

# OUTDOOR INDIANA



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# HOARY VERVAIN

(*Verbena stricta*)



Frank Oliver photo



Michael Homoya photo

France's royal botanist found this wildflower species while exploring Indiana in 1795. The species was more common back then. Today, though it's not as prevalent, hoary vervain still grows in the Vincennes region.

By Michael Homoya

**I**n recognition of Indiana's statehood bicentennial, an attempt was made to identify our state's earliest scientific contributions. Several examples were discovered, but the early offering described below is particularly noteworthy.

In the summer of 1795, a full 21 years before Indiana's entry into statehood, French botanist André Michaux had recently arrived in Vincennes after traveling from Louisville on an ancient buffalo path turned pioneer highway. He was hurt, having fallen when his horse stumbled jumping over a downed tree. His injury was a testament to the rough terrain he described as one of the most treacherous in all his wanderings on the continent.

After his recovery, Michaux, as the royal botanist for King Louis XVI, was able to continue his assignment to explore North America for plants of potential agricultural use. He collected many during his 10-year tour, including some along the Wabash River that he recorded in his journal entry of Aug. 18, 1795.

In the list was a wildflower known as vervain. Michaux thought the plant he found was new to science, and his description of it was published posthumously in 1803 under the Latin name *Verbena rigens*.

No such name is found in modern botanical literature, but there is a plant named hoary vervain (*Verbena stricta*). That plant closely matches what he described.

So what was the plant that Michaux collected? How can we find out?

Obviously, no photos of it from then exist, and while technology has advanced considerably since then, the time machine is still just the title of an H.G. Wells novel.

But that's no problem—amazingly, we can look at the very plant that Michaux collected.

It is more than 220 years old and housed in a special collection at the *Muséum National d'Histoire Naturelle* in Paris (see photo of specimen above).

**State Range:** Mostly western counties

**Appearance:** 1-2 feet tall with grayish-white (hoary) hairs; terminal spikes with quarter-inch blue flowers

**Habitat:** Sunny, usually in sandy soil

**Flowering:** July

We know it's the same one that Michaux collected because he penned both Vincennes (as "St. Vincent/Post Vincennes") and the plant name on the specimen label to match the notes in his journal.

Through modern-day inspection it is clear the specimen is hoary vervain (*Verbena stricta*), the same plant described by Michaux but now with a different name. Another botanist published *Verbena stricta* as the name for the plant before Michaux's *Verbena rigens* came into print, so it has priority. The specimen is nonetheless significant and likely represents the oldest scientific collection ever made in Indiana.

Hoary vervain still grows in the Vincennes region, but it's certainly not as common now as it was on that summer day in 1795. Indeed, much has changed since the royal botanist crossed the unbroken wilderness that would become Indiana. □

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# BUTTERNUT

*(Juglans cinerea)*



Frank Oliver photo

The butternut tree's bark gives the appearance of splitting around its trunk. Dye was once made from its nut husks.

By Andrew Reuter

**B**utternut, aka white walnut, is named for the smooth, rich meat of the tree's nut.

But its bark is arguably its most distinguishing feature.

The term *cinerea*, in the tree's scientific name, refers to the bark's ashen-gray color. The bark looks as though it's splitting around the trunk. In contrast, the bark of black walnut (*Juglans nigra*) is much darker. But butternut shares a few common characteristics with black walnut: chamber-pithed twigs; compound leaves; and conspicuous, drooping catkins adorning the tree in spring.

Butternut is one of the hardiest winter species in its family, which also includes hickory and pecan. The tree can be found across Indiana, extending well into the Great Lakes and upper Northeast. It is relatively short-lived, medium-sized and often associated with the rich, deep, moist, loamy soils of riverbank sites. Sometimes it's found in the richer soils of upland forests.

Once widespread throughout the

state, the butternut is now rare. Populations are declining across its range mostly due to disease and forest succession. The primary culprit is a canker disease that girdles the tree. The suspected cause is an exotic fungus introduced from Japanese walnuts. Butternut is a watch-list species in Indiana, and has received federal listing attention.

Butternut was important for wildlife, indigenous cultures and early settlers in the Midwest. Trees were tapped for sap. The wood was used for furniture building and carving. American Indians used the bark to purge their digestive system. With one of the highest amounts of protein by weight, the nuts are also a valuable food source for mast-dependent species. Butternut is also a host species to the luna moth, one of the most beloved and easily recognized moths in the state.

At Indiana's statehood birth in 1816, the tree was highly valued for its nut husks, from which an orange or soft yellow-brown dye for clothing was extract-

**Height:** 40–60 ft., may reach 100 ft.

**Habitat:** Rich, well-drained soils

**Flower:** Yellow-green, has separate male and female flowers on the same plant—male is 2.5–5.5 in. drooping catkins; female is short terminal spikes

**Fruit:** Oblong-ovate nut with sticky green husk

ed. As noted by Daniel Edwin Wheeler in his 1921 book “Abraham Lincoln,” butternut-dyed clothing was so popular that, shortly after departing from his boyhood home in Indiana, the future president agreed to do a strenuous job in exchange for enough payment to make a suit of butternut-dyed jeans.

The dye's popularity increased during the Civil War. It was the primary dye used to color Confederate uniforms, aiding in the common reference to the Southern troops as “butternuts.” Lincoln once said, “The battlefields of Petersburg were strewn with blue and gray and butternut.”

With the state bicentennial upon us, despite butternut's current scarcity, this native species and its history continue to be worth barking about. □

*Note: See the March-April 2010 issue for an article on research to restore the species.*

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# YELLOW LADY'S SLIPPER

## (*Cypripedium Parviflorum*)



Frank Oliver photo

Even though yellow lady's slipper is one of the most widespread orchid species in the country, finding it is relatively difficult.

By Jason Larson

**Y**ou might not think being compared to ladies' footwear is a compliment.

But this "lady" is Aphrodite, Greek goddess of love and beauty.

*Cypripedium*, the genus of the lady's slipper orchids, means "Aphrodite's sandal." This refers to its flowers' most prominent feature, the petal pouch that resembles a yellow ballet slipper.

The remaining two petals look much different. Often twisted into perfect slender spirals, they are green speckled with purple. One is on each side of the slipper, pointing downward. Three sepals frame the flower. All three are green with purple marks. One is on top, pointing up. Two are fused together under the flower. A large, yellow staminode, or modified stamen, is found at the lip of the slipper, and is usually flecked with red.

For insects, this plant is as tricky as it is beautiful because it uses a trap-and-funnel strategy to pollinate. Many

small bees are attracted to the flower's color and scent. Upon arriving at the flower, they crawl into the large opening of the slipper. Once inside, they find they have been duped—the plant does not make sweet nectar.

As the sides of the slipper curl inward and make exiting difficult, the insects find the easiest outlet is through the "back door." While exiting, they are funneled under the staminode. Any pollen already on their backs brushes the stigma, where it fertilizes the plant's future seeds. As insects emerge, they pass under one of two anthers, and a mass of pollen is deposited on their backs.

There are two varieties of yellow lady's slipper in Indiana. Both bloom from early May to mid-June. The more-common large lady's slipper (variety *pubescens*) is 16–24 inches tall and covered in fine hairs. This variety occurs in mesic to somewhat dry woodlands throughout the state. The

**State Range:** Statewide

**Size:** 12–20 inches tall

**Habitat Requirement:** Woods or wetlands, depending on variety

**Blooms:** Early May to mid-June

lesser lady's slipper (variety *parviflorum*) is shorter, at 14–16 inches, with flowers averaging a bit smaller. The petals and sepals, aside from the yellow slipper, are deep purple. In Indiana, *parviflorum* only grows in wetlands in the northern half of the state, such as dune and swale, and fen communities.

Yellow lady's slipper is one of the most widespread orchid species in the country. It occurs throughout most states, including Alaska; however, populations are usually small and scattered, which makes finding them difficult.

While it is illegal to dig the plant from state or federally owned lands, you can take a quest to find this striking bloom in its natural habitat. If successful, you can take photographs of the slipper that are fit to enjoy in every season. □

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# WILD BEAN

(*Phaseolus polystachios*)



Tom Swinford photo

A wild bean plant in Brown County displays its pea-like flowers, a characteristic it shares with other members of the legume family.

By Tom Swinford

**W**ild bean is a plant that has stepped out of the natural world to intersect with human goings on.

That is, of course, if you choose to separate humans from the natural world at all.

First, the answer to the obvious question: Yes, the wild bean is good to eat. Archaeological records show it found its way onto early Americans' dinner plates. It shares a close lineage with its Central American sister species, the common bean, *Phaseolus vulgaris*, which provides protein to billions of hungry humans.

Wild bean is a climbing, twining or trailing long-lived perennial. It has large, three-parted leaves. Wild bean flowers and sets its seeds during the long, hot days of summer, taking full advantage of the season's growth potential to make its yield rich in nutrients. Its seeds are the specific parts of the plant that we call "beans." The seeds occur in familiar pods that mature in late summer or early fall.

In Indiana, wild bean is found only in the unglaciated south-central region, from the Brown County hills to the Ohio River. Wild bean prefers relatively open, sunny habitats such as woods, forest edges, dry ridgetops and thickets. Its broader range includes much of the eastern United States.

Wild bean, like its fellow members of the legume family, has characteristic, beautiful, pea-like flowers. The petals form the three parts of the legume flower—the keel, the banner, and the two wings.

The keel is the high and wide back "bonnet" of the bean flower. The two wings are held out and below. The middle keel has a curious counter-clockwise curl. Charles Darwin wrote that it "curls like a French Horn to the left side." This feature likely influences pollination. Wild bean is predominantly pollinated by various bees. These include the native bumblebees, mining bees, mason bees and carpenter bees.

**Known From:** Archaeology sites

**Pollinators:** Bees

**State Location:** South-central Indiana

**Habitat:** Dry open sites

**Blooms:** Mid-summer

Several of the beans of the New World were cultivated by civilizations from Peru to the American Midwest. Of the group of bean plants, modern agriculture has settled on the common bean—*Phaseolus vulgaris*—which includes the green bean, baked bean and kidney bean that we know and love. But wild bean apparently had its day among the squash and maize (i.e., corn) of the early New World farmers. It is also one of the celebrated "three sisters" of farming of the American Indian.

Some botanists believe that wild bean may be in decline. The reason is the lack of its preferred habitat of open forests and edge habitat. That habitat was possibly created, in part, by primitive agriculture and other human activities with which the plant's story is connected, and that activity is less common than in New World days. □

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# MARRAM GRASS

(*Ammophila breviligulata*)



Frank Oliver photo

A state watch list species, marram grass occurs in Indiana only along the Lake Michigan coastline.

By Derek Nimetz

**M**arram grass is a survivor of the harsh elements in northwest Indiana. It is one of the few plant species that can survive the conditions of the beach and dune natural communities in that area and provide stability.

It can be buried deep in the ground, it can be washed out by strong storms, and it can be mowed down and trampled, yet it still persists and stands tall, year after year. It is not affected by cold temperatures, deep snow or fields of ice. Furthermore, it becomes more vigorous and even increases its dominance during the heat of summer. Although it will burn with great intensity, marram grass continues to thrive in urban, residential and recreational areas.

In Indiana, this perennial grass, also known as American beachgrass, is regularly exposed to elements such as sand deposition from wind, erosion from Lake Michigan waves, and scouring from shelf ice during winter.

And yet, despite having no shade or shelter from the hot sun or the cold north wind, marram grass is clearly the most dominant plant along Indiana's Lake Michigan coast.

Marram grass plays a critical role in dune development and stabilization. It has an extensive system of roots, known as rhizomes. The roots grow fast and spread out and down into the soil. The roots also help anchor the plant against the constantly shifting sand. As this plant's numbers continue to increase, its roots bind the sand together and form dunes. These are the dunes closest to Lake Michigan and are known as foredunes.

The plant's scientific name helps describe some of its features. *Ammophila* is derived from the Greek words *ammos* for "sand" and *phila* for "love." *Breviligulata* originates from the Latin words for short (*brevis*), and tongue (*ligula*). This is in reference to the short ligules, which are sheath-like structures on the plant's stem.

**State Range:** Lake, Porter and LaPorte counties

**Habitat:** Beach and dune natural communities

**Size:** 3 foot tall grass

**Status:** Watch list

Marram grass is a perennial that grows up to 3 feet tall. It flowers from July through September. The blossoming is a stiff, spike-like cluster of flowers.

In eastern North America, its natural distribution extends along the Atlantic coast, from North Carolina to Canada. It is also found on other Midwest shores of the Great Lakes. In Indiana, marram grass is considered a watch list species ([dnr.IN.gov/naturepreserve/4725.htm](http://dnr.IN.gov/naturepreserve/4725.htm)).

Even though, in Indiana, it can be found only in suitable habitat along Lake Michigan, it is easy to see in portions of protected areas such as at Indiana Dunes National Lakeshore and Indiana Dunes State Park. Trail 3, through Dunes Prairie Nature Preserve within the state park, bisects a large population of marram grass. □

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