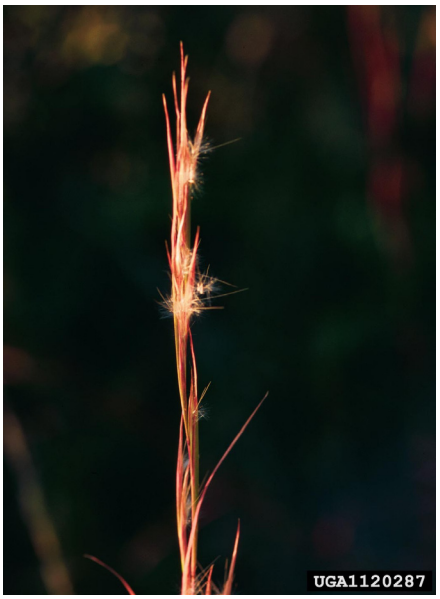
Richard Ware

Broomsedge /
Andropogon virginicus

A.S. Hitchcock, USDA PLANTS Database

Forest and Kim Starr, Starr Environmental, Bugwood.org

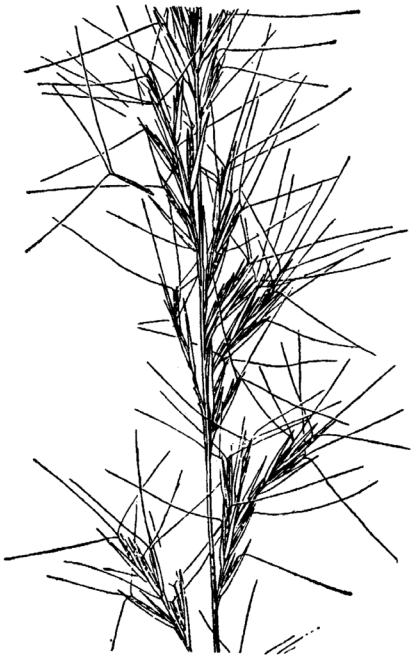
Ken Chamberlain, The Ohio State University, Bugwood.org



James H. Miller, USDA Forest Service, Bugwood.org

John D. Byrd, Mississippi State University, Bugwood.org

Arrowfeather Threeawn /
Aristida purpurascens



A.S. Hitchcock, USDA PLANTS Database

James H. Miller and Ted Bodner, Southern Weed Science Society, Bugwood.org

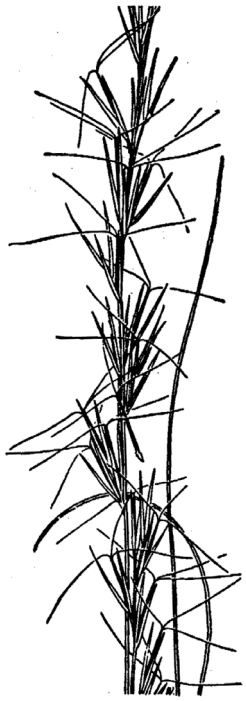
Ed McDowell

James H. Miller and Ted Bodner, Southern Weed Science Society, Bugwood.org

Florida Grasses.org

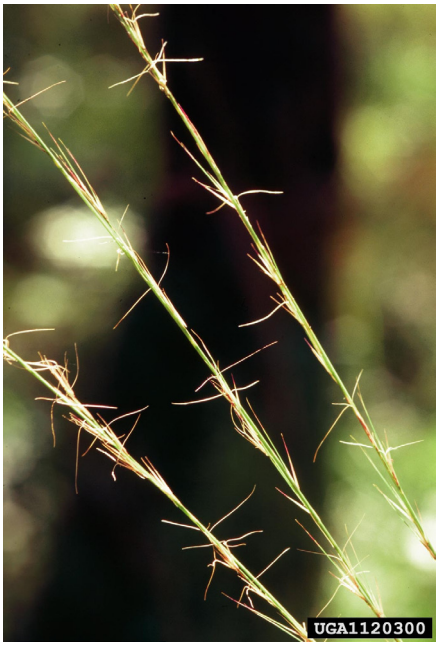
Florida Grasses.org

Southern Wiregrass, Beyrich Threeawn / *Aristida stricta* var. *beyrichiana* (Syn. *Aristida beyrichiana*)



A.S. Hitchcock, USDA PLANTS Database

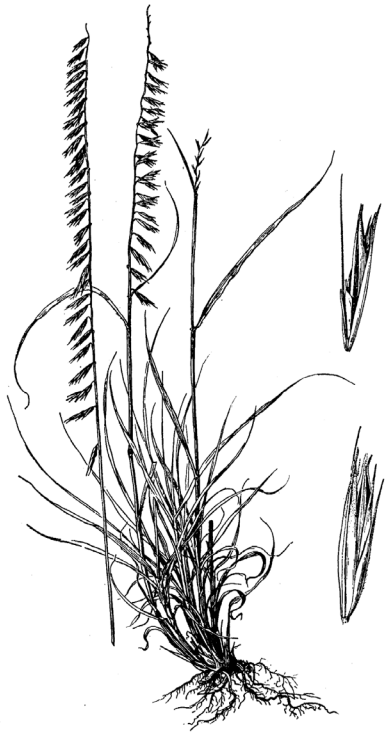
James Miller and Ted Bodner, Southen Weed Science Society, Bugwood.org



James Miller and Ted Bodner, Southen Weed Science Society, Bugwood.org

Howard F. Schwartz, Colorado State University, Bugwood.org

Side Oats Grama / *Bouteloua curtipendula*



A.S. Hitchcock, USDA PLANTS Database

Ed McDowell

Sweet Wood Reed, Stout Wood Reed / *Cinna arundinacea*

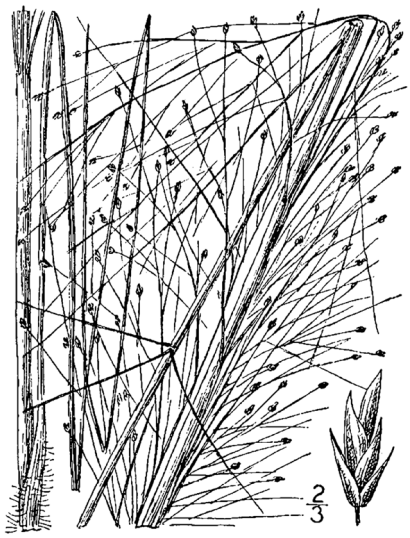
A. S. Hitchcock, NRCS-USDA Plants Database

Paul Drobot, Robert W. Freckmann Herbarium

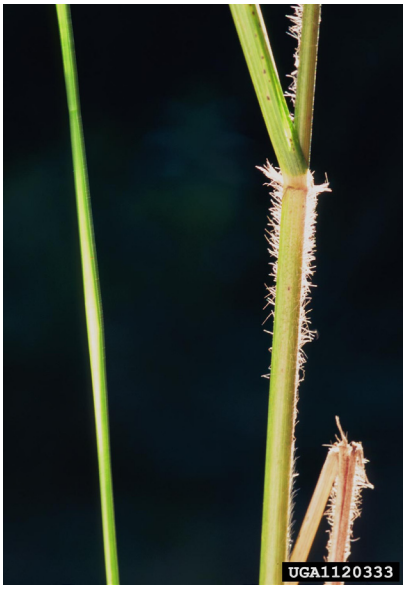
Emmet J. Judziewicz,
Robert W. Freckmann Herbarium

Illinois Wildflowers

Bigtop Lovegrass, Stout Lovegrass / *Eragrostis hirsuta*



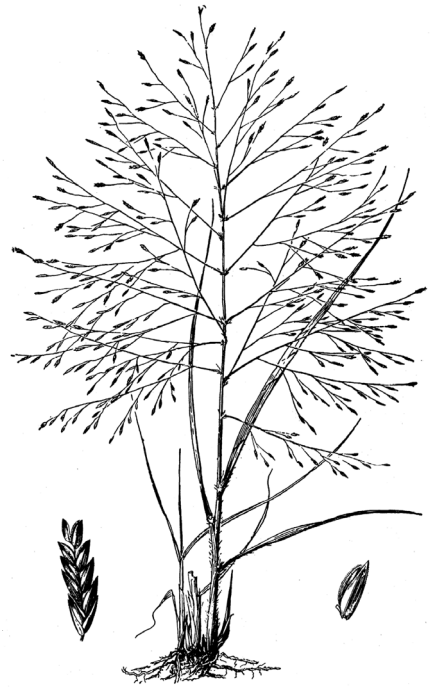
N.L. Britton and A. Brown,
USDA PLANTS Database



James H. Miller and Ted Bodner, Southern Weed Science Society, Bugwood.org

Ed McDowell

Purple Lovegrass /
Eragrostis spectabilis



N. L. Britton, USDA PLANTS Database

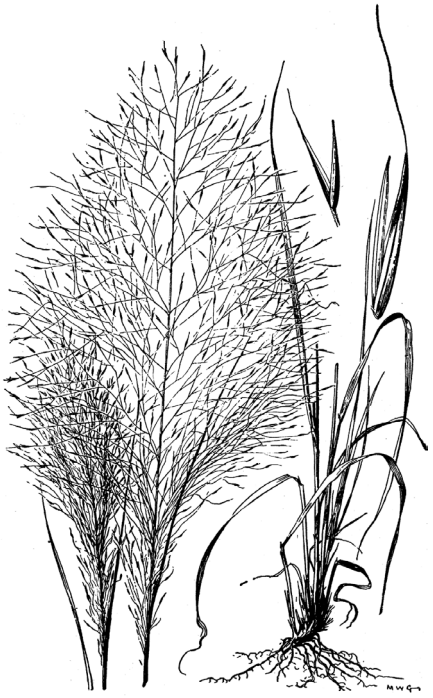
James H. Miller and Ted Bodner, Southern Weed Science Society, Bugwood.org

James H. Miller, USDA Forest Service, Bugwood.org

Bobby Hattaway

Ed McDowell

Pink Muhly Grass, Hair-awn Muhly Grass
/ *Muhlenbergia capillaris*

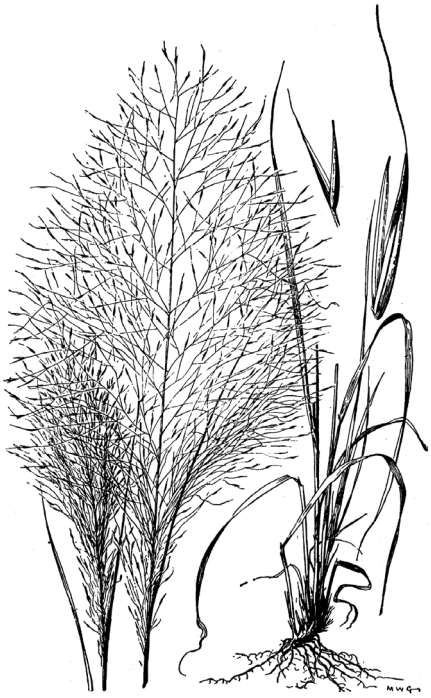


A.S. Hitchcock, USDA PLANTS Database

Bobby Hattaway

Floridagrasses.org

Purple Muhly Grass, Sweetgrass, Dune Hairgrass, Basket Grass /
***Muhlenbergia sericea* (Syn. *Muhlenbergia filipes*)**



A.S. Hitchcock, USDA PLANTS Database

Gary Wade

Gary Wade

keepthemidlandsbeautiful.org

Gary Wade

Nimblewill, Nimbleweed /
Muhlenbergia schreberi

A.S. Hitchcock, USDA PLANTS Database

Tim Murphy, University of Georgia, Bugwood.org

Tim Murphy, University of Georgia, Bugwood.org

Ohio State Weed Lab Archive,
The Ohio State University, Bugwood.org

Beaked Panic Grass / *Panicum anceps*
(Syn. *Coleataenia anceps*)

N.L. Britton and A. Brown,
USDA PLANTS Database

James H. Miller and Ted Bodner, Southern Weed Science Society, Bugwood.org

Karan A. Rawlins, University of Georgia, Bugwood.org

Redtop Panic Grass /
Panicum rigidulum
(Syn. *Panicum agrostroides*,
Syn. *Coleataenia longifolia*)

USDA, NRCS, PLANTS Database

Nancy Staunton, USDA, NRCS PLANTS Database

Switchgrass /
Panicum virgatum

A.S. Hitchcock, USDA PLANTS Database

Howard F. Schwartz, Colorado State University, Bugwood.org

continued on next page

Switchgrass /
Panicum virgatum
(continued)

Ed McDowell

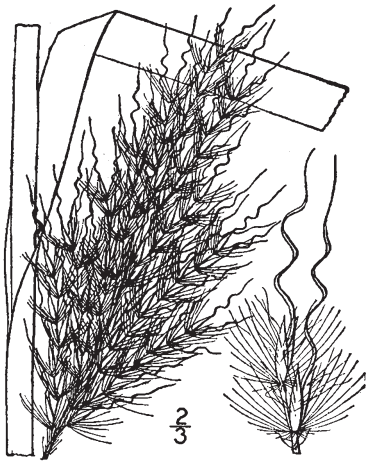
James H. Miller and Ted Bodner, Weed Science Society, Bugwood, org

Richard Old, XID Services, Inc., Bugwood.org

Richard Ware

J.K. Marlow Native Plants of the Carolinas and Georgia

Silver Plumegrass /
Saccharum alopecuroides
(Syn. *Saccharum alopecuroidum*, *Erianthus alopecuroides*)



N.L. Britton and A. Brown, USDA PLANTS Database

James H. Miller and Ted Bodner, Weed Science Society, Bugwood.org

Lady Bird Johnson Wildflower Center

continued on next page

Silver Plumegrass /
Saccharum alopecuroides
(Syn. *Saccharum alopecuroidum*, *Erianthus alopecuroides*)
(continued)

Ed McDowell

Ed McDowell

Giant Plumegrass, Sugarcane Plumegrass /
***Saccharum giganteum* (Syn. *Erianthus giganteus*)**

A. S. Hitchcock, USDA PLANTS Database

James H. Miller and Ted Bodner, Weed Science Society, Bugwood.org

Ed McDowell

Richard Ware

James H. Miller, USDA Forest Service, Bugwood.org

Little Bluestem, Bunchgrass /
Schizachyrium scoparium
(Syn. *Andropogon scoparium*)

N.L. Britton and A. Brown,
USDA PLANTS Database

Howard F. Schwartz, Colorado State University,
Bugwood, org

Ed McDowell

Knotroot Bristlegrass, Knotroot Foxtail /
***Setaria parviflora* (Syn. *Setaria geniculata*)**

A. S. Hitchcock, USDA PLANTS Database

John D. Byrd, Mississippi State University,
Bugwood, org

Ed McDowell

James H. Miller, USDA Forest Service,
Bugwood, org

Richard Old, XID Services, Inc., Bugwood.org

Slender Indian Grass / *Sorghastrum elliottii*

A. S. Hitchcock, USDA PLANTS Database

Shirley Denton

Yellow Indian Grass / *Sorghastrum nutans*

A.S. Hitchcock, USDA PLANTS Database

Richard Ware

James H. Miller and Ted Bodner, Weed Science Society, Bugwood.org

Elaine Haug, USDA-NRCS PLANTS Database

Bobby Hattaway

Ed McDowell

Lopsided Indian Grass /
Sorghastrum secundum

A. S. Hitchcock, USDA PLANTS Database

James H. Miller and Ted Bodner, Weed Science Society, Bugwood.org

Hugh and Carol Nourse

Rough Dropseed /
Sporobolus clandestinus

Bob Harms, University of Texas

N.L. Britton and A. Brown, USDA PLANTS Database

Prairie Dropseed /
Sporobolus heterolepis

A. S. Hitchcock, USDA PLANTS Database

continued on next page

Prairie Dropseed /
Sporobolus heterolepis
(continued)

Missouri Botanical Garden

Missouri Botanical Garden

Ed McDowell

Pineywoods Dropseed,
Sandhill Dropseed / *Sporobolus junceus*

A. S. Hitchcock, USDA PLANTS Database

James H. Miller, USDA Forest Service,
Bugwood.org

Purpletop, Purpletop Tridens /
Tridens flavus

A. S. Hitchcock, USDA PLANTS Database

James H. Miller and Ted Bodner, Weed Science
Society, Bugwood.org

continued on next page

Purpletop, Purpletop Tridens /
Tridens flavus
(continued)

James H. Miller and Ted Bodner, Weed Science Society, Bugwood.org

Ed McDowell

Eastern Gamagrass /
Tripsacum dactyloides

A.S. Hitchcock, USDA PLANTS Database

Richard Old, XID Services, Inc., Bugwood.org

Karan A. Rawlins, University of Georgia, Bugwood.org

Karan A. Rawlins, University of Georgia, Bugwood.org

Cool-season Grasses

Ticklegrass, Small Bentgrass, Winter Bentgrass /
Agrostis hyemalis

A.S. Hitchcock, USDA PLANTS Database

Oklahoma Biological Survey

Oklahoma Biological Survey

Giant Cane, River Cane, Switch Cane /
Arundinaria gigantea

A. S. Hitchcock, NRCS-USDA Plants Database

Ted Bodner, NRCS-USDA Plants Database

Ed McDowell

Ed McDowell

Ed McDowell

Missouri Botantical Garden

Hairy Woodland Brome, Common Eastern Brome /
Bromus pubescens

Kansas State University

Illinois Wildflowers

Illinois Wildflowers

Illinois Wildflowers

Richard Ware

River Oats, Upland Sea Oats,
Northern Sea Oats /
Chasmanthium latifolium
(Syn. *Uniola latifolia*)

A.S. Hitchcock, USDA PLANTS Database

Karan A. Rawlins, University of Georgia,
Bugwood.org

Gary Wade

Longleaf Woodoats / *Chasmanthium sessiliflorum* (Syn. *Uniola sessiliflora*)

A.S. Hitchcock, USDA PLANTS Database

James H. Miller and Ted Bodner, Southern Weed Science Society, Bugwood.org

James H. Miller and Ted Bodner, Southern Weed Science Society, Bugwood.org

James H. Miller and Ted Bodner, Southern Weed Science Society, Bugwood.org

James H. Miller and Ted Bodner, Southern Weed Science Society, Bugwood.org

Silky Oatgrass, Downy Danthonia / *Danthonia sericea*

N.L. Britton and A. Brown, USDA PLANTS Database

James H. Miller, USDA Forest Service, Bugwood.org

James H. Miller, USDA Forest Service, Bugwood.org

Poverty Oatgrass / *Danthonia spicata*

A. S. Hitchcock, USDA PLANTS Database

Illinois Wildflowers

Matthew C. Perry, USGS.gov

Richard Ware

Wavy Hairgrass, Common Hairgrass / *Deschampsia flexuosa*

A. S. Hitchcock, USDA PLANTS Database

W. J. Hayden, University of Richmond

Christine Bingham, Alaska Master Gardener

Ed McDowell

Deer-tongue Grass, Deer-tongue Panic Grass / *Dichanthelium clandestinum* (Syn. *Panicum clandestinum*)

NRCS, USDA Plants Database

J. Shulman, Botany Dept., Univ. of Wisconsin

B. S. Walters, Univeristy of Michigan Herbarium

Illinois Wildflowers

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Open-flower Rosettegrass, Soft Tuft Witchgrass / *Dichanthelium laxiflorum*

N.L. Britton and A. Brown, USDA PLANTS Database

James H. Miller and Ted Bodner, Southern Weed Science Society, Bugwood.org

Velvet Panicum, Velvet Witchgrass / *Dichanthelium scoparium*

N.L Britton and A. Brown,
USDA PLANTS Database

James H. Miller, USDA Forest Service,
Bugwood.org

James H. Miller and Ted Bodner, Southern
Weed Science Society, Bugwood.org

Eastern Bottlebrush Grass / *Elymus hystrix* (Syn. *Hystrix patula*)

A. S. Hitchcock, USDA PLANTS Database

Hugh and Carol Nourse

Illinois Wildflowers

Lady Bird Johnson Wildflower Center

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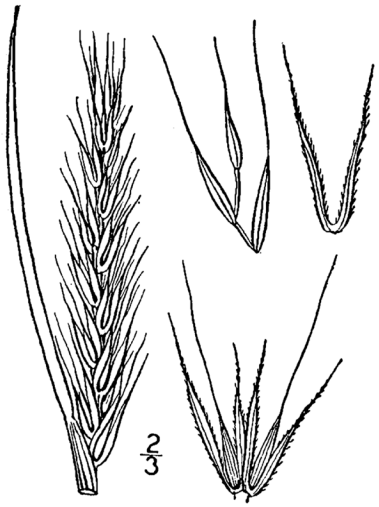
Virginia Wild Rye / *Elymus virginicus*



N. L. Britton and A. Brown,
USDA PLANTS Database

Dan Tenagli, Missouriplants.com, Bugwood.org

Dan Tenagli, Missouriplants.com, Bugwood.org

Dan Tenagli, Missouriplants.com, Bugwood.org

Fowl Mannagrass / *Glyceria striata*

A. S. Hitchcock, USDA PLANTS Database

Pittstate Herbarium

Illinois Wildflowers

Illinois Wildflowers

Little Barley /
Hordeum pussillum

N.L.Britton and A. Brown, USDA Plants Database

Larry Allain, NRCS-USDA Plants Database

Illinois Wildflowers

Sam C. Strickland, Wildflowers.org

Two-flower Melicgrass /
Melica mutica

A.S. Hitchcock, USDA PLANTS Database

Jeff McMillian, USDA-NRCS PLANTS Database

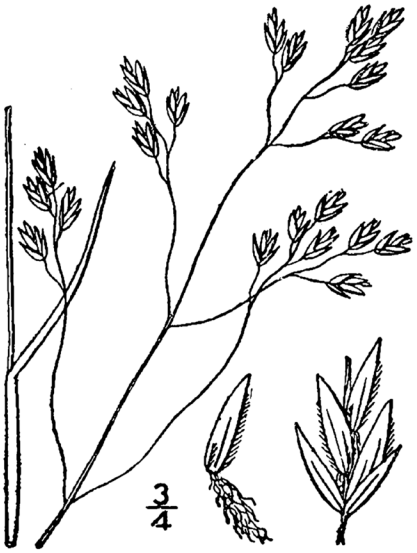
Blackseed Speargrass, Blackseed Needlegrass, Black Oatgrass / *Piptochaetium avenaceum* (Syn. *Stipa avenaceum*)

N.L. Britton and A. Brown, USDA PLANTS Database

James H. Miller and Ted Bodner, Weed Science Society, Bugwood.org

James H. Miller and Ted Bodner, Weed Science Society, Bugwood.org

Early Bluegrass / *Poa cuspidata*



N.L. Britton and A. Brown, USDA PLANTS Database

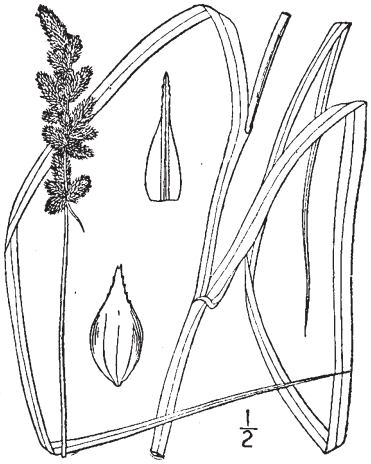
Georgetown University

Georgetown University

Ed McDowell

Sedges

Yellowfruit Sedge,
Yellow-headed Fox Sedge /
***Carex annectens* (Syn. *Carex bicknelii*)**



N.L. Britton and A. Brown,
NRCS USDA Plants Database

Josh Sulman, Robert W. Freckmann Herbarium

Josh Sulman, Robert W. Freckmann Herbarium

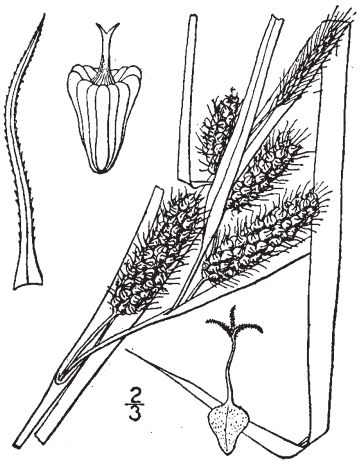
Cherokee Sedge, Bullsedge /
Carex cherokeensis

N. L. Britton and A. Brown,
USDA PLANTS Database

Plant Delights Nursery

Lady Bird Johnson Wildlfower Center

Frank's Sedge /
Carex frankii



N. L. Britton and A. Brown,
USDA PLANTS Database

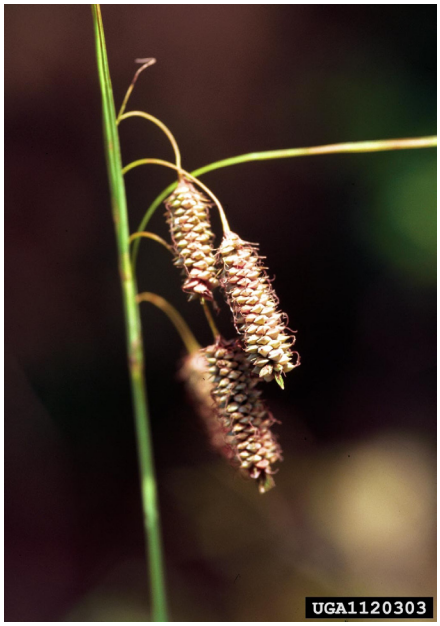
Illinois Wildflowers

Illinois Wildflowers

continued on next page

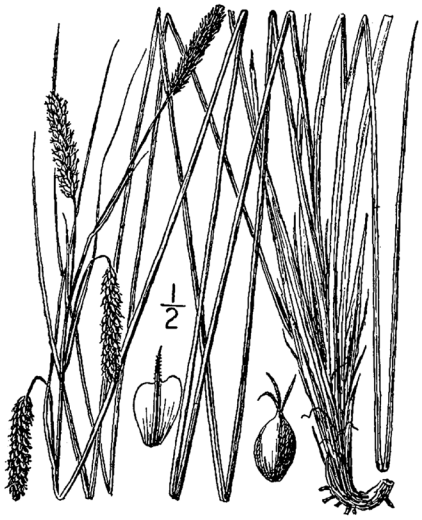
Frank's Sedge /
Carex frankii
continued

Mike Ryon, Oak Ridge
National Research Laboratory



James H. Miller, USDA Forest Service,
Bugwood.org

Southern Waxy Sedge /
Carex glaucescens



N. L. Britton and A. Brown,
USDA PLANTS Database

David Dunatchick - Lady Bird Johnson
Wildflower Center, Austin, TX

Dwight K. Lauer, Auburn University,
Bugwood.org

Ed McDowell

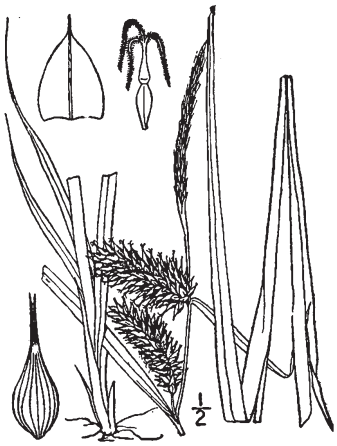
Limestone Meadow Sedge /
Carex granularis

N. L. Britton and A. Brown,
USDA PLANTS Database

Charles T. Bryson, USDA,
Agricultural Research Service, Bugwood.org

Charles T. Bryson, USDA,
Agricultural Research Service, Bugwood.org

Shallow Sedge, Lurid Sedge /
Carex lurida

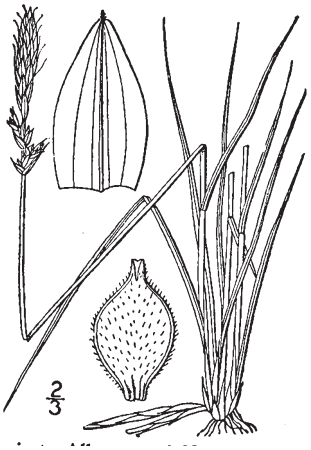


N. L. Britton and A. Brown,
USDA PLANTS Database

S. L. Winterton, Aquarium and Pond
Plants of the World

Illinois Wildflowers

Pennsylvania Sedge /
Carex pennsylvanica



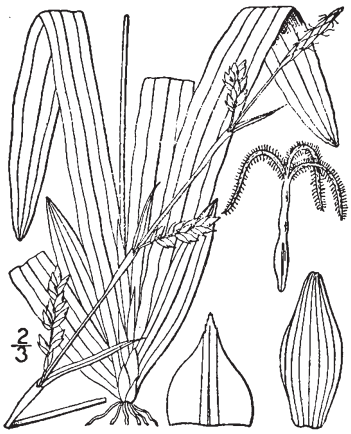
N. L. Britton and A. Brown,
USDA PLANTS Database

Lady Bird Johnson Wildflower Center

Fern Hill Landscapes

Scott Arboretum

Seersucker Sedge, Plantainleaf Sedge / *Carex plantaginea*



N. L. Britton and A. Brown,
USDA PLANTS Database

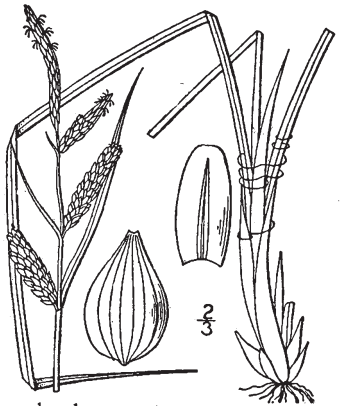
Ed McDowell

Online Plant Guide

U.S. Forest Service

Ed McDowell

Tussock Sedge, Upright Sedge / *Carex stricta*



N. L. Britton and A. Brown,
USDA PLANTS Database

Prairie Moon Nursery

Morning Sky Greenery

Wool Grass, Cottongrass Bulrush /
Scirpus cyperinus

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Lopsided Indian Grass / *Sorghastrum secundum*

Life Cycle: Perennial

Characteristics: This bunchgrass has flat leaf blades less than ¼ inch wide and 12 to 24 inches long. In September, flower stalks emerge and terminate in panicles 6 to 12 inches long. The inflorescence and seed heads (spikelets) are borne on one side of the stem (rachis), resulting in a lopsided appearance. The spikelets are yellow and fringed with white hairs, giving them a fuzzy silver-and-gold appearance. Each spikelet terminates in a long awn (needle-like projection). The plant spreads by seed and does not produce a rhizome.

Cultural Requirements: Lopsided Indian Grass prefers full sun to partial shade and moist, well-drained sandy soil. It does not like clay soils. It self-seeds readily, so deadhead before seed set if volunteer seedlings are not desired the following year. Cut back plants in late winter to make way for new spring growth.

Time of Bloom: September to October

Suggested Uses: Lopsided Indian Grass can be used in wildflower gardens, open woodlands, meadows or wildlife habitats. It is an attractive grass when used in the background of perennial borders. If seed dispersal and spread are a concern in cultivated landscapes, cut the plants back before the seeds mature.

Georgia Hardiness Zones: 8, 9a (primarily a plant for the Coastal Plain)

Size: 1½ to 3 feet tall. Flower stalks rise to 6 feet.

Habitat: Pinelands, flatwoods and sandhills.

Native To: South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas and Kansas.

Comments: The plant is a larval host for the Delaware Skipper, Dusted Skipper and Swarthy Skipper butterflies. The species name for this plant comes from the Greek work "secondi," which means one-sided, referring to the way the spikelets are borne on one side of the rachis.

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Rough Dropseed / *Sporobolus clandestinus*

Life Cycle: Perennial

Characteristics: Rough Dropseed is a slender tufted grass that remains inconspicuous until the seed heads emerge in the fall. Culms are erect or arching, 12 to 30 inches tall, with swollen nodes. Leaves are 2½ to 12 inches long, about ⅛ inch wide, rolled inward and hairy. In the fall, the terminal flowers are borne at the leaf axils near stem tips. They are somewhat inconspicuous and hidden by the leaf sheaths. Flowers are borne in narrow spikes having 10 to 40 spikelets, ¼ to ½ inch long. Glumes are lance-shaped with greenish mid-veins. There is one fertile floret per spikelet bearing yellow-orange anthers. Seeds shatter at maturity.

Cultural Requirements: Rough Dropseed prefers full sun to partial shade and well-drained sandy or rocky soil.

Time of Bloom: October to November

Suggested Uses: Use Rough Dropseed in open woodlands, meadows, right-of-ways and rocky shoals. Livestock and wildlife will graze the plant when it is young and tender.

Georgia Hardiness Zones: All of Georgia

Size: Up to 30 inches tall and spreading

Habitat: Prairies on sand ridges, flatwoods, savannas, glades, woodlands and limestone bluffs.

Native To: The eastern U.S., from New York to Florida, west to Texas and north to Iowa and Wisconsin.

Comments: The genus name *Sporobolus* stems from the Greek words *spora*, which means "seed" and *ballein*, which means "to cast forth," referring to the way the plant drops its seeds at maturity.

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Prairie Dropseed / *Sporobolus heterolepis*

Life Cycle: Perennial

Characteristics: Wiry, thread-like leaves, $^{1}/_{16}$ inch wide and up to 20 inches long, grow in a dense weeping clump. The light green to yellow-green foliage turns orange-gold in the fall and fades to light bronze in winter. In late summer, flowering panicles appear on slender stalks that rise above the foliage. The flowers are tinted pink or brown and smell like coriander. Flowers are followed by tiny round seeds that drop to the ground in the fall.

Cultural Requirements: This plant is easy to grow in full sun and well-drained soil. It is slow growing and slow to establish, so it may take three growing seasons to produce a flowering plant. It adapts to a wide variety of soil types, from clays to sands, although it prefers dry, rocky alkaline soils. It has good drought tolerance once established, and it does not like too much moisture.

Time of Bloom: August to September

Suggested Uses: The attractive foliage, fragrant flowers and delicate seed heads are an attractive addition to perennial borders, wildflower gardens, wildlife habitats or rock gardens. It also is a good plant for open woodlands and meadows.

Georgia Hardiness Zones: 6a to 7a

Size: 1½ to 2 feet tall with an equal width

Habitat: Moist prairies, glades or woodlands with alkaline soils. Prairie Dropseed grows naturally on the alkaline soils of Chickamauga Battlefield in the northwestern corner of Georgia.

Native To: Massachusetts, west to Montana, south to New Mexico, Oklahoma, Arkansas, Georgia and North Carolina.

Comments: This grass is considered by many to be one of the most handsome of all the prairie grasses. The somewhat similar Pineywoods Dropseed, *Sporobolus junceus* (described below), is a good choice for southern Georgia. The Plains Indians ground the seed into a tasty flour. The seed are relished by a variety of birds. Flowering and fruiting is enhanced with recurrent prescribed burns.

Images: Pages 36-37

Pineywoods Dropseed, Sandhill Dropseed / *Sporobolus junceus*

Life Cycle: Perennial

Characteristics: The leaf blade is primarily basal, less than $^{1}/_{6}$ inch wide and 8 to 15 inches long with a distinctive blue-green color. A few hairs occur at the base of the leaf blade, and the upper portion of leaf blade rolls inward, resembling a long pine needle. The leaf sheath is round and longer than the internodes. In early fall, bronze to purple branched panicles, 4 to 6 inches long, appear in whorls at the top of flowering stalks. The overall inflorescence has a pyramidal form. Each branch results in one to three seed stalks. The spikelets do not have awns.

Cultural Requirements: Pineywoods Dropseed prefers sun to partial shade and moist well-drained sandy-loam soil. It does not like wet sites.

Time of Bloom: September to October

Suggested Uses: Use Pineywoods Dropseed in moist meadows, open woodlands or wildlife habitats. Its distinctive blue-green foliage and striking panicles make it a handsome grass for use in landscapes.

Georgia Hardiness Zones: 8

Size: 2 to 3 feet tall

Habitat: Flatwoods, open pinelands and savannas, primarily in the sandhill regions.

Native To: Virginia, south to Florida, west to Texas and north to Arkansas, Kentucky and Tennessee. It is also found in Arizona.

Comments: Pineywoods Dropseed is grazed by livestock during early spring. It provides food and cover for birds and small mammals. The plant is enhanced by recurrent controlled burns. It is a groundcover in the sandhill regions of longleaf pine communities. Pineywoods Dropseed is slow to establish from either plugs or seeds planted in late winter or early spring.

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Purpletop, Purpletop Tridens / *Tridens flavus*

Life Cycle: Perennial

Characteristics: Leaves are alternate, ½ inch wide and up to 12 inches long. The upper surface of the leaf is hairy and rough. Each leaf is tightly rolled around drooping stalks (culms). Culms terminate in maroon panicles, 6 to 18 inches long, that droop downward as they mature. They are oily and sticky. Spikelets are ¼ to ⅓ inch long and purplish green when young, fading to brown when mature. En masse, the plants impart a purple cast to fields. The root system is fibrous and rhizomatous. This grass often goes unnoticed until it flowers in late summer.

Cultural Requirements: Purpletop prefers full sun and slightly moist to dry soil. It adapts to a wide variety of soil types, from clay-loam to sand. It re-seeds readily.

Time of Bloom: Late summer

Suggested Uses: Use Purpletop in meadows, wildlife habitats or dry sunny areas having infertile soil. Because it self-seeds freely, it may not be a good choice for cultivated landscapes.

Georgia Hardiness Zones: All of Georgia

Size: 3 to 6 feet tall

Habitat: Prairies, old fields, savannas, meadows, roadsides and open woods.

Native To: Vermont and New Hampshire, south to Florida, west to New Mexico and north to Minnesota. It is also found in California.

Comments: This is one of the most common native grasses in Georgia. It is a larval host for a wide variety of butterflies, and small mammals eat the foliage. Birds eat the seed and use it for nesting material. Livestock forage on young plants. Another common name for this grass is greasy grass because it harbors tiny insects that emit a greasy substance while they feed on the spikelets. Purpletop is easy to establish from plugs installed in early spring. Seeds are slow to germinate, but they are a cost-effective method of establishment.

Images: Pages 37-38

Eastern Gamagrass / *Tripsacum dactyloides*

Life Cycle: Perennial

Characteristics: This is a robust, clumping grass with long, arching flat leaves, 1¼ inch wide and up to 3 feet long. From May to September, finger-like flower spikes, up to 10 inches long, are borne on stalks extending above the foliage. Male flowers have orange stamens and female flowers have purple stigmas. The plant spreads by seed and creeping rhizomes.

Cultural Requirements: Eastern Gamagrass prefers sun and moist, well-drained soil. It likes moisture and will adapt to wet areas. Cut plants back to the ground after frost kills the foliage. The leaves have razor-sharp edges so be cautious when pruning the plant.

Time of Bloom: Late May to October

Suggested Uses: Plant Eastern Gamagrass in natural areas, moist meadows, wildlife habitats or along ponds. It adapts well to container culture. Its arching foliage, attractive flowers and interesting spikelets make it worthy of landscape culture.

Georgia Hardiness Zones: All of Georgia

Size: 4 to 8 feet tall and 4 to 6 feet wide

Habitat: Borders of wetlands, stream banks, boggy areas, ditches and tallgrass prairies.

Native To: Massachusetts, south to Florida, west to Texas and north to Nebraska, Iowa and Wisconsin.

Comments: Deer, birds and small mammals eat the seeds. Birds, small mammals and snakes use the plants for cover and nesting material. The plant is also the larval host for the Byssus Skipper butterfly. Eastern Gamagrass is considered an ancestor of corn. In open fields it grows in circular clumps, leaving room in the middle for snakes that feed on rodents that are attracted to the seeds. Always look carefully when walking through an area of Eastern Gamagrass to avoid being surprised by a snake. Eastern Gamagrass can be established from plugs or seeds. Plant seeds in the fall for germination the following spring.

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Cool-season Grasses

Ticklegrass, Small Bentgrass, Winter Bentgrass / *Agrostis hyemalis*

Life Cycle: Perennial

Characteristics: Culms (stalks) are 1 to 3 feet tall and bear three to four alternate leaves. Leaf blades are narrow, up to ⅛ inch across and 2 to 4 inches long. The bases of the leaf blades are wrapped around the culms. In spring, flowering culms terminate in a loose, purplish panicle of spikelets, 6 to 9 inches long. Spikelets have an open, airy appearance and are quite attractive. Seed clusters often break when they are dry and blow around like tumbleweed. The root system is fibrous.

Cultural Requirements: Ticklegrass prefers full sun and moderately moist to dry soil. It will grow in barren disturbed sites containing sand or gravel. It re-seeds prolifically, so cut it back and discard the clippings soon after flowering if re-seeding is not desired.

Time of Bloom: Spring

Suggested Uses: Ticklegrass is commonly used in natural areas, meadows and for reclaiming disturbed areas.

Georgia Hardiness Zones: All of Georgia

Size: 1 to 3 feet tall and 8 to 16 inches wide

Habitat: Woodlands, fields, bogs, sand prairies, meadows, eroded slopes and roadsides.

Native To: Maine, south to Florida, west to Texas and north to South Dakota and Minnesota.

Comments: The wispy spikelets tickle bare skin when one brushes against them, and the seeds hitchhike to new locations on birds, animals and humans.

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Giant Cane, River Cane, Switch Cane / *Arundinaria gigantea*

Life Cycle: Perennial

Characteristics: Hard woody culms bear coarse, lance-shaped, medium-green leaves up to 12 inches long and 1½ inches wide. The leaves have several pronounced bristles where their leaf sheaths join the culm. Flowers are borne on branched or unbranched stalks arising from the leaf axils and consist of eight to 12 purple flowers. The plant flowers infrequently, perhaps once every 30 years. The plants in an established colony all flower at the same time, and mature, seed-bearing culms die after reproduction. The plant spreads by seeds and rhizomes.

Cultural Requirements: Giant Cane prefers consistently moist soil and full sun to light shade. However, it is widely adaptable, growing at 2,000 feet elevation in the Appalachian Mountains on moist sandy rock cliffs and mountain slopes as well as rich alluvial soils of the Coastal Plain. It also withstands temperature extremes, from -10°F to 100°F. When provided its preferred cultural conditions, it will spread and naturalize, creating dense stands called canebrakes. It can be aggressive, so to prevent its spread, confine the plant to a pot or construct soil barriers to confine the rhizomes.

Time of Bloom: February to March

Suggested Uses: Use Giant Cane for erosion control, as a screen plant or adjacent to ponds and streams where it can naturalize.

Georgia Hardiness Zones: All of Georgia

Size: 5 to 12 feet tall (up to 25 feet tall in warm regions) and 8 to 20 feet wide

Habitat: Moist areas along rivers, streams and swamps.

Native To: New York, south to Florida, west to Texas and north to Kansas, Missouri and Illinois. It is primarily found in the Southeast.

Comments: At one time, canebrakes of this plant covered thousands of acres of rich bottomland throughout the Southeast. Native Americans considered these areas prime hunting grounds because they provided food and shelter for a variety of mammals and birds.

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Hairy Woodland Brome, Common Eastern Brome / *Bromus pubescens*

Life Cycle: Perennial

Characteristics: Culms are solitary or borne in small clumps. They are erect and hairy. Each culm bears four to 10 leaves that are 6 to 14 inches long and ¼ to ½ inch wide. They are slightly hairy on top and smooth underneath. In May or June, terminal panicles, 4 to 10 inches long, appear at the top of culms. Each panicle produces four to 11 spikelets on short stalks that drop downward. Each floret has pubescence on its glumes and lemmas and a pronounced awn extending from its tip.

Cultural Requirements: Hairy Woodland Brome prefers partial shade to full shade and moist soil. It does not tolerate direct sun or dry soil. Cut back spent seed heads and old foliage after bloom. Growth returns in the fall.

Time of Bloom: May and June primarily, but some may flower in late summer.

Suggested Uses: Hairy Woodland Brome is used primarily as a bottomland plant in streambank restoration projects.

Georgia Hardiness Zones: All of Georgia

Size: 1 to 3 feet tall

Habitat: Rich moist woodlands, stream banks, sandy roadsides and rocky slopes.

Native To: Maine, south to Florida, west to Texas and north to Wyoming, Colorado and North Dakota.

Comments: Deer, rabbits, livestock and the Eastern Box Turtle browse the foliage. This plant is easy to establish from either plugs or seeds planted in the fall.

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River Oats, Upland Sea Oats, Northern Sea Oats / *Chasmanthium latifolium* (Syn. *Uniola latifolia*)

Life Cycle: Perennial

Characteristics: River Oats is a clump-forming grass with flat, bright-green pointed leaves 5 to 9 inches long and 1 inch wide. In summer, flowering stems rise above the foliage and bear numerous flat clusters of spikelets 1 to 2 inches long and ½ inch wide. The spikelets hang downward from thread-like pedicels in loose, open panicles. The spikelets are green when young, tan when mature and reddish-brown in winter.

Cultural Requirements: River Oats prefers partial shade and moist, well-drained soil. It will adapt to both wet and dry sites as well as poor soils. It self-seeds readily, so deadheading before the seeds turn brown and mature will minimize spread. Cut back plants in early winter to remove old foliage and make way for new growth. It can be invasive in a garden setting.

Time of Bloom: May to July

Suggested Uses: River Oats is a common ornamental grass in the nursery and landscape trade. It is used in perennial borders, wildflower meadows, wildlife habitats and rain gardens. In its natural habitat along the sides of rivers, it stabilizes sand deposited by rising waters.

Georgia Hardiness Zones: All of Georgia, generally less than 2,200 feet elevation in the mountains

Size: 2 to 4 feet tall, 12 inches wide and spreading

Habitat: River Oats is a riparian species found on floodplains, along streams and in moist woodlands adjacent to streams. It also adapts to upland areas and garden habitats.

Native To: New Jersey, south to Florida, west to Arizona and north to Nebraska, Iowa and Wisconsin.

Comments: Seed heads of this plant can be used in dried floral arrangements. The seeds are eaten by small mammals and birds, and the stems and leaves are used by birds for nesting material. A similar species, Longleaf Woodoats, *Chasmanthium sessiliflorum* (described below), has sessile spikelets (attached directly to the main stalk (culm), while those of *C. latifolium* are borne on short peduncles that hang downward on the stalk. Also, *C. sessiliflorum* grows predominantly in the Southeast while *C. latifolium* has a much wider growing range and is found in the Northeast, Southeast and Midwest. River Oats is easy to establish from plugs planted in the fall. Seeds are slow to germinate.

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Longleaf Woodoats / *Chasmanthium sessiliflorum* (Syn. *Uniola sessiliflora*)

Life Cycle: Perennial

Characteristics: Longleaf Woodoats is a clumping perennial grass that forms tufted flowers along tall, wiry stems. Leaves are upright, opposite, linear and medium-green. In summer, flowering culms rise above the foliage and bear sparse clusters of yellow-green flowers along their upper half. Spikelets are sessile (stalkless) and attached directly to the culm.

Cultural Requirements: Longleaf Woodoats prefers partial shade and moist sites. Cut back the old foliage in early spring to make way for new growth.

Time of Bloom: June to July

Suggested Uses: Longleaf Woodoats is a good plant for areas managed by prescribed burns and for areas undergoing streambank restoration. It also is an attractive grass for use in landscapes and wildlife habitats.

Georgia Hardiness Zones: All of Georgia

Size: 3 feet tall and 2 to 3 feet wide

Habitat: Moist hardwoods or pine woodlands and swamps.

Native To: Virginia, south to Florida, west to Texas and north to Arkansas and Kentucky.

Comments: This plant is the most common mesic forest grass in the Southeast. Although it is more common in natural habitats than River Oats, *Chasmanthium latifolium*, the latter species is more common in the nursery trade, probably because it has greater ornamental value, a wider growing range and better adaptation to dry sites. Longleaf Wood Oats is easy to establish from plugs planted in the fall. Seeds can be broadcast over the soil surface, but they are slow to establish.

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Silky Oatgrass, Downy Danthonia / *Danthonia sericea*

Life Cycle: Perennial

Characteristics: Silky Oatgrass is a medium-size, densely tufted gray-green bunch grass. The sheath that encloses the culm and the leaves has prominent hairs that make it appear silky. The panicle has a long peduncle with a terminal group of spikelets bearing dense white hairs and awns up to ¾ inch long.

Cultural Requirements: Silky Oatgrass prefers open, dry, sunny sites or the filtered shade of tall pine trees. Clumps usually have spaces between them where spring forbs grow. Cut back spent seed heads and old foliage in the late fall to make way for new growth.

Time of Bloom: May to July

Suggested Uses: Use Silky Oatgrass as a cool-season meadow grass along with flowering forbs. It provides a good backdrop for summer wildflowers. It also can be used in open woodlands and wildlife habitats.

Georgia Hardiness Zones: All of Georgia. It is found predominately in the Piedmont and Coastal Plain.

Size: 8 to 20 inches tall

Habitat: Open dry oak or pine woodlands, roadsides and glades.

Native To: New Hampshire, Massachusetts, Pennsylvania and New Jersey, south to Florida and west to Texas.

Comments: Silky Oatgrass is a larger, hairier species than its cousin, Poverty Oats Grass (described below). Silky Oatgrass is slow to establish from either seeds or plugs. Plant plugs in the fall. This species responds to prescribed burns, particularly if it results in a reduction in the mid-story and/or over-story canopy.

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Poverty Oatgrass / *Danthonia spicata*

Life Cycle: Perennial

Characteristics: This grass forms dense tufts of twisted basal foliage. Leaves are medium green, ⅛ inch wide and up to 5 inches long, hairless and twisted. Leaves tend to twist more as they age. They turn tan in winter. Flowering culms rise 1 to 1½ feet and bear narrow terminal branched panicles up to 2 inches long. Spikelets are ½ to ¾ inch long and not particularly showy.

Cultural Requirements: As its name implies, Poverty Oatgrass thrives in infertile soils where many other plants will not grow. It adapts to both sun and partial shade. It does not like wet sites, and it does not tolerate competition from taller plants. Cut back spent seed heads and old foliage in June to encourage new fall growth.

Time of Bloom: April to May

Suggested Uses: Poverty Oatgrass is used primarily for land reclamation, but it also has potential for use in landscapes, such as dry areas of perennial borders or butterfly gardens.

Georgia Hardiness Zones: All of Georgia

Size: 12 inches tall and 6 inches wide

Habitat: Dry pine and mixed pine/oak open woodlands, upland prairies, glades, eroded pastures, crevices of rocks, roadsides and rocky open areas. It colonizes disturbed areas.

Native To: All of the continental U.S., except California, Nevada and Utah.

Comments: Poverty Oatgrass is the larval host for the Chryxus Artic butterfly and the Indian Skipper butterfly. Like Silky Oatgrass, this species also responds to prescribed burns. It is slow to establish from either seeds or plugs. Plant plugs in the fall.

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Wavy Hairgrass, Common Hairgrass / *Deschampsia flexuosa*

Life Cycle: Perennial

Characteristics: Wavy Hairgrass grows in a tight clump of narrow, wiry basal foliage. In late spring, flowering culms rise above the plant and bear feathery wands of attractive crinkled spikelets, 12 to 18 inches long. They vary in color from bronze to greenish yellow.

Cultural Requirements: Wavy Hairgrass prefers open conditions at high elevations and partial shade in lower elevations. It also prefers dry to moderately moist, well-drained soil. The plant often turns brown during the heat of summer, particularly at elevations less than 3,000 feet. It does not like to be wet. Plants will self-seed, but they are not invasive. Cut back spent seed heads and old foliage in late summer to make way for new fall growth.

Time of Bloom: May, with seed heads persisting for several months.

Suggested Uses: Use Wavy Hairgrass in wildlife habitats, meadows, open woodlands or shaded areas of perennial borders. It also can be planted in containers.

Georgia Hardiness Zones: 7

Size: 12 to 18 inches tall and about 1 foot wide

Habitat: Throughout its northern range, Wavy Hairgrass grows in rocky slopes and dry woodlands or disturbed sites. In the southern Appalachians it grows at high elevations in grassy balds and rocky summits.

Native To: The eastern U.S., from Maine to Georgia and Alabama. It is also found in Arkansas, Oklahoma, North Dakota, Wisconsin and Michigan.

Comments: Wavy Hairgrass provides food, nesting material and winter cover for a variety of birds and small mammals. It is a showy and tough plant that is easy to grow. The seed heads add an airy touch to dried floral arrangements.

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Deer-tongue Grass, Deer-tongue Panic Grass / *Dichanthelium clandestinum* (Syn. *Panicum clandestinum*)

Life Cycle: Annual

Characteristics: This is a prostrate summer-annual grass. Leaf blades are wide, often exceeding 1 inch in width, and reach 8 inches in length. They are said to resemble a deer's tongue. The bases of the leaf blades are heart-shaped and hairy and completely surround the sheath. Ligules are distinct, 1 mm in length. Leaf sheaths are light green, longitudinally veined and hairy toward their tips. They pull away from the culm at a 45 degree angle. Summer flowers are pyramidal-shaped panicles, 3½ to 5½ inches long and 2½ to 3½ inches wide, with a central rachis and lateral branches. Spikelets are oval in shape, light green to greenish purple. Panicles continue to emerge throughout the fall, but they are smaller and emerge lower on the culm than summer panicles and are often hidden from view. The root system is fibrous and rhizomatous.

Cultural Requirements: Deer-tongue Grass prefers partial sun and moist, well-drained sandy soils. Given ideal conditions, it can spread aggressively.

Time of Bloom: May to September

Suggested Uses: Deer-tongue Grass is sometimes used in moist areas for erosion control.

Georgia Hardiness Zones: All of Georgia

Size: 3 to 4½ feet tall

Habitat: Moist depressions in rocky or sandy woodlands, sandy savannas, sandy prairies, acidic gravelly seeps, moist roadsides and low areas along streams.

Native To: Maine, south to Florida, west to Texas and north to Iowa.

Comments: Several caterpillars feed on this grass, and the seeds are eaten by many birds, especially sparrows, and small rodents. The young foliage is grazed by cattle, horses, sheep, deer and rabbits. It is considered a weed in pastures and open hayfields in the Southeast.

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Open-flower Rosettegrass, Soft Tuft Witchgrass / *Dichanthelium laxiflorum*

Life Cycle: Perennial

Characteristics: This is a short, densely tufted bunch grass. Leaves are mostly basal, but a few are born on the lower portion of the culm. Leaf blades are 2 to 7 inches long and ¼ to 1 inch wide. The lower internodes are shorter than the upper internodes. Nodes are bearded with soft spreading hairs. In winter the plant turns yellow-green to chartreuse. Two sets of panicles are produced each growing season. The first set, or primary panicles, are up to 6 inches long and 1¼ to 3 inches wide, while the second, later panicles are smaller and more compact.

Cultural Requirements: Open-flower Rosettegrass likes moist areas in sun or partial shade and is adaptable to infertile soils and disturbed sites. It is a tame grass and easy to manage. However, it is often shaded and crowded out by adjacent forbs, so it does require some regular preservation efforts.

Time of Bloom: Primary panicles are produced in April, while secondary panicles are produced from July to early winter. They persist throughout the winter.

Suggested Uses: This grass can be found in many home landscapes where it goes undetected. If left undisturbed, it will slowly multiply and cover the ground. It is a nice grass for perennial borders.

Georgia Hardiness Zones: All of Georgia

Size: Plants are 6 inches tall with bloom stalks rising to 12 inches

Habitat: Open woodlands and moist shaded areas. This is a common grass in poor soils along roadsides and natural areas.

Native To: The eastern U.S., from Pennsylvania to Florida, west to Texas and north to Oklahoma, Missouri and Illinois.

Comments: The attractive chartreuse foliage and non-aggressive nature of this plant make it worthy of landscape culture.

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Velvet Panicum, Velvet Witchgrass / *Dichanthelium scoparium*

Life Cycle: Perennial

Characteristics: This is one of the tallest and most coarse-textured of all the *Dichanthelium* species. Its flat clasping leaf blades are about 5 inches long and 1 inch wide. There is a dense velvety pubescence on the internodes, sheaths and leaf blades and a sticky band below the nodes. The plant flowers twice -- in spring and late summer. Flowers are loose open panicles, 3 to 5 inches long. Each spikelet bears a single creamy white flower rounded at the tip.

Cultural Requirements: Velvet Panicum prefers partial shade and moist to wet soil. Cut plants back after flowering to encourage new growth.

Time of Bloom: May and again in July

Suggested Uses: This is a good plant for streambank restoration, moist woodlands and moist areas of wildlife habitats.

Georgia Hardiness Zones: All of Georgia, but mostly in the Piedmont and Coastal Plain

Size: 4 to 5 feet tall and 2 feet wide

Habitat: Ditches, bottomlands, marshes, floodplains, bogs and wet meadows.

Native To: Massachusetts, New York and Pennsylvania, south to Florida, west to Texas and north to Kansas, Missouri, Illinois, Indiana and Michigan.

Comments: Velvet Panicum provides a source of food for songbirds, small mammals and game birds. The basal leaves provide winter forage for wild turkey. Although *Dichantheliums* are called Panicums, botanists have separated them into a different genus from the true *Panicums* due to their differences in foliage and flowering time. Plants in the *Dichanthelium* genus flower both in spring and in late summer and have distinctly different foliage in spring and fall. Plants in the genus *Panicum*, including Switchgrass, Beaked Panicgrass and Redtop Panicgrass, flower only once yearly, and their vegetative appearance does not change appreciably during the growing season. Velvet Panicum is easy to establish from seeds or plugs planted in the fall.

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Eastern Bottlebrush Grass / *Elymus hystrix* (Syn. *Hystrix patula*)

Life Cycle: Perennial

Characteristics: Eastern Bottlebrush Grass grows in loose upright tufts. Leaves are narrow, rough-textured and up to 12 inches long. In late summer bristly flower heads, 9 to 10 inches long, appear on the terminals of culms that rise above the foliage. The spikelets resemble bottlebrushes and are quite showy. They fade to brown in late summer and persist well into fall.

Cultural Requirements: Eastern Bottlebrush Grass prefers partial shade to full shade and moderately moist, well-drained soil. It adapts to a wide variety of soil types, from sands to clays. It self-seeds readily, so dead-heading is recommended if spreading is not desired. When plants go dormant in late summer, cut them back to ground level to make way for new fall growth.

Time of Bloom: May to June

Suggested Uses: Plant Eastern Bottlebrush Grass in woodland gardens having filtered light.

Georgia Hardiness Zones: 7, 8

Size: 4 to 5 feet tall and 1 to 1½ feet wide

Habitat: Moist forests, glade margins, upland prairies, streambanks and disturbed sites.

Native To: Most of the eastern U.S., from North Dakota to Maine, south to Georgia, Alabama, Arkansas and Oklahoma. It is also found in New Mexico.

Comments: The species name *hystrix* is a Greek word that means porcupine, in reference to the bristles on the seed heads that resemble the quills of a porcupine. Plants in the *Elymus* genus can be distinguished by the ear-lobed leaf bases that wrap around their attached stems. Eastern Bottlebrush Grass is easy to establish from plugs or seeds planted in the fall.

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Virginia Wild Rye / *Elymus virginicus*

Life Cycle: Perennial

Characteristics: This grass produces erect unbranched culms bearing alternate leaves, 12 inches long and 2/3 inch wide. The leaves are somewhat floppy. Each culm terminates in a floral spike, 2 to 6 inches long, that is partially enclosed in the upper leaf sheath. The inflorescence is a dense cluster of upright spikelets having white or cream-colored anthers. Plants spread by seed and rhizomes.

Cultural Requirements: Plant Virginia Wild Rye in full sun or partial shade and moist, well-drained soil. It adapts to infertile soil on disturbed sites. It sprouts quickly when planted in the fall. Cut old dormant foliage back in summer to make way for new fall foliage.

Time of Bloom: May to June

Suggested Uses: Virginia Wild Rye is used for stabilizing disturbed, erosion-prone soil. It does particularly well along woodland streams and floodplains. It also can be planted in meadows and at the edges of woodlands. It is a good plant for areas where Japanese Stiltgrass, an invasive exotic plant, has been eradicated.

Georgia Hardiness Zones: All of Georgia

Size: 4 to 5 feet tall and 2 feet wide

Habitat: Shaded forests, banks and roadsides, fence rows and open woodlands.

Native To: Most of the continental U.S., except California, Nevada, Utah, Colorado, Idaho, Montana, Oregon and Washington.

Comments: Plants are a larval host for several species of butterflies. Cattle graze on the foliage. Virginia Wild Rye is easy to establish from plugs or seeds planted in the fall.

Images: Page 45

Fowl Mannagrass / *Glyceria striata*

Life Cycle: Perennial

Characteristics: Smooth unbranched culms bear four to six alternate chartreuse leaves 12 inches long and ¼ inch wide. Each culm terminates in a panicle of spikelets 12 inches long and 6 inches across. The panicle is pyramidal in shape with the longest branches at the bottom, tapering in length toward the top. The branches of the panicles occur in whorls of two to four and tend to droop downward. Spikelets are small, purplish green and turn greenish yellow then tan as they mature. The grass spreads predominately from seed.

Cultural Requirements: Fowl Mannagrass prefers full sun, partial shade to full shade and moist to wet loamy soil. Cut back foliage in mid-summer to make way for new fall growth.

Time of Bloom: April

Suggested Uses: Fowl Mannagrass is used for streambank and wildlife habitat restorations, in floodplains, along ponds, in moist meadows and other moist to wet sites.

Georgia Hardiness Zones: All of Georgia

Size: 2 to 3½ feet tall and 2 feet wide

Habitat: Wet meadows, marshes, bogs and ditches.

Native To: All of North America.

Comments: Fowl Mannagrass provides cover for birds and small mammals. Canada geese eat the foliage. The greenish yellow foliage and drooping floral spikelets are attractive features of this plant. The grass is easy to establish from plugs or seeds planted in the fall.

Images: Page 45

Little Barley / *Hordeum pussillum*

Life Cycle: Annual

Characteristics: Little Barley is a tufted grass with several branching culms originating from a center crown. Culms are light green and slender with one to three leaves along their lower half. Leaf blades are ¾ to 2 ½ inches long and ⅛ inch wide. They are bluish-green, hairless and flat. Nodes are dark-colored and swollen. Each culm terminates in an unbranched erect bristly spike of narrow, greenish-brown spikelets. Glumes have pronounced awns. The root system is shallow and fibrous.

Cultural Requirements: Little Barley prefers full sun and dry, well-drained alkaline soils containing sand or gravel.

Time of Bloom: April to May

Suggested Uses: Use Little Barley in open meadows and open areas of wildlife habitats. It does well in infertile soils where little else will grow.

Georgia Hardiness Zones: All of Georgia

Size: 8 to 18 inches tall

Habitat: Dry, alkaline gravelly soils along roadsides and railroads, overgrazed pastures, dry streambanks, fallow fields and waste areas. It often colonizes disturbed sites.

Native To: All of the continental U.S.

Comments: This plant is a relative of the cultivated grain barley (*Hordeum vulgare*). The seeds are valued by birds, grasshoppers and a number of small mammals. The starchy seeds were boiled, parched and roasted by indigenous people in eastern North America before the arrival of maize.

Images: Page 46

Two-flower Melicgrass / *Melica mutica*

Life Cycle: Perennial

Characteristics: Two-flower Melicgrass grows in loose clumps. Some leaf sheaths have a smooth surface while others are covered in downy fine hairs. Leaf blades are flat, 6 to 8 inches long and ¼ inch wide. The flowering culms have numerous branches and are 12 to 24 inches long. Spikelets are ⅜ to ⅝ inch long. They hang downward and give the inflorescence a one-sided appearance. The plant spreads by rhizomes and seed. When seeds are ripe, they shatter quickly.

Cultural Requirements: Two-flower Melicgrass prefers shade and moist, well-drained soil. Growth begins in early winter and accelerates in early spring.

Time of Bloom: March to May

Suggested Uses: Two-flower Melicgrass has attractive foliage, and its flowering culms complement spring forbs or ferns. Cut back the foliage after the seed heads shatter to encourage new growth in the fall.

Georgia Hardiness Zones: All of Georgia

Size: 1½ feet tall

Habitat: Open areas of woodlands, stream banks, moist rocky forests and roadside ditches.

Native To: New Jersey, south to Florida, west to Texas and north to Oklahoma. It is also found in Iowa, Illinois and Indiana.

Comments: Two-flower Melicgrass grows in deciduous forests where it gets sun, grows and flowers in early spring before the leaves of trees emerge. Then, when the trees leaf out and cast shade, the grass goes dormant. This grass is best established from plugs planted in the fall.

Images: Page 46

Blackseed Speargrass, Blackseed Needlegrass, Black Oatgrass / *Piptochaetium avenaceum* (Syn. *Stipa avenaceum*)

Life Cycle: Perennial

Characteristics: Blackseed Speargrass is a dense clump-forming cool-season grass with basal leaves. The leaves are dark green, 4 to 12 inches long, ⅛ inch wide and weeping. The underside of the leaves is scaly. Old leaves become tan and curly. The inflorescence is an open drooping panicle with single-flowered spikelets. Florets within the spikelet are ¾ to 1½ inches long and have twisted awns 2 to 3 inches long. Seeds turn black at maturity, and their awns remain attached. After the seed heads shatter, the pale tan glumes remain on the plant as it goes dormant in summer.

Cultural Requirements: Blackseed Speargrass prefers dry sandy or rocky soil and full sun to partial shade. Seeds with awns intact tend to germinate best; the awns twist with changes in humidity and help the seeds anchor themselves to the soil. Seeds shatter quickly when mature. Cut plants back in mid-summer to make way for new foliage in the fall. The plant goes dormant in summer, then new growth begins in the fall and accelerates in late winter into early spring.

Time of Bloom: April to May

Suggested Uses: Blackseed Speargrass is a nice ground cover for dry shady hillsides in an oak/hickory forest. It also likes open woodlands and meadows. It is quite attractive in May when the young seed heads blow in the wind.

Georgia Hardiness Zones: All of Georgia

Size: 3 feet tall and 1 foot wide

Habitat: Dry, West-facing, partially open woodlands, rocky slopes, clearings and edges of forests.

Native To: Massachusetts, south to Florida, west to Texas and north to Michigan.

Comments: Blackseed Speargrass is the only native speargrass species east of the Mississippi River. Children love to harvest the stems and pretend they are spears. The awns of mature seeds help the seeds stick to clothing for transport to other locations. Seeds can be planted in the fall, but they may take one to two years to germinate.

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Early Bluegrass / *Poa cuspidata*

Life Cycle: Perennial

Characteristics: Early Bluegrass starts growing in the early fall, with peak growth in winter and early spring. It is a loosely tufted grass with short rhizomes. Culms are not branched above their bases. The medium-green leaf blades are ⅛ inch wide and 12 to 18 inches long with curved tips. Panicles are erect, 2 to 6 inches long and pyramidal in shape.

Cultural Requirements: Early Bluegrass likes sandy, moist soil and partial shade. Cut the plant back after flowering to make way for new fall foliage.

Time of Bloom: March to April

Suggested Uses: Early Bluegrass is a nice short winter grass for shady moist areas of woodlands and wildlife habitats. It will not overwhelm emerging ferns and other spring forbs.

Georgia Hardiness Zones: 6, 7

Size: ½ to 2 feet tall

Habitat: Floodplains, stream banks and moist shady slopes.

Native To: The eastern U.S., from New York, west to Indiana, south to Louisiana and east to Georgia.

Comments: Other native bluegrasses in Georgia, *Poa autumnalis*, *Poa sylvestris* and *Poa palustris*, bloom later than *Poa cuspidata*.

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Sedges

Sedges, *Carex* and *Scirpus* spp.

The flowers of sedges are wind pollinated and do not rely on insects for cross pollination. The larvae of several butterfly species rely on sedges as their food source, as do several species of grasshoppers and leafhoppers. The seeds are an important food source for many upland bird species, including game birds, waterfowl and songbirds. All *Carex* species are generally cool-season plants. Sedges are not grasses but *Graminoids*, a term used to describe grass look-alikes. All species of sedges are clump forming.

Yellowfruit Sedge, Yellow-headed Fox Sedge / *Carex annectens* (Syn. *Carex bicknelii*)

Life Cycle: Perennial

Characteristics: This is a dense, clumping sedge with a columnar growth habit and narrow, alternate leaves up to 24 inches long. Flowers are terminal spikelets that emerge green, turn yellow, then turn brown as they mature.

Cultural Requirements: Like other sedges, Yellowfruit Sedge prefers moist to wet soils in full sun or partial shade.

Time of Bloom: May to June

Suggested Uses: Use Yellowfruit Sedge in moist areas along streams or ponds that experience seasonal flooding. It also can be grown on upland sites if it is given constant moisture. Its showy spikelets provide ornamental value to moist or aquatic settings.

Georgia Hardiness Zones: All of Georgia

Size: 1 to 3 feet tall and 1 to 2 feet wide

Habitat: Bottomlands, pond margins, roadside ditches and other moist, open sites.

Native To: Maine, south to Florida, west to Texas and north to Nebraska and Minnesota.

Comments: This plant is easy to grow and will naturalize on moist sites.

Images: Page 48

Cherokee Sedge, Bullsedge / *Carex cherokeensis*

Life Cycle: Perennial

Characteristics: This sedge grows in dense tufts and has narrow, deep green leaves, 12 to 18 inches long. Greenish-white flowers in spring are insignificant, but the drooping wheat-like seed heads are attractive and add interest to the landscape. The plant spreads by rhizomes and seeds.

Cultural Requirements: Cherokee Sedge prefers partial shade and moist soils having a neutral pH. It will adapt to full sun, provided irrigation is available. Cut the plant back to ground level in late summer to make way for new spring growth.

Time of Bloom: March to May

Suggested Uses: Plant Cherokee Sedge in moist open woodland gardens, perennial borders or on pond edges. When given its preferred cultural conditions, it is an attractive, low-maintenance plant.

Georgia Hardiness Zones: All of Georgia

Size: 6 to 18 inches tall and 12 inches wide

Habitat: Moist sandy-loam woodlands, bottomlands, pond edges and roadside ditches.

Native To: Southeastern U.S., from South Carolina to Florida, west to Texas and north to Missouri.

Comments: This plant has no serious insect or disease problems. It is easy to grow and garden worthy. Cherokee Sedge is best established from plugs or bare-rooted plants planted in the fall.

Images: Page 48

Frank's Sedge / *Carex frankii*

Life Cycle: Perennial

Characteristics: Leaves are basal, up to 24 inches long and ⅓ inch wide, light green and rough along their edges. The tips of the leaves tend to arch downward. Flowering culms rise 2½ feet and terminate in an inflorescence of three to eight spikelets, 2 inches long and ½ inch wide. Flowers are either male or female. Female flowers have long styles and long-awned rough bracts that give them a bristle-like appearance. Male flowers are narrower than female flowers. The plant spreads by rhizomes and seed.

Cultural Requirements: Frank's Sedge prefers full sun to partial shade and moist to wet loamy soil.

Time of Bloom: May to June, bearing fruits from June to July.

Suggested Uses: Use Frank's Sedge in moist areas around water gardens or ponds. It is also used in moist meadows and for wildlife habitat restoration projects.

Georgia Hardiness Zones: All of Georgia

Size: 2½ feet tall and spreading

Habitat: Floodplains, seepages, soggy meadows, streams, ponds and along rivers and ditches.

Native To: New York, south to Georgia, west to Oklahoma and north to Nebraska, Iowa and Michigan.

Comments: This is an attractive plant for moist environments. Frank's Sedge can be grown from seeds or plugs planted in the fall.

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Southern Waxy Sedge / *Carex glaucescens*

Life Cycle: Perennial

Characteristics: Southern Waxy Sedge is an erect, clump-forming plant. Leaf sheaths are smooth and pinnately veined. Leaf blades are 16 to 24 inches long and ¼ to ⅜ inch wide. Flowering culms bear five to seven grayish-blue spikelets, 2 to 4 inches long, that hang downward on stalks. Twisted, reddish-brown floral remnants persist on the surface of the spikelets.

Cultural Requirements: Southern Waxy Sedge prefers full sun and moist to wet soil. However, it will adapt to dry sites. It also adapts to a wide variety of soil types. Cut back plants in the late fall or winter to make way for new spring growth.

Time of Bloom: April

Suggested Uses: Use Southern Waxy Sedge along pond margins or in moist meadows or floodplains.

Georgia Hardiness Zones: All of Georgia

Size: 2 to 4 feet tall and 2 feet wide

Habitat: Bogs, pond margins, wet pine savannas and seepage areas.

Native To: Maryland, south to Florida, west to Texas and North to Arkansas.

Comments: The species name, *glaucescens*, stems from the Greek prefix "glauc," which means gray or blue-gray, referring to the blue-green color of the seed heads.

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Limestone Meadow Sedge / *Carex granularis*

Life Cycle: Perennial

Characteristics: Leaves and culms are bluish-green. Leaves are 12 inches long and ⅓ inch wide. In May, several flowering culms rise above the foliage bearing five alternate leaves. They produce one to two axillary spikelets of pistillate (female) flowers, one to two terminal spikelets of pistillate flowers, and a single terminal spikelet of staminate (male) flowers. The pistillate flowers develop into three-angled achenes. The plant spreads by seed and rhizomes.

Cultural Requirements: Limestone Meadow Sage prefers moist, well-drained soil and partial shade to full shade. It likes alkaline soil with a pH between 6.5 and 7.5. Cut back the plant in winter to make way for new spring growth.

Time of Bloom: May

Suggested Uses: Limestone Meadow Sedge can be used as a groundcover in moist sites and is an excellent plant for rain gardens, bio-retention basins and ditches.

Georgia Hardiness Zones: All of Georgia

Size: 6 inches tall and 12 inches wide

Habitat: Moist woodlands, swamps, bottomlands, moist prairies, seeps, limestone cliffs and abandoned fields.

Native To: Maine, south to Florida, west to Texas and north to North Dakota.

Comments: Limestone Meadow Sedge can be distinguished from other *Carex* species by the grainy appearance of the pistillate spikelets and the presence of both axillary and terminal pistillate spikelets. The plant is easy to establish from plugs or bare-rooted plants planted in the fall.

Images: Page 50

Shallow Sedge, Lurid Sedge / *Carex lurida*

Life Cycle: Perennial

Characteristics: Shallow Sedge forms a tuft of basal leaves from which rise one or more culms up to 2½ feet long. The culms are triangular and rough along their edges. One to three alternate leaves, 12 inches long and ¼ inch wide, are borne on the lower half of each culm. In May, a terminal inflorescence bears one to four pistillate (female) spikelets and a single staminate (male) spikelet. The pistillate spikelets are yellow-green and bunched together under the staminate spikelet. The staminate spikelet resembles a corn cob as it matures, while the pistillate (female) spikelets resemble small elongated footballs with spikes. The plant spreads by seed.

Cultural Requirements: Shallow Sedge prefers full sun to partial shade and moist to wet soil.

Time of Bloom: May

Suggested Uses: Use Shallow Sedge in moist areas around water gardens, in wet meadows, bottomlands or adjacent to bodies of water.

Georgia Hardiness Zones: All of Georgia

Size: 1 to 3 feet tall and 1 to 2 feet wide

Habitat: Prairie swales, sedge meadows, bogs, swamps, edges of marshes, borders of ponds and streams, and ditches.

Native To: The eastern half of the U.S., from Maine to Florida, west to Texas and north to Minnesota.

Comments: Shallow Sedge can be established from plugs, seeds or bare-rooted plants planted in the fall.

Images: Page 50

Pennsylvania Sedge / *Carex pennsylvanica*

Life Cycle: Perennial

Characteristics: Leafy culms, 6 to 18 inches long, have a triangular shape and bear several alternate leaves throughout their length. Leaves are arching, ⅛ inch across and 4 to 12 inches long. In spring, flowering culms bear a narrow terminal staminate (male) spikelet, ½ to 1 inch long, and two to three pistillate (female) spikelets. Each pistillate floret within a spikelet has three white styles and is subtended by a purple leafy or scale-like bract. Fruit are three-sided achenes. The plant spreads by stolons that creep along the soil surface and form new plantlets at their nodes.

Cultural Requirements: Pennsylvania Sedge prefers partial shade to full shade and dry, well-drained soil.

Time of Bloom: May to June

Suggested Uses: The fine-textured foliage and creeping growth habit make Pennsylvania Sedge a good ground cover for erosion-prone sites and densely shaded areas with dry soil. It should be tried as a turfgrass alternative in dry shady areas under trees where most turfgrasses refuse to grow. It is also useful in wildlife habitats.

Georgia Hardiness Zones: 6, 7, 8a

Size: 6 to 12 inches tall and spreading

Habitat: Dry open woodlands, thinly wooded bluffs, wooded slopes, sandy savannas and rocky openings in wooded areas.

Native To: Maine, south to Georgia, west to Mississippi and north to Arkansas, Missouri, Iowa, South Dakota and North Dakota.

Comments: This plant provides seasonal cover and food for small songbirds, insects and small mammals. It is deer tolerant. It is difficult to establish from seed but easy to establish from plugs or bare-rooted plants planted in the fall.

Images: Pages 50-51

Seersucker Sedge, Plantainleaf Sedge / *Carex plantaginea*

Life Cycle: Perennial

Characteristics: Leaves are borne in a basal rosette. They are broad, up to 1¼ inches wide and 12 inches long. Basal leaves are pleated, giving it a seersucker appearance. The bases of the leaves have a purplish tinge. Leaves along the culms are short, reddish-purple tubular bracts. In spring, green flowering culms rise above the basal leaves, each bearing two to four erect pistillate (female) spikelets and a single terminal staminate (male) spikelet. The spikelets are widely spaced along the culm. Each pistillate spikelet is ½ to 1½ inches long, cylindrical in shape and tinted light purple at the tip. The lowest pistillate spikelet is borne on a small peduncle (stalk) while the remaining ones are sessile. The staminate spikelet is ¾ inch long and reddish purple. Fruit are three-sided achenes. The plant spreads by seeds and rhizomes.

Cultural Requirements: Seersucker Sedge prefers partial shade to full shade and moist acidic soil high in organic matter. It is susceptible to a leaf spot disease and aphids. Propagate this plant by dividing the clumps in early spring.

Time of Bloom: March to May

Suggested Uses: Seersucker Sedge, with its broad, showy leaves, provides a nice texture in moist woodlands and shady habitats.

Georgia Hardiness Zones: 6, 7, 8a

Size: 1 to 2 feet tall with an equal width

Habitat: Seersucker Sedge grows in deciduous mountainous woodlands, wooded slopes and ravines. It is a distinctive member of fertile forest floors and can be found growing adjacent to spring-flowering wildflowers.

Native To: Maine, south to Georgia and Alabama, and north to Iowa, Minnesota and Wisconsin.

Comments: This is a showy plant in the right habitat.

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Tussock Sedge, Upright Sedge / *Carex stricta*

Life Cycle: Perennial

Characteristics: Smooth, narrow yellowish-green leaves, ⅜ inch in diameter, grow in dense clumps. Old leaves wither, die, turn brown and accumulate around the base of the plant. In late spring, flowering culms rise above the foliage and bear reddish-brown spikelets. The plant spreads by rhizomes to form large colonies.

Cultural Requirements: Tussock Sedge prefers full sun to partial shade and moist to wet soil.

Time of Bloom: May to June

Suggested Uses: Tussock Sedge is used in moist meadows and moist open woodlands. It also is used for wetland reclamation and wildlife habitats along streams, pond margins and areas that get seasonal flooding. It provides a nice accent in cultivated landscapes if it can be kept moist.

Georgia Hardiness Zones: All of Georgia

Size: 1 to 3 feet tall and 2 feet wide

Habitat: This is a wetland species native to wet swales, marshes, bogs, wet meadows and creek margins.

Native To: The eastern half of the U.S., from Maine to Georgia, west to Texas and north to North Dakota.

Comments: This plant grows in mounds called tussocks. The tussocks trap water between them, helping other aquatic plants get established. The plant provides cover for breeding frogs, toads, salamanders and insects, and nesting materials for a variety of birds, including ducks, small herons, sparrows and geese. A number of birds and small mammals feed on the seeds.

Images: Page 51

Wool Grass, Cottongrass Bulrush / *Scirpus cyperinus*

Life Cycle: Perennial

Characteristics: Low-growing vegetative shoots bear leaves ½ inch wide and up to 2 feet long. In summer, flowering culms rise above the foliage and terminate in an inflorescence 4 to 6 inches long. It consists of many branchlets that terminate in small clusters of spikelets. The spikelets become reddish brown and wooly at maturity. They persist into the fall.

Cultural Requirements: Wool Grass grows in full sun, wet sites and standing water.

Time of Bloom: June to September

Suggested Uses: Wool Grass is a wetland plant for wet meadows or wildlife habitats in aquatic areas.

Georgia Hardiness Zones: All of Georgia

Size: 3 to 6 feet tall and 1 to 2 feet wide

Habitat: Wet meadows and swamps. It will grow in standing water.

Native To: Most of the continental U.S., except Arizona, New Mexico, Nevada, Utah, Colorado, Kansas, Nebraska and North Dakota.

Comments: Birds eat the seeds of this plant, and the foliage provides nesting materials. Muskrats and geese eat the roots. It can be established from plugs planted in the fall.

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Glossary

achene: A small, dry thin-walled fruit that does not split open when ripe.

annual: A plant that completes its life cycle in one year or less.

auricle: A small, ear-shaped appendage at the base of the leaf blade.

awn: A bristle-like appendage on a floret or seed, often the extension of veins in glumes or lemmas.

axil: The angle between a leaf and its stem or branch or the angle between a branch or pedicel and its axis.

axillary: Growing in the axil.

bald: A barren area of land.

bare-rooted plants: Plants that have been dug up and transplanted from one location to another.

blade: The upper expanded part of a grass leaf.

bract: A reduced leaf or leaf-like structure at the base of a flower or inflorescence.

bristle: A reduced or modified leaf.

collar: The outside area of a grass leaf where blade and sheath join.

compressed: Flattened laterally.

cool-season grass: Grasses that make their active growth in winter, early spring or late fall.

culm: A hollow or pithy stalk or stem.

cultivars: A unique cultivated variety.

dead-heading: Removing spent blossoms after flowering.

dissected: Cut or divided into parts.

floret: An individual flower within a dense cluster of flowers.

forb: A herbaceous plant, other than a grass, usually growing in a field or meadow.

glabrous: Smooth, hairless.

glaucous: Covered with a whitish or bluish waxy film.

glumes: A pair of bracts at the base of a grass spikelet.

husk: The tough outer covering found on some seeds and fruit.

inflorescence: The seed head or flowering portion of a plant.

internode: The part of a stem between two nodes or joints.

keel: The sharp fold at the back of a compressed sheath, blade, glume or lemma.

lance-shaped: Several times longer than broad; broadest below the middle and tapered toward the top.

lemma: The bract of a spikelet above the pair of glumes.

ligule: In grasses, a thin, membranous, hairy or ridge-like appendage on the side of the leaf where the blade and sheath join.

margin: The edge, such as the edge of a leaf blade.

mesic: Moderately moist.

midrib: The central vein of a leaf.

node: The joint of a grass stem where leaves and branches originate.

palea: The inner bract of a grass floret.

panicle: A seed head with a main axis and subdivided branches. It may be open or compact and spike-like. Most panicles mature from the bottom upward.

pedicel: The stalk that holds a single flower on an inflorescence.

peduncle: The stalk that holds the inflorescence.

perennial: A plant that produces above-ground parts from the same root system for more than one growing season.

petiole: The stalk of a leaf blade.

pinnate: Having leaflets or leaf veins in a feather-like arrangement on each side of a common axis.

pistillate: Having only female flower parts.

plugs: Small plants with established roots.

pubescence: A covering of short hairs.

raceme: A branched seed head in which the spikelets are borne on short stalks on a rachis.

rachis: The axis of a spike or raceme.

rhizomatous: Spreading via rhizomes (underground stems).

rhizome: An underground stem with nodes, buds and scale-like leaves.

seed: The grain or ripened ovule of a plant.

seed stalk: The stem on which a grass seed head develops.

sessile: Without a stalk or lacking a pedicel.

spathe: A bract or pair of bracts that often encloses an inflorescence.

spike: An unbranched seed head in which the spikelets are sessile on a rachis.

spikelet: The basic unit of a grass seed head consisting of one or more florets and a pair of glumes.

staminate: Having only male flower parts.

stolon: A horizontal, above-ground stem or runner that roots along its nodes.

style: Pollen tube connecting the stigma to the ovary.

warm-season grasses: Grasses that make their active growth during the spring and summer.

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Guide to Selecting Native Grasses and Sedges

Common Name (*Botanical Name*)	Bloom Time[y]	Plant Size	Light Level[x]			Moisture Preference				Uses					
	Sp,Su,F		○	◉	●	Well-Drained	Dry	Moist	Wet	Woodlands	Meadows	Wildlife Habitats	Erosion Control	Moist/Wet Sites	Landscape
Warm-season Grasses															
Upland Bentgrass (*Agrostis perennans*)	F	1-3 ft.	x	x		x	x	x			x	x			
Big Bluestem (*Andropogon gerardii*)	Su,F	4-8 ft.	x	x		x	x	x		x	x	x	x		x
Bushy Bluestem (*Andropogon glomeratus*)	F	3-4 ft.	x					x	x			x	x	x	
Elliot's Bluestem (*Andropogon gyrans*)	F	2-3 ft.	x	x		x	x	x		x	x	x			
Splitbeard Bluestem (*Angropogon ternarius*)	F	4 ft.	x	x		x	x			x	x	x	x		
Broomsedge *(Andropogon virginicus)*	F	3 ft.	x	x		x	x	x			x	x	x		
Arrowfeather Threeawn (*Aristada purpurascens*)	Su,F	1-3 ft.	x	x		x	x			x	x	x			
Southern Wiregrass (*Aristida stricta* var. *beyrichiana*)	Su	3 ft.	x	x		x	x			x	x	x			x
Side Oats Grama (*Bouteloua curtipendula*)	Su	3 ft.	x	x		x	x			x	x	x	x		x
Sweet Wood Reed (*Cinna arundinacea*)	Su	3-5 ft.		x				x				x	x	x	
Bigtop Lovegrass (*Eragrostis hirsuta*)	F	3 ft.	x			x	x				x				
Purple Lovegrass (*Eragrostis spectabilis*)	Su,F	2 ft.	x	x		x	x	x			x				x
Pink Muhly Grass (*Muhlenbergia capillaris*)	F	3 ft.	x	x		x	x	x			x		x		x
Purple Muhly Grass (*Muhlenbergia sericea*)	F	4 ft.	x			x	x	x			x			x	x
Nimblewill (*Muhlenbergia schreberi*)	F	8 in.	x	x				x		x			x	x	
Beaked Panic Grass (*Panicum anceps*)	Su,F	4 ft.	x	x			x	x	x	x	x	x	x	x	
Redtop Panic Grass (*Panicum rigidulum*)	Su,F	2-4 ft.	x					x	x		x			x	
Switchgrass (*Panicum virgatum*)	Su,F	3-6 ft.	x	x		x	x	x		x	x	x	x	x	
Silver Plumegrass (*Saccharum alopecuroides*)	F	3-9 ft.	x	x		x	x	x		x	x	x			x
Giant Plumegrass (*Saccharum giganteum*)	F	6-12 ft.	x	x		x		x	x	x	x	x		x	

[y] Bloom Time: Sp=Spring, Su=Summer, F=Fall
[x] Light Level: ○=full sun, ◉=partial shade, ●=shade

Guide to Selecting Native Grasses and Sedges

Common Name (*Botanical Name*)	Bloom Time[y]	Plant Size	Light Level[x]			Moisture Preference				Uses					
	Sp,Su,F		○	⦿	●	Well-Drained	Dry	Moist	Wet	Woodlands	Meadows	Wildlife Habitats	Erosion Control	Moist/Wet Sites	Landscape
Warm-season Grasses (continued)															
Little Bluestem (*Schizachyrium scoparium*)	F	1½-2 ft.	x	x		x	x	x		x	x	x	x		x
Knotroot Bristlegrass (*Setaria parviflora*)	Su	1-3 ft.	x	x				x		x	x	x		x	
Slender Indian Grass (*Sorghastrum elliottii*)	F	2-6 ft.	x	x		x	x	x		x	x	x			x
Yellow Indian Grass (*Sorghastrum nutans*)	Su,F	3-5 ft.	x	x		x	x	x		x	x	x	x	x	x
Lopsided Indian Grass (*Sorghastrum secundum*)	F	1½-3 ft.	x	x		x	x	x		x	x	x			x
Rough Dropseed (*Sporobolus clandestinus*)	F	30 in.	x	x		x	x			x	x	x			
Prairie Dropseed (*Sporobolus heterolepis*)	Su,F	1½-2 ft.	x	x		x	x			x	x	x			x
Pineywoods Dropseed (*Sporobolus junceus*)	F	2-3 ft.	x	x		x		x		x	x	x		x	x
Purpletop (*Tridens flavus*)	Su	3-6 ft.	x			x	x	x			x	x			
Eastern Gamagrass (*Tripsacum dactyloides*)	Sp,Su,F	4-8 ft.	x			x		x	x		x	x		x	x
Cool-season Grasses															
Ticklegrass (*Agrostis hyemalis*)	Sp,Su	1-3 ft.	x	x		x	x	x		x	x		x	x	
Giant Cane (*Arundinaria gigantea*)	Sp	5-12 ft.	x	x				x				x	x	x	
Hairy Woodland Brome (*Bromus pubescens*)	Sp,Su	1-3 ft.		x	x			x		x		x		x	
River Oats (*Chasmanthium latifolium*)	Su	2-4 ft.		x	x			x	x		x	x	x	x	x
Longleaf Woodoats (*Chasmanthium sessiliflorum*)	Su	3 ft.		x	x			x		x		x		x	x
Silky Oatgrass (*Danthonia sericea*)	Sp,Su	8-20 in.	x	x			x			x	x		x		x
Poverty Oatgrass (*Danthonia spicata*)	Sp	1 ft.	x	x			x	x		x	x		x		x
Wavy Hairgrass (*Deschampsia flexuosa*)	Sp	12-18 in.		x		x		x		x	x	x			x
Deer-tongue Grass (*Dichanthelium clandestinum*)	Sp,Su	3-4 ft.		x		x		x				x	x	x	

[y] Bloom Time: Sp=Spring, Su=Summer, F=Fall
[x] Light Level: ○=full sun, ⦿=partial shade, ●=shade

Guide to Selecting Native Grasses and Sedges

Common Name (*Botanical Name*)	Bloom Time[Y]	Plant Size	Light Level[X]			Moisture Preference				Uses					
	Sp,Su,F		○	◉	●	Well-Drained	Dry	Moist	Wet	Woodlands	Meadows	Wildlife Habitats	Erosion Control	Moist/Wet Sites	Landscape
Cool-season Grasses (continued)															
Openflower Rosettegrass (*Dichanthelium laxiflorum)*	Sp,Su,F	6 in.	x	x				x		x	x			x	x
Velvet Panicum (*Dichanthelium scoparium*)	Sp,Su	4-5 ft.		x				x	x	x		x		x	
Eastern Bottlebrush Grass (*Elymus hystrix)*	Sp,Su	4-5 ft.		x	x	x		x	x	x	x			x	x
Virginia Wildrye (*Elymus virginicus*)	Su	4-5 ft.	x	x		x		x		x	x		x	x	
Fowl Managrass (*Glyceria striata*)	Sp	2-3½ ft.	x	x	x			x	x	x	x	x		x	
Little Barley (*Hordeum pussillum*)	Sp	½-1½ ft.	x			x	x				x	x			
Twoflower Melicgrass (*Melica mutica*)	Sp	1½ ft.		x	x	x		x		x				x	x
Blackseed Speargrass (*Piptochaetium avenaceum*)	Sp	3 ft.		x	x		x			x	x				
Early Bluegrass (*Poa cuspidata*)	Sp	½-2ft.		x				x		x		x		x	
Sedges															
Yellowfruit Sedge (*Carex annectens*)	Su	1-3 ft.	x	x				x	x					x	
Cherokee Sedge (*Carex cherokeensis*)	Sp,Su	½-1½ ft.	x	x	x			x		x				x	x
Frank's Sedge (*Carex frankii*)	Sp,Su	2½ ft.	x	x				x	x		x	x		x	
Southern Waxy Sedge (*Carex glaucescens*)	Sp	2-4 ft.	x	x			x	x	x		x			x	
Limestone Meadow Sedge (*Carex granularis*)	Sp	6 in.		x	x	x		x					x	x	x
Shallow Sedge (*Carex lurida*)	Sp	1-3 ft.	x	x				x	x				x	x	x
Pennsylvania Sedge (*Carex pennsylvanica*)	Sp	6 in.		x	x	x	x			x		x	x		x
Seersucker Sedge (*Carex plantaginea*)	Sp	1-2 ft.		x	x			x		x				x	x
Tussock Sedge (*Carex stricta*)	Sp,Su	1-3 ft.	x	x				x	x	x	x	x		x	x
Wool Grass (*Scirpus cyperinus*)	Su	3-6 ft.	x	x				x	x		x	x		x	

[Y] Bloom Time: Sp=Spring, Su=Summer, F=Fall
[X] Light Level: ○=full sun, ◉=partial shade, ●=shade

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