2025 Middle School Envirothon

Field and Meadow Forestry Station

Trees, Shrubs, Vines, and Herbaceous Plants
Red Cedar
White Oak
Black Cherry
Boxelder
Honey Locust
Goldenrod
Common Milkweed
Multiflora Rose
Japanese Honeysuckle
Black Raspberry
Daisy Fleabane
Common Mullein
Wineberry
Joe-Pye Weed

References:

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Eastern Redcedar

Eastern redcedar is a common native conifer growing on a wide variety of sites across a broad range of eastern and central states. It is valued for its wood quality and its ability to provide wildlife with food and cover. Eastern redcedar is also useful as a soil stabilizer and a wind-break. Eastern redcedar is very common on poor, dry soils of many types, especially on limestone soils. It often invades old fields.

Leaf: Evergreen, very small, with two types of leaves (often on the same tree): 1) scale-like leaves 1/16 inch long, dark green, with 4 sides held tightly to twig and 2) longer (1/4 inch), dark blue-green needle-like leaves that are more common on young trees and fast growing shoots.

Flower: Species is dioecious, but occasionally monoecious; males are small, yellow-brown, occurring in large groups; females are light blue-green.

Fruit: Berry-like cones, light green in spring, turning dark blue and glaucous at maturity, about 1/4 inch in diameter, appearing in spring and maturing in the fall.

Twig: Green for several years, covered in scales, later turning brown.

Bark: Red-brown in color, exfoliating in long, fibrous strips, often ashy gray where exposed.

Form: A small tree with a dense ovoid or columnar crown reaching up to 60 feet tall.

Timber Value $ $ $ $ $

Eastern redcedar is used for cedar-scented closets and chests, fenceposts, lumber, poles, boats, paneling, pencils, and cedarwood oil, a fragrant extract.

Wildlife Value

The dense habit of eastern redcedar provides birds and deer with good cover. Fruits are eaten by many different species of birds and mammals.

Fun Facts

The berries of Juniperus species are used to provide gin with its characteristic flavor. Cedar chests and lined closets prevent moth damage to wool clothing because the volatile cedar oil is a natural insecticide. While difficult to age because of missing rings, the oldest known eastern redcedar are nearly 1000 years old.







White Oak

White oak is a native deciduous species of wide distribution across the eastern U.S. It is renowned for its quality wood, acorn production for wildlife, and picturesque stature in old age.

Leaf: Alternate, simple, oblong to ovate in shape, 4 to 7 inches long; 7 to 10 rounded, finger-like lobes, sinus depth varies from deep to shallow, apex is rounded and the base is wedge-shaped, green to blue-green above and whitish below.

Flower: Species is monoecious; male flowers are yellow-green, borne in naked, slender catkins, 2 to 4 inches long; female flowers are reddish green and appear as very small single spikes; appearing with the leaves in mid-spring.

Fruit: Ovoid to oblong acorn, cap is warty and bowl-shaped, covers 1/4 of the fruit; cap always detaches at maturity; matures in one growing season in the early fall.

Twig: Red-brown to somewhat gray, even a bit purple at times, hairless and often shiny; multiple terminal buds are red-brown, small, rounded (globose) and hairless.

Bark: Whitish or ashy gray, varying from scaly on smaller stems to irregularly platy or blocky on large stems. On older trees smooth patches are not uncommon.

Form: A very large tree; when open grown, white oaks have rugged, irregular crowns that are wide spreading, with a stocky bole. In the forest crowns are upright and oval with trees reaching up to 100 feet tall and several feet in diameter.

Timber Value $ $ $ $ $

White oak is used for lumber for beams, railroad ties, bridge planking, mine timbers, flooring, furniture, veneer, barrel staves, etc.

Wildlife Value

Over 180 wildlife species have been reported to use white oak acorns for food. Twigs and foliage are browsed by deer.

Fun Facts

White oak can grow to a very large size and live 3 to 5 centuries. It is a useful tree, producing edible acorns (soak them first to wash out tannins), preferred by turkey and deer. The wood is used for "tight cooperage" and is frequently used for whiskey and wine barrels. It is also used for flooring, furniture and interior finishing. It is considered by some to be the best wood of all the white oak species.







Black Cherry

Black cherry is one of the most prized native hardwoods of eastern and central U.S. forests. It grows best and is most commercially valuable along the Allegheny Plateau of Pennsylvania, New York, and West Virginia, and in scattered pockets in the southern Appalachian Mountains and uplands of the Gulf Coastal Plain.

Leaf: Alternate, simple, 2 to 5 inches long, oblong to lance-shaped, finely serrated, very small inconspicuous glands on petiole, dark green and lustrous above, paler below; usually with a dense yellowish-brown, sometimes white pubescence along mid-rib.

Flower: Small white flowers in hanging, narrow clusters 4 to 6 inches long, appearing in late spring.

Fruit: Dark purple round drupe, almost black when ripe, 1/3 inch in diameter with a bitter-sweet taste; matures in late summer.

Twig: Slender, reddish brown, sometimes covered in gray epidermis, pronounced bitter almond odor and taste; buds are very small (1/5 inch),covered in several glossy, reddish brown to greenish scales; leaf scars are small and semicircular with 3 bundle scars.

Bark: Smooth with numerous short, narrow, horizontal lenticels when young; becomes very dark (nearly black), breaking up into small, rough, irregular, upturned plates (burnt corn flakes), when older.

Form: Medium sized tree which (on good sites) develops a long, straight, clear bole and can reach heights approaching 100 feet.

Timber Value $ $ $ $ $

Black cherry is used for veneer, furniture, cabinets, paneling, interior trim, handles, crafts, toys, scientific instruments, etc.

Wildlife Value

Many birds and mammals eat black cherry fruits. Deer, rabbits, and hares browse foliage and stems.

Fun Facts

Black cherry leaves, twigs, and bark contain a cyanide precursor that is released whenever plant tissue is damaged (e.g., wilted). Because of this black cherry trees are potentially lethal to livestock. Black cherry trees grow to be the largest of the North American cherries. The fruits can be made into jams and jellies. The wood is a rich red-brown and prized for furniture making.







Boxelder

Boxelder is a common native tree of generally small size and great tolerance. It is common in waste areas and is considered by some to be weed-like in nature. It can be used as a street tree in harsh urban environments and a soil stabilizer in disturbed areas. Boxelder is most common on deep, fertile sites and an aggressive pioneer in disturbed areas.

Leaf: Opposite, pinnately compound, 3 to 5 leaflets (sometimes 7), 2 to 4 inches long, margin coarsely serrate or somewhat lobed, shape variable but leaflets often resemble a classic maple leaf, light green above and paler below.

Flower: Species is dioecious; yellow-green, in drooping racemes; appearing in spring.

Fruit: Paired V-shaped samaras, 1 to 1 1/2 inches long, in drooping clusters, light tan when ripe in fall, persist throughout winter.

Twig: Green to purplish green, moderately stout, leaf scars narrow, meeting in raised points, often covered with a glaucous bloom; buds white and hairy, lateral buds appressed.

Bark: Thin, gray to light brown, with shallow interlacing ridges; young bark is generally warty.

Form: Medium sized to 60 feet, typically with poor form and multiple trunks; sprouts common on bole.

Looks like: poison-ivy

Timber Value $ $ $ $ $

Boxelder is used for boxes, rough construction lumber, cheap furniture and woodenwares.

Wildlife Value

Birds and squirrels eat boxelder seeds. Deer browse plant parts during the fall.

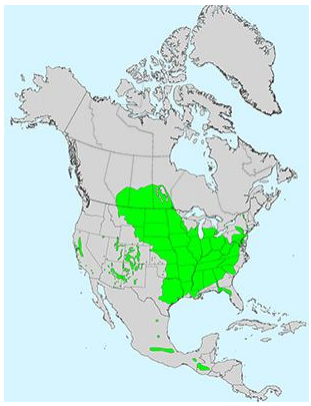
Fun Facts

Boxelder has little, if any commercial use. The wood is susceptible to storm damage. Native Americans from the Plains used to make a syrup out of the sap - not so sweet as that made from sugar maple sap. Because of its compound leaves, boxelder is sometimes referred to as "ashleaf" maple.









Honey Locust

Honey locust commonly grows on limestone or moist bottomland soils throughout the south-central and lower mid-west states. This native tree is often planted in urban situations for its finely textured compound leaves and admirable tolerance of both drought and salinity.

Leaf: Alternate, pinnately compound, 5 to 8 inches long, with 15 to 30 leaflets or bipinnately compound with 4 to 7 pairs of minor leaflets. Leaflets are 1/2 to 1 1/2 inches long, ovate to elliptical in shape, green to yellow-green.

Flower: Small, greenish yellow, displayed on 2 to 3 inch long narrow, hanging clusters, not showy, but very fragrant, appearing in late spring and early summer.

Fruit: A very distinctive, 6 to 8 inches long, flattened, red-brown, leathery pod that becomes dry and twisted; pod contains many oval, dark brown, shiny seeds, 1/3 inch long, maturing in late summer and early fall.

Twig: May be either stout or slender, prominently zig-zag, red-brown to light brown in color, numerous lenticels and branched thorns. Lateral buds are very small and sunken.

Bark: Initially, gray-brown to bronze, and smooth with many horizontal lenticels, later breaking into long, narrow, curling plates. Often displaying clusters of large, branched thorns on trunk.

Form: A medium size tree with a typically short bole and an airy, spreading crown, reaches to 80 ft.

Timber Value $ $ $ $ $

Honey locust's dense, heavy wood is used for fence posts, pallets, crates, general construction, furniture, interior finish, turnery, and fuelwood.

Wildlife Value

Fruits are high in carbohydrates and proteins; draw cattle, rabbits, squirrels, deer, opossum, birds

Fun Facts

Because of its useful timber, sparse shade, and edible, nutritious pods, honey locust is a valuable tree for agroforestry systems. The common name alludes to the honey-like taste of the pulp inside the seed pods. The variety, "inermis", is a commonly planted street tree that does not bear pods or thorns.







Goldenrod

Goldenrod is a perennial plant that is well-known for its healing properties. This wild edible reproduces through its roots, bulbs, stems and by its seed. There are more than 100 species of this perennial herb, and most of them are native to North America. Most bloom from late summer into fall and serve as good pollinator plants.

Distinguishing Features: Long wood like stems with yellow flowers that grow in thick clusters.

Flowers: Goldenrod flowers grow as an inflorescence in a broad or occasionally narrow pyramidal panicle. They can be anywhere 2 to 16" high and nearly as wide. There are several to many horizontal branches, the upper sides of which carry numerous, densely crowded small heads of golden yellow flowers. Each individual flower head measures about 1/8" long and wide.

Leaves: There can be wide variations in characteristics, but generally, goldenrod leaves are alternate, about 4” long and 1” wide, tapering to a point at the tip and narrowing at the base, with no leaf stem and small teeth around the edges. Three veins run parallel from near the base of the leaf. The underside of the leaf is hairy, especially along the veins and the upper side has a rough texture. Crushed leaves have a distinctive scent.

Height: Most goldenrods average 3 to 4’ in height.

Habitat: There is no shortage of goldenrod in fall! This striking yellow plant can be found in moist locations including beaches, in forests, fields, roadsides, compost piles, cultivated fields, and orchards throughout Canada, the U.S., and across the world.

Edible parts: All aerial parts of the plant can be used. The flowers are edible and make attractive garnishes on salads. Flowers and leaves (fresh or dried) are used to make tea. Leaves can be cooked like spinach or added to soups, stews or casseroles. Leaves can be blanched and frozen for later use in soups, stews, or stir fry throughout the winter or spring.

Fun facts: Because of its showy nature, goldenrod has an unfounded allergic reputation. The real culprits for fall allergy misery are the plants that produce wind-borne pollen, such as ragweed (*Ambrosia* sp.). Both ragweed and goldenrods bloom at the same time but ragweed generates an unusual amount of pollen in the air. Goldenrod produces a heavier sticky pollen meant to be transported by insects, not the wind. All varieties of goldenrod all are equally nutritious and boast many health benefits. Goldenrod can be used fresh or as a dried herb to make tea (although it is bitter), or as a fluid extract, tincture, or in capsules. Like other composites, what looks like a “flower” is a cluster of many individual flowers, most of which will produce seeds. Goldenrod thus provides a reliable seed source for resident birds.

Common Milkweed

Description: Common milkweed is a deer-resistant native perennial**.** This pollinator plant blooms from May until August, starting earlier in the southern states and expanding northward as summer progresses. This species is native to east and central North America. It tends to grow in weedy fields and is difficult to pull up due to its long rhizomes. If you love butterflies, let it be!
Flowers: Flowers are showy clusters of fragrant 3-inch spheres of starry pink flowers. The structure of the tiny flowers is complex, with 5 reflexed pink sepals and 5 forward-pointing petals. Each petal has a hood at the base and a little curled horn, giving the flower the appearance of a crown. Flowers are shades of pink, white, and lavender.
Fruit: The fruit is a soft, warty pod that splits open to disperse little brown seeds attached to white silky tufts of hairs that become airborne in the wind.
Stem and leaves: The thick, unbranched stems are covered with large, oval, soft-textured leaves filled with a milky, slightly toxic sap.
Wildlife Interest: Common milkweed is the favored host plant of monarch butterflies and an important nectar source for bees.
Fun facts: When monarch caterpillars eat milkweed leaves, they become toxic and are avoided by birds. The red/orange coloring of the monarch butterflies and other insects feeding on milkweed is a warning. This effective coloring is mimicked by the viceroy butterfly – whose caterpillars do not feed on milkweeds.

Multiflora Rose

Multiflora rose is nonnative and may seed into the landscape.

Leaf: Alternate, pinnately compound leaf, 3 to 5 inches long, 5 to 11 serrated leaflets, comb-like stipules along base of petiole, dark green above and paler below.

Flower: White, 5 wedge-shaped petals, 2 inches across, occurring in clusters, fragrant, appearing in early summer.

Fruit: Red to reddish brown, 1/4 inch, oblong, fleshy "hip", ripens in late summer and persist through the winter.

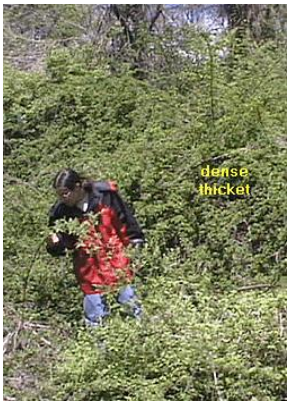
Twig: Green or greenish-red, usually with paired, curved prickles, long and arching stems; buds red, pointed.

Bark: Brown, finely shreddy at base.

Form: Sprawling arching stems which form a large round crown and dense thickets; individual stems often reaching high into the air when supported.





Japanese Honeysuckle

Japanese honeysuckle is nonnative and may seed into the landscape.

Leaf: Opposite, simple, ovate to oval, 1 to 2 inches long, entire margin, sometimes lobed, semi-evergreen, light green and somewhat pubescent.

Flower: Fragrant, 1/2 to 1 inch long, white or yellowish-white long petals, appearing in late spring.

Fruit: Small (1/4 inch diameter), black berry, often in pairs, ripen in fall and persist into early winter.

Twig: Slender, initially pubescent, light brown in color developing scaly, thin bark, hollow pith; buds small.

Bark: Long, shreddy peeling strips, light red-brown to straw-colored.

Form: A scrambling, twisting vine with no tendrils or aerial roots, forms dense thickets in bushes and trees and sprawls along the ground.







Black Raspberry

Black raspberry is native to North America. Its range may be expanded by planting.

Leaf: Alternate, palmately compound, 3 to 5 inches long and wide, 3 to 5 leaflets with serrated margins, small prickles on petiole, light green above, and much paler (nearly white) below.

Flower: Species is monoecious; not showy, 5 small greenish white petals, appearing in late spring.

Fruit: Juicy, black, multiple of drupes, 1/2 inch across, ripen in mid summer. When picked they separate from the fleshy core forming a hollow shell.

Twig: Arching "canes" which generally live 2 years. Purplish-red with an abundance of white glaucous bloom and hooked prickles. Canes readily root at the tips when they contact the ground.

Bark: Similar to canes but darker and not glaucous.

Form: Arching canes may reach 3 to 5 feet high, often forming dense tangled thickets.

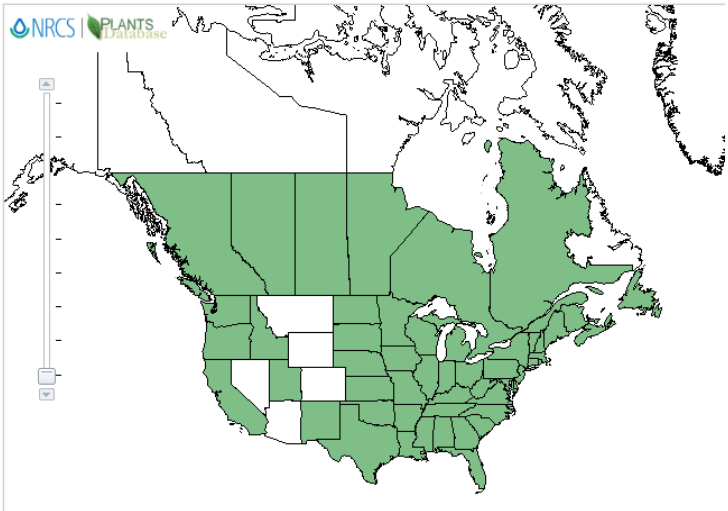






Daisy Fleabane

Daisy fleabane is a delicate native wildflower that measures approximately 30-150 cm. in height. Each plant has several composite flowers that look typically daisy-like, having a yellow central disk surrounded by white, petal-like rays. Composite flowers are positioned singularly atop the terminal shoot of downy stems. The leaves are also hairy, lanceolate, and coarsely toothed.
Flowers: The composite flowers of daisy fleabane are comprised of at least forty rayless flowers. The radially symmetrical flowering structure is characterized by a wide, bright yellow, central disk that is surrounded by short, petal-like, white rays. These rays are short compared to the width of the central disk and are supported underneath by green sepals of equal length.
Leaves: This wildflower has two different types of leaves; lanceolate-to-ovate, basal leaves are long, measuring approximately 15 cm. in length and are covered in coarse hairs. The leaves along the stem are considerably smaller, toothed, clasping, and are also somewhat hairy.
Habitat: Daisy fleabane grows best in fields, along roadsides, and around waste areas.
Fun Facts: Daisy fleabane, like other fleabane wildflowers, derives its name from the superstition that dried clusters of these plants could be used to rid a dwelling of fleas.



Common Mullein

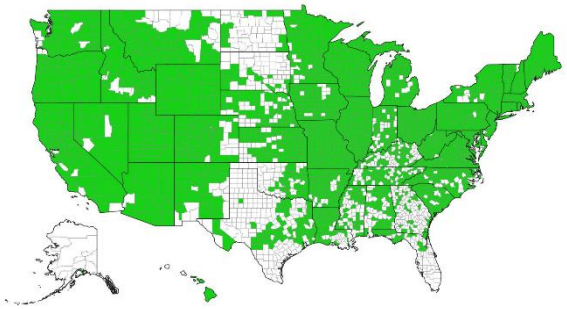
Common mullein is a native of Eurasia that was brought into North America by early settlers. It spread rapidly and was so widely established by the early 1800's that it was erroneously identified as a native species. Its present distribution includes all the U.S. and southern Canada. The weed is usually found in disturbed areas such as railroads, roadsides, fence rows, old fields, pastures, and agronomic fields. It prefers to grow on dry and stony soils.

Plant Description: Common mullein is a biennial that forms a basal rosette of many wooly, light green leaves during its first year of growth. Rosette leaves can be over a foot long and are densely covered on both sides with soft hairs. As a result, leaves feel soft and wooly like flannel. Each rosette produces a solitary, erect, 2- to 8-foot tall flowering stem. Leaves located on the stem are alternate, wooly but smaller than rosette leaves and instead of having leaf stalks (petioles), they attach directly to the stem such that their base continues for a distance down the length of the stem producing a winged appearance. Dense hairs on the leaves and stems tend to make the plant unpalatable to cattle and other livestock. The dense hairs may also inhibit moisture loss from leaves.

Flowers: The top of the flowering stem is densely packed with 5-lobed, saucer-shaped, sulfur-yellow flowers. Common mullein blooms from June through September. Plants must reach a critical size before flowering is initiated, which normally occurs during the second year.

Fruits: Fruits are downy capsules that are round and about 1/4 inch in diameter. Each capsule splits when mature into 2 cells filled with numerous tiny, dark brown seeds. The surface of each seed is marked with wavy ridges. An individual plant produces 100,000 to 180,000 seeds; with no special mechanisms for dispersal, seeds usually fall close to the parent plant. Once buried in soil, they can become dormant and survive for many (35 documented) years.

Fun Facts: Leaves of common mullein have been used as lamp wicks and Romans used plants dipped in fat as torches. Leaves of common mullein were placed inside shoes for warmth. Quaker women, forbidden to use makeup, rubbed the leaves on their cheeks to give the appearance of wearing rouge. The hairs on the leaf caused an allergic reaction (contact dermatitis) to the skin, thus turning the skin red. Common mullein leaves and flowers have been used medicinally to treat various ailments such as lung diseases, diarrhea, colic, migraines, earaches, coughs and colds.



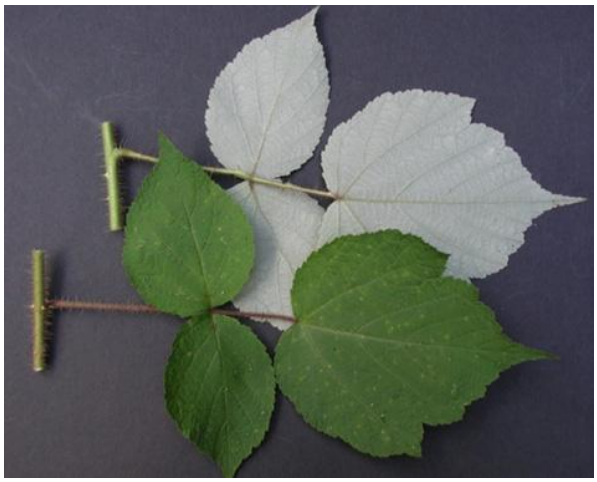
Wineberry

Wineberry is an invasive shrub in the same genus as raspberries and blackberries. Wineberry creates spiny, impenetrable thickets that reduce an area's value for wildlife habitat and recreation. It was introduced to North America in the 1890s as breeding stock for raspberries. It was found invading natural areas by the 1970s, and it is currently recorded in most states east of the Mississippi River. Wineberry replaces native vegetation, including native edible berry shrubs. Management can be obtained through mechanical, chemical, or combination of control methods.

Biology: Wineberry grows in shoots called canes up to six feet long, which can re-root at the tips when they touch the ground. Wineberry canes grow in two stages: in the first year they form a vegetative cane, and in the second year the cane becomes woody and produces lateral branches, flowers, and fruit (technically drupes, an aggregation of single seeded drupelets, but for clarity the term fruit will be used). Wineberries are perennial; while the canes each live two years, the plant produces new canes every year. Leaves are produced in April, flowers in May, and fruit from late June to August; leaves drop in late November.

Habitat: While most productive in edge and wasteland habitats, wineberry can be found in most habitats, including forested areas. Wineberry seeds are spread by animals, and seeds dropped on the forest floor can germinate when falling trees provide light to the forest floor. Once established, wineberry can persist indefinitely and reproduce once further disturbance occurs.

Identification: Wineberry is related to other raspberries and blackberries, and shares characteristics of both. It is differentiated from other berry-producing canes by the reddish appearance of its stems (caused by a dense coat of red hairs), silvery underleaf surfaces, and bright red berries. Wineberry fruit is vibrantly red when ripe, which helps differentiate it from native black raspberries and blackberries; it also has three leaflets per leaf rather than five, which separates it from many blackberry species. Unique to wineberry is its small, greenish, hairy flowers with white petals and the way its fruit remain covered by sepals (greenish petal-like structures) until almost ripe.



Joe-Pye Weed

Joe-Pye Weed, is a tall, showy native perennial that occurs in low moist ground, wooded slopes, wet meadows and thickets and stream margins. It is native throughout eastern and central North America. Gardeners value growing Joe-Pye Weed for the big, mounding flower heads that are typically white, shades of pink and occasionally violet-purple. In addition, Joe-Pye Weed attracts birds and butterflies and adds an element of tall, stately grace to the garden at the end of the season.

Leaves and stems: Joe-Pye Weed is a tall (usually 5 to 8 feet), erect, clump-forming perennial. It features coarsely-serrated, lance-shaped, dark green leaves (to 12" long) in whorls of 3-4 on sturdy green stems with purplish leaf nodes.
Flowers: Tiny, vanilla-scented, dull pinkish-purple flowers in large, terminal, domed, compound inflorescences bloom in mid-summer to early fall. Each flower cluster typically has 5-7 florets. The corolla of each floret is tubular, making them popular with hummingbirds. Flowers give way to attractive seed heads which persist well into winter.
Wildlife Value: The flowers are loaded with nectar and pollen that attract native bees, honeybees and butterflies as well as hummingbirds. In the fall, many species set copious seeds that are both ornamental as well as useful for attracting and feeding small seed-eating songbirds. The fact that the plants are highly resistant to browsing deer and rabbits makes Joe-Pye Weed attractive to many landowners.
Fun Facts: Joe-Pye Weed is both a wildflower and an herb that was used as an herbal remedy to lower fevers and address other maladies. The plant's common name comes from the Native American herbalist, Joe Pye.