

WINTERBERRY

(*Ilex verticillata*)



Frank Oliver photo

Winterberry colors pop off a dull winter background at Jasper-Pulaski FWA in northern Indiana. The plant also grows in many of Indiana's nature preserves.

By Tom Post

Red, orange, yellow, and muted shades of brown are the colors most people associate with autumn, when most trees and shrubs are preparing for winter.

But imagine walking through a woods back in October and spying a splash of brilliant scarlet in a thicket of shrubs. Closer examination reveals this to be winterberry.

Growing anywhere from 3 to 15 feet tall, this is a shrub of moist woodlands that can be found throughout the state, but is more common in northern counties.

Sometimes called Michigan holly, the second part of the name fits well because this shrub belongs in the holly family. With about 300 species worldwide, the family's members are found in temperate to tropical lands.

In Indiana, four holly species occur. Winterberry is the most common and is scattered around the state. Possum haw is confined to the southwestern counties. Mountain holly is more typical of northern Indiana's bogs and wetlands.

American holly is starting to move into Indiana from Southern states.

Hollies are typically associated with Christmas because they tend to hold their leaves and their bright red berries into the winter season. Walking through the same woods you visited in October this time of year on a drab overcast day with snow on the ground will illustrate why *Ilex verticillata* is called winterberry. Its showy fruit stands out as a beacon of color against the landscape.

The trait of colorful berries has led to people making use of the plant in landscape settings. Horticulturists have developed a number of different cultivars from winterberry and other hollies for this purpose.

Using winterberry in landscape plantings not only looks good, but doing so also will attract birds such as robins, cedar waxwings, catbirds, and cardinals, all of which feed on the fruit. But be aware that leaves and berries may be toxic to household pets and are not edible for humans.

State Range: Statewide, more common in northern counties.

Bloom dates: Month of June.

Habitat: Swamp forests and edges of bogs and wetlands.

Edible: No.

The plant's berry-laden branches are also used in floral arrangements and winter wreaths. If you are interested in creating these types of seasonal displays, please be mindful of the natural landscape. Use your landscape plants or a friend's, with permission, rather than collecting wild winterberry.

Should you wish to get some outdoor winter exercise, find a nearby nature preserve where winterberry grows—look for the scarlet splash that's sure to catch your eye.

Nature preserves with winterberry that are open for visits and have parking and trails include Pipewort Pond (Elkhart County), Olin Lake (LaGrange County), Dunes (Porter County), Hammer Art (Noble County), Spicer Lake (St. Joseph County), and Potawatomi (Steuben County). □

Tom Post, now retired, was the northwest region ecologist for the Division of Nature Preserves. He worked for DNR for 38 years.

LARGE-FLOWERED TRILLIUM

(*Trillium grandiflorum*)



Frank Oliver photo

Head to Bendix Woods Nature Preserve in St. Joseph County during spring to see some of the state's best displays of large-flowered trillium.

By Scott Namestnik

As daylight hours increase and overcome the dreary depths of winter, spring welcomes us outdoors with a flush of forest ephemerals, the name for plants that are aboveground for only a short time and reproduce until the emerging leaves of canopy trees block the sunlight.

Large-flowered trillium, Ohio's state wildflower, is an A-list star of this cyclical show.

Approximately 50 species of trillium are known, occurring at similar latitudes in North America and Asia. These perennial, herbaceous plants all have horizontal, underground stems called rhizomes.

Most people who recognize a trillium do so by the three whorled "leaves" below a showy flower. But trilliums don't have three whorled leaves. Rather, their true leaves are alternate, papery, and scale-like (cataphylls), located along the rhizome.

The aboveground portion of the plant is just a flower stalk (peduncle) from the main stem, terminating in a single flower. Below the flower are

three modified leaf-like structures. When modified leaves are associated with flowers, they are called bracts.

The visible portion of a trillium lacks true leaves. Instead, it has three bracts beneath its three-parted flower (i.e., three sepals below three petals below six stamens and a three- to six-parted ovary with three stigmas). Because of this trait, the genus was given the name *Trillium*, which means three-parted lily.

Of the seven trillium species that occur naturally in Indiana, two have stalkless flowers and mostly erect petals. Five, including large-flowered trillium, have stalked flowers and spreading petals.

Large-flowered trillium is the only species in this group with both petals that are much longer than sepals and sharp-pointed bracts. "Grandiflorum", in the plant's scientific name, is a reference to its large flowers. Although the petals are typically white, becoming pink with age, plants occasionally develop with a pink flower. Plants with two or four petals and bracts are often

State Range: Primarily the northern third and eastern quarter of the state and scattered elsewhere.

Habitat: Moist to somewhat dry forests, also in shaded floodplains and on rises in swampy forests.

Size: Grows to about 12 inches tall.

Bloom Time: Late April to early June.

Other Common Names:

White trillium, great white trillium, white wake-robin.

encountered, and sometimes plants with 30 or more petals, no petals, or petals that are green or striped with green occur, resulting from mutations or infections.

Large-flowered trillium usually forms colonies within rich woods, associating with American beech and sugar maple. It spreads slowly, often through ants, which bring the plant's seeds to their colony to feed on the protein-rich elaiosomes attached to the seeds. Deer graze on large-flowered trillium—a lack of it often indicates deer overpopulation.

Two of the best of many Indiana places to see impressive displays of large-flowered trillium are Bendix Woods Nature Preserve in St. Joseph County and Lonidaw Nature Preserve in Noble County. In the next couple of months, visit one of our rich remnant forests for a front-row seat at this once-a-year event. □

Scott Namestnik is the botanist with the Indiana Heritage Data Center in the Division of Nature Preserves.

SPIDER LILY

(*Hymenocallis occidentalis*)



Frank Oliver photo

With leaves up to 2 feet long and standing nearly 3 feet tall, this plant can be a stunning find in southwest Indiana forests.

By Thomas Swinford

Big and exotically beautiful, this plant resembles little else in Indiana's flora.

Spider lily is a long-lived perennial with a large rosette of simple blade-like leaves that grows directly from an underground bulb, much like an onion.

In late summer, when the time to flower arrives, its stalk rises above the leaves and erupts into a cluster of three to nine distinctive white flowers that emit a sweet vanilla-like smell.

But it has dark sides. Spider lily's means of pollination beckons the classic horror movie "The Silence of the Lambs".

Its large white flowers, with their central cup and the sweet fragrance it produces at dusk, are adaptations that allow spider lily to be pollinated by insects that are most active after the sun sets. Its primary pollinator is a large, hovering nectar-feeder called sphinx moth. It's from the same family as the winged creature that covers a girl's

entire mouth in the close-up of her face on the 1991 movie's poster.

Once it's pollinated, spider lily's large fleshy green seeds develop in pods and are often uneven in size. The dense seeds sink in water to likely be carried away by flooding.

In favorable conditions, spider lily creates large colonies through vegetative growth of its bulbs as well as by seedlings that dropped near the parent plant. Research has suggested that the seeds may also be spread by fish—most likely large catfish that ingest and widely disperse them.

The creepy part of the plant's name comes from its flower parts and petals that are fused into a cup with six gracefully spreading filaments that extend well beyond their origin. Looking at that cup as a body, with its long extending leg-like filaments, accounts for the spider moniker.

All parts of the spider lily are poisonous. Most of the toxicity is

State Range: Extreme southwest Indiana counties including Posey, Gibson, Warrick, Vanderburgh, and Spencer.

Habitat: Open woodlands that are subject to frequent flooding.

Size: Leaves grow to 24 inches long; stalk grows 2–3 feet tall.

Origin of Scientific Name: Named for its brilliant white and fragrant flowers, which may help with its pollination by insects that are active after dark.

concentrated in the bulb, serving as protection from hungry critters rooting around the bottomlands for food.

The friendlier part of the spider lily tale is that it is part of the worldwide Amaryllis family that also includes the daffodil. The plant is somewhat distantly related to the worldwide Lily family of plants, but our spider lily and its sibling *Hymenocallis* species are native only to the Americas.

Indiana's version of spider lily is found naturally occurring along the Gulf Coast from South Carolina and Florida to Texas and then north up the Mississippi Valley to Indiana and Illinois. The Hoosier state's populations are the most northern of this species and genus.

A great place to see spider lily is the DNR's Twin Swamps Nature Preserve in Posey County. Don't worry. Hannibal Lecter has never been seen there. Yet. □

Thomas Swinford is assistant director of the Division of Nature Preserves.

POISON SUMAC

(*Toxicodendron vernix*)



Frank Oliver photo

Poison sumac is similar in appearance to some non-toxic sumacs. Like poison ivy, it exudes the toxin urushiol, which can cause a rash.

By Taylor Lehman

Poison sumac is a plant many people have heard of, but it is less well-known than its relative, poison ivy. Perhaps it is not surprising that the less-familiar poison sumac is also less common than poison ivy. Poison sumac occurs only in wetlands, whereas poison ivy occurs in a variety of habitats throughout the state. Poison oak is not known to occur in Indiana, contrary to common belief.

Like poison ivy, all parts of poison sumac exude a toxin called urushiol, which causes a rash on many who come into contact with the plant. There are two main physical differences between poison sumac and poison ivy; poison sumac is a shrub with compound leaves bearing seven to 13 leaflets. Poison ivy is typically a woody vine (rarely a shrub) with compound leaves bearing three leaflets. In this regard, poison sumac is similar in appearance to the non-toxic sumacs of the genus *Rhus*. In fact, poison sumac was formerly known as *Rhus vernix*.

Poison sumac has a light gray, slightly warty stem. Its compound leaves are 6 to 14 inches long, and its individual leaflets are 2 to 4 inches long. The rachis (center stem of the leaf where the leaflets originate) is red. The leaflet edges are smooth and unlobed. The flowers occur in a panicle (loose cluster) in late spring and early summer. Each flower is about 3 millimeters across, bears five petals, and is green in color. The fruit is a berry that is green at first and later turns white. Each berry contains a single seed. Poison sumac leaves turn brilliant red in the fall. If not for its toxicity, poison sumac might be a popular landscaping choice.

Due to its small crown and structure, poison sumac is rarely used by nesting birds. Although poisonous to humans, various parts of the plant are consumed by wildlife. Eastern bluebirds, American robins, and other birds feed on the berries, especially in the winter when other food sources are scarce.

Family: Anacardiaceae (i.e., cashew).

State Range: Occupies wetlands in most northern counties but present in scattered counties in the remainder of the state.

Form: Shrub or small tree

Related Species: Eastern poison ivy, Western poison, poison oak.

Deer and other herbivores browse the foliage. The caterpillars of several moth species feed on the leaves. Cottontail rabbits sometimes eat the stems of smaller shrubs.

Poison sumac typically occurs in high-quality wetland communities such as bogs, fens, and marshes, where it forms clonal colonies through underground suckers (root sprouts). It prefers full or partial sun and acidic soils rich with organic matter. As a result of these habitat preferences, poison sumac is not a plant most hikers would encounter. If physical contact occurs, washing the affected area with soap and water soon after exposure should prevent a rash. Additional methods for preventing rashes are discussed at en.wikipedia.org/wiki/Urushiol-induced_contact_dermatitis. □

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JOE PYE WEED

(*Eutrochium* spp.)



Frank Oliver photo

Joe Pye Weed adds color to late summer at Prophetstown State Park. The native perennial occurs in a variety of areas throughout the state.

By Roger Hedge

Some say Joe Pye was a Native American in Colonial America who treated typhus and other illnesses with plants in this genus. Another story suggests the name came from the Native American word for typhoid, *jopi*.

Various other stories surround this plant's common name, and there also have been conflicting interpretations as to the species that constitute the Joe Pye weeds.

The three species of Joe Pye weed in Indiana recognized by botanists today are purple-node (*Eutrochium purpurem*), spotted (*E. maculatum*), and hollow (*E. fistulosum*). All are tall, stately plants with mostly whorled leaves (3–6 leaves circling stem at nodes). Individual flowers are tiny ($\frac{1}{4}$ " and pale purple in few-flowered heads that are clustered at the top of the stem. All three species bloom from midsummer to fall.

Purple-node Joe Pye weed is mostly

found in forests, especially in edges and openings. It has a short, rounded inflorescence (flower cluster) atop the stem but is not as strongly domed as hollow Joe Pye weed. Flowers are greenish yellow to pale purple. The sturdy stem has a mostly solid interior with purple where the leaves attach. Purple-node Joe Pye weed is more broadly distributed in Indiana than the other two species.

Hollow Joe Pye weed is aptly named because the plant's stem is thin-walled and hollow. Its stems are usually purple throughout with an obvious white waxy coating. Flower color is usually pinkish purple but can be yellowish green. It occurs in low woodland edges, along streams, and in openings, and is mostly in southern Indiana. Most people probably see this plant in roadside ditches. It can be readily picked out due to the plant's large size and its tall conical or strongly dome-shaped flower cluster.

Spotted Joe Pye weed usually has green stems with scattered dark purple

State Range: As a group, Joe Pye weeds occur statewide.

General Description: Tall (up to 6 feet or more), thick-stemmed plants with whorled leaves.

Blooms: July–September.

Family: Asteraceae (aka aster; composite, daisy, sunflower family), a large family whose member species have many florets (individual tiny flowers) in flower heads.

spots. Some populations have evenly dark red stems. Look for this plant in marshes and other open wetlands, especially in northern Indiana. It can also be seen in fens. Like purple-node Joe Pye weed, its stem is mostly solid rather than hollow, and its large flower cluster is flat-topped rather than rounded.

It is unfortunate that "weed" is attached to the name of this small group of attractive plants. The Joe Pye weeds can add a nice touch to home landscaping with their impressive size, interesting leaves, and colorful flowers. They are tough, hardy plants that can complement your native plant garden as a backdrop to adjacent shorter plants. An added environmental benefit is that many insects are attracted to and use these beautiful plants, most noticeably bees and butterflies seeking nectar. □

Roger Hedge, recently retired from DNR Nature Preserves, coordinated this feature for many years.

KENTUCKY COFFEE-TREE

(Gymnocladus dioicus)



Frank Oliver photo

A Kentucky coffee-tree pushes skyward on the Purdue campus in West Lafayette. Parts of the species were once used as a coffee substitute by European settlers.

By Andrew Reuter

History runs deep in evolutionary adaptations of our native plants; some harken to the prehistoric era. Evidence of these adaptations can be found in a variety of plant characteristics that don't necessarily compute to our experience of the world today. Kentucky coffee-tree is a prime example.

Named for its use as a coffee substitute by European settlers, Kentucky coffee-tree holds indicators of ice ages and beyond. It is one of two native tree species with a twice-compound leaf structure. The other, honeylocust, bears medieval-looking thorns along its trunk and branches, and has much smaller leaflets. Both trees have scaly, tough bark. Both also have large, hard seed pods that are evidence of millennia past. Kentucky coffee-tree's poisonous seed pods are hard, thick, tough, and filled with alien-like green slime that butters the large, round, stone-dense seeds inside.

It's hard to imagine the evolutionary advantage of fruiting bodies so

hard and impenetrable that the seeds often never germinate. Squirrels pass by these dense marbles, deer browse around the winter-shed seed pods, and even the opportunistic raccoon will wander by the armored fruit.

The secret to the Kentucky coffee-tree's historic success and dispersal lies in stomachs and teeth much larger than those of present-day forest critters.

Large, land-dwelling mega-faunal mammoths browsed much like modern-day elephants. They were keystone species that shaped ecosystems and co-evolution of forage through gradual adaptations.

Kentucky coffee-tree signals that long-lost relationship. An anachronistic quality, a coevolutionary trait that (through extinction) has removed the "co" portion of the relationship, best sums up the structural qualities of the Kentucky coffee-tree fruit.

The large, grinding teeth of mammoths crushed the hard husk, rolling around the stone-like seeds before

State Location: Statewide, but uncommon.

Identification: Thick, stout twigs and branches; bipinnate leaves; scaly dark gray bark.

Habitat: Rich bottomland forests; occasional in drier uplands.

Fruit: Large, dark, dense pods filled with green slime and hard round seeds.

swallowing them into a 15-gallon stomach. Stomach acids wore down the stone-like casing, preparing the seeds to be dispersed within a micro-ecosystem of prime, fertilizing excrement.

Present-day locales of Kentucky coffee-tree may be partly due to the modern-day modes of dispersal—gravity, flooding, and humans. Most often found in rich bottomland forests, Kentucky coffee-tree can also be found in upland forests. Throughout its native range, Kentucky coffee-tree can even be found on exposed, thin-soiled outcroppings. The seeds often die if not removed from the pods within a certain timeframe.

When you stumble upon a Kentucky coffee-tree in the woods, imagine back to the ages when a 10-foot-tall mammoth may have been munching on foliage and seed pods, and potentially spreading this tree's lineage. □

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