



Natural Ohio

Bob Taft, Governor • Sam Speck, Director
Vol. 27, Issue 1

Winter 2004



before and after



The beauty of Conkle's Hollow revealed to more visitors

What's better than viewing the changing leaves of an Ohio forest in fall? Bringing the colors of autumn found along a nature trail to a wider range of visitors.

One of Ohio's most scenic spots, Conkle's Hollow State Nature Preserve, reopened in November after being closed for more than three months. Closing a popular and scenic Hocking County site isn't an easy decision in any season, but because of a pre-set construction schedule, the summer and fall closure was unavoidable.

Much was accomplished at Conkle's Hollow during those months—all of the work centered around the preserve's Lower Gorge area. The Division of Natural Areas and Preserves hopes visitors will agree that it was worth the wait to visit one of its most-popular state nature preserves.

How was Conkle's Hollow improved?

Because of the Lower Gorge trail's characteristics (natural, soil-packed) and frequently wet and muddy conditions, visitors inadvertently widened the trail when they attempted to avoid wet areas. Significant trail erosion and widening endangered the important plant communities growing along the trail. In some areas, the trail, used by more than 150,000 people annually, was 15-20 feet wide.

Replacing the traditionally designed trail with a hard surface was not a decision

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Division Recruits State Environmental Professional as Chief

A veteran of natural resources protection and environmental issues, the new chief of the Division of Natural Areas and Preserves has made a smooth transition.



Tom Linkous, who began December 13, often coordinated projects with the Ohio Department of Natural Resources (ODNR) during his tenure with the Ohio Department of Transportation (ODOT).

As an ODOT employee of 29 years, Linkous most recently served as the agency's environmental liaison. He was responsible for coordinating projects and contacts with state and federal environmental agencies including the Division of Natural Areas and Preserves.

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New Chief

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“Tom brings a wealth of environmental knowledge and experience to ODNR,” said Sam Speck, ODNR director. “We are delighted to have recruited a natural resources professional of his caliber.”

In addition to his career with ODOT, Linkous has also worked for the U.S. Fish & Wildlife Service and was a high school biology teacher in the Cincinnati area. He holds a bachelors degree in life science from Otterbein College and a masters degree in fisheries management from The Ohio State University.

Linkous serves as chair of the Ecology and Transportation Task Force of the Transportation Research Board. The board is a division of the National Research Board, which is administered by the National Academy of Sciences, the National Academy of Engineering and the Institute of Medicine.

“I am thrilled to become a member of the dedicated and professional staff who make up the Division of Natural Areas and Preserves,” said Chief Linkous. “Helping the division fulfill its mission of protecting and wisely managing Ohio’s natural resources is a professional charge I look forward to leading.”

As DNAP chief, Linkous will oversee Ohio’s system of 128 state nature preserves and 20 state scenic river segments. In addition to the division’s professional staff of 17, the division employs 14 preserve and four scenic river managers who are responsible for more than 27,000 acres of protected landscape across the state.

His enthusiasm for nature photography has taken him to many of Ohio’s state nature preserves. A regular visitor to Conkle’s Hollow and Rockbridge, Linkous lists Rhododendron Cove as another frequent haunt, visiting it often before it became a dedicated state nature preserve.

A central Ohio native, Linkous and his wife, Marilyn, a kindergarten teacher, live in Westerville. Their son, David, is a student at Columbus State Community College.

According to Chief Linkous, he looks forward to working with DNAP staff and getting to know DNAP’s public and private partners. His short-term plans include spending time with staff in the field and learning how he can best assist them in managing Ohio’s scenic rivers and natural areas.

You’ll hear more from Chief Linkous when he begins writing his own quarterly column in the Spring 2005 issue of *Natural Ohio*. ✓

Conkle’s Hollow

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made lightly. Staff conducted thorough research to determine which material was best suited for the setting. The new trail was created by pouring concrete over a protective liner, which served to shield the natural landscape.

The new trail is similar to the trail at Ash Cave in Hocking Hills State Park. It begins at the ramp of the footbridge crossing Big Pine Creek from the parking lot into the preserve. About 6 feet wide, the hard surface stops about 500 feet from the end of the trail.

Other improvements included adding two new footbridges to replace crumbling old ones and installing two additional culverts to move water under the Lower Gorge trail.

Did construction affect plants and wildlife?

Recently, Preserve Manager Jeff Johnson addressed the impacts that the construction had on the site.

“It is truly amazing to see the restorative abilities of nature. In areas where the trail had been widened and trampled for several years, plants have already begun to grow,” said Johnson.

In one area where the trail was rerouted, the old section of trail is already showing growth of several ferns and numerous wildflowers.

“It may take a few years but the vegetation will spread to the edge of the trail to create a more natural hiking experience,” said Johnson.

Similarly, wildlife quickly adapted. According to Johnson, a doe and two fawns regularly bedded down just yards from the gorge trail. Because of the lack of visitors during construction (usually thousands during the summer and fall months), warblers and other song birds were much more commonly heard near the trails.

An easier trail to traverse

About 2,600 feet of the Lower Gorge trail is now accessible for

visitors in wheelchairs, families with strollers and folks who will appreciate an easy nature walk.

During construction, the division fielded a number of inquiries regarding Conkle’s Hollow—many of the comments were positive. Some inquirers were eager to experience the new trail.

Eloise Teal, a resident of Galloway, visited the preserve with her granddaughter on the first Saturday it was open, previewing the trail she is eager to share with her husband.

“My husband, who is handicapped, has not been able to accompany me for a couple of years,” wrote Teal. “Thank you for such an ambitious project—the wait was worth it. Now my husband can enjoy the breathtaking beauty of the area again.”

For more information on Conkle’s Hollow State Nature Preserve, visit our website at www.ohiodnr.com/dnap. ✓

Conkle’s Construction Kudos!

For more than two years, ODNR’s Division of Engineering staff provided technical guidance and coordinated the construction details for the Conkle’s Hollow improvement project.

Also, the division appreciates the work of Lo Debar Construction of Newark. As general contractor, the company completed the project on time and within the budget. They used specialized equipment and worked to keep site disturbance to a minimum.

Ohio's Carnivorous Bladderworts

Think carnivorous plant and the notorious Venus flytrap comes to mind. However, that plant is found in the southeastern United States, not in Ohio. But Ohio has its share of plants called carnivorous or insectivorous—two species of sundew, pitcher plant and six species of bladderworts.

Of the six species of bladderworts (*Utricularia cornuta*, *U. geminiscapa*, *U. gibba*, *U. intermedia*, *U. minor* and *U. vulgaris*) found in our state, all but two (*U. vulgaris* and *U. gibba*) are a rare find in the field. Their dependence on rare habitats, such as bogs, fens and other disappearing wetlands, contributes to their scarcity.

The bladderwort family (Lentibulariaceae) is a small family consisting of aquatic and wetland plants. There are two genera within the family in the U.S., as well as one native to South America and Africa, however, only *Utricularia* occurs in Ohio. Fourteen species of bladderworts are found within the northeastern U.S., although more than 150 species are distributed worldwide. The other genus in the family, *Pinguicula* (butterworts), consists of one species not in Ohio, but within the northeast U.S. and 35 throughout its range.

The origin of the bladderwort's generic name, *Utricularia*, is still undecided. Some think it originates from the Latin word, *utricularius*, meaning "the master of a raft floated on bladders." Others think it originates from the Latin word, *utriculus*, meaning "a small bag or bladder."

Originally the plant's bladders were thought to be used for floatation. It wasn't until 1875 that Charles Darwin established that the bladders were actually complex traps for tiny plants and animals.

How do these wetland plants capture their prey? All plants absorb nutrients, either through their roots or leaves; bladderworts just use a more aggressive method of capturing nutrients. Each of Ohio's bladderwort species has special bladders, either on the same stem as their leaf-like structures, or on a separate stem (*U. intermedia*), which act as carnivorous traps.

Bladders are known to capture both animal and vegetative prey including



water fleas (*Cladocera*), copepods (*Copepoda*), paramecia, rotifers, nematodes and microscopic insect larvae. Prey trigger specialized hairs on the valve of the bladder that opens the trap, sucks in prey and closes. Water is pushed out of the trap in order to digest and absorb the nutrients of the prey. The walls of the trap can be flexed back out after about 30 minutes, to ensnare the plant's next victim.

These fascinating plants reproduce by seed, or more commonly, by winter buds known as turions. These turions are a firm ball, covered in a sticky adhesive from reduced leaves of stems with highly compressed internodes. Turions are formed late in the year and resume growth in the spring.

Bladderworts can be hard to distinguish from one another, unless you are able to examine them closely. Often, the plants are found in areas not accessible to the public.

The easiest way to spot bladderworts is to look for their bright yellow flowers which bloom from June to September. The flowers are similar in shape to a snapdragon, with irregular upper and lower lips. Although they all have yellow flowers, upon close inspection, there are a few characteristics that make each stand out from the rest.

The most likely species you will find is the **common bladderwort** (*U. vulgaris*), which has numerous free-floating leaves and six to 20 flowers growing on its flowering stem. Some think it is a weed because its numerous branches grow in tangled clumps and often coil around other aquatic species. It may be found in ponds and other calm waters.

The **two-scaped bladderwort** (*U. geminiscapa*), found in Ohio bogs, closely resembles the common bladderwort, but it is smaller with leaves only half to an inch long. What makes this species unique are the two types of flowers it produces. One type of flower is yellow and above the surface of water and the other, a cleistogamous flower, is closed, self-pollinating and below water.

Of the Ohio species, the **horned bladderwort** (*U. cornuta*) has the longest spur on its flower and its flowering stem is often nearly 4 inches tall containing up to six flowers. The leaves of this species are very small and are seldom seen because they are generally underground. In Ohio, this species can only be found in calcareous peatlands, or fens.

Creeping bladderwort (*U. gibba*) is a small plant that tends to form mats near the bottom of the shallow waters of ponds and marshes. This species generally has one to three yellow flowers containing thick, obtuse spurs.

The main characteristic distinguishing the **northern** or **flat-leaved bladderwort** (*U. intermedia*) from the rest of the group is the presence of separate branches for leaves and bladders. It is less branched and grows untangled, unlike the other species. The flat-leaved bladderwort can be found in Ohio fens.

The **lesser bladderwort** (*U. minor*), found in fens, bogs and swamps, has stems that creep on the soil and form mats under shallow water. Up to nine flowers may be found on the stems of this species.

With a little patience and a sharp eye, you may be able to spot these species from the boardwalk of an Ohio state nature preserve, such as Jackson Bog or Cedar Bog. ✓

Melissa Moser
Ecologist, Ohio Natural Heritage Program

Symposium highlights preserves, rare plants and more

Botanists, naturalists and other native plant enthusiasts are invited to attend the 5th Annual Ohio Botanical Symposium on April 1 from 8 a.m. to 4 p.m. in Columbus. Sponsored by the Division of Natural Areas and Preserves, The Nature Conservancy Ohio Chapter and the Ohio Department of Transportation, the event will feature a variety of topics from Ohio's natural landscape.

First presented in 2000, the Ohio Botanical Symposium brings together a variety of people interested in Ohio's native plants and natural history. This year, division staff, along with special guest speakers, will share information which is both topical and informative.

Guest speakers include former DNAP botanist, Allison Cusick, who will discuss *The World of Ferns*, and naturalist Roger Troutman who will be presenting an overview on *Ohio's Milkweeds*.

Turning the conversation to the challenges of invasive species, Dan Herms, an entomologist on staff at OSU's Agriculture and Research Development facility, will discuss the implications of the emerald ash borer

and the future of the ash tree in North America.

Ecologist

Gary Covert will present an ecological inventory of Crane Hollow State Nature Preserve, which is located in Hocking County.

Besides highlighting Ohio's annual list of best rare plant finds of 2004, DNAP staff will also discuss 20 years of restoration efforts at Chaparral Prairie State Nature Preserve in Adams County.

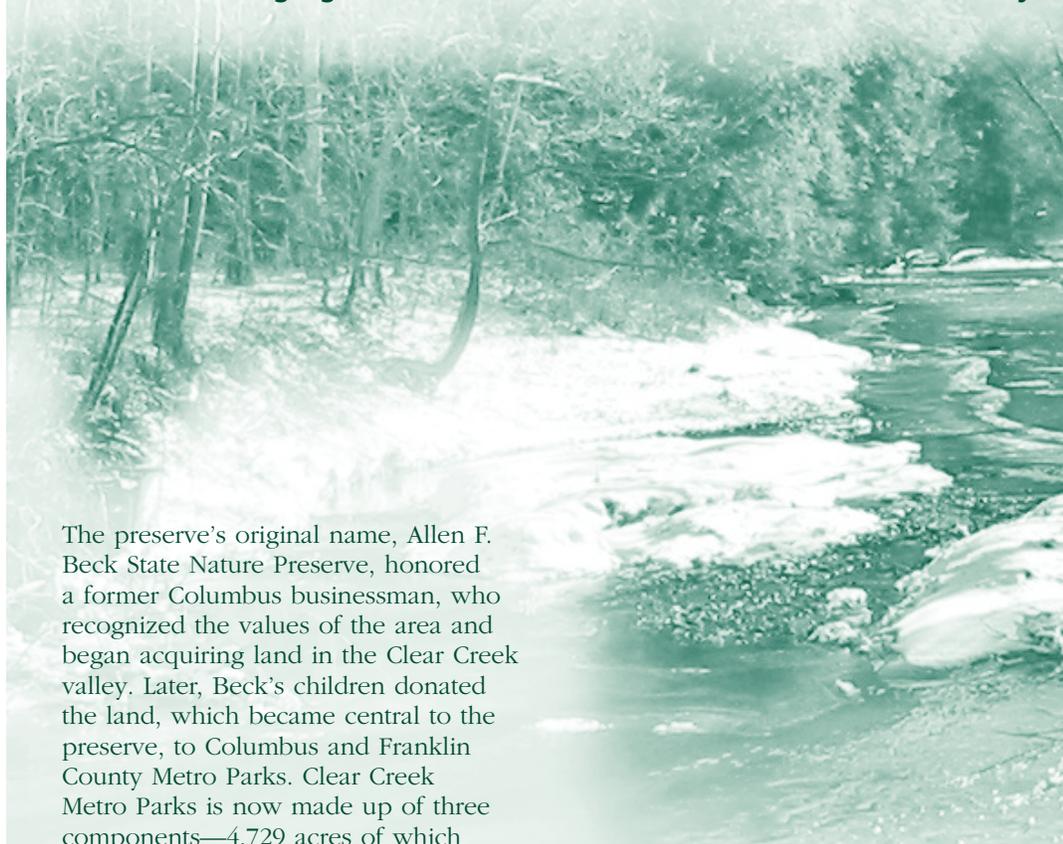
Registration for the all-day symposium is \$10, which includes break refreshments, but not lunch. The event is being held at the Ohio Department of Transportation's auditorium in Columbus. Registration deadline is March 18. To learn more, please contact Rick Gardner at (614) 265-6419. ✓

Nature Preserve Spotlight

Clear Creek State Nature

Ohio's largest state nature preserve can be found in Fairfield County and northern Hocking County

Clear Creek State Nature Preserve is an immense, rugged preserve overlooking the Columbus and Franklin County Metro Parks system. The scenery features a gorge formed from Black Hand sandstone and a variety of



The preserve's original name, Allen F. Beck State Nature Preserve, honored a former Columbus businessman, who recognized the values of the area and began acquiring land in the Clear Creek valley. Later, Beck's children donated the land, which became central to the preserve, to Columbus and Franklin County Metro Parks. Clear Creek Metro Parks is now made up of three components—4,729 acres of which comprise the state nature preserve.

The biodiversity found amidst the entire park's 4,934 acres is astonishing. More than 800 vascular plant species have been recorded at the preserve including a host of rare plants.

A wonderful place for birding enthusiasts, the black vulture reaches its northern limits here in Ohio and at least 18 species of warblers are reported to nest within Clear Creek valley.

When asked what stands out about the preserve, Stacy Brehm, park manager for Clear Creek Metro Park quickly answered, "The ruggedness and vastness of the preserve—there are two to three times the amount of different species here

compared to other Columbus metro parks."

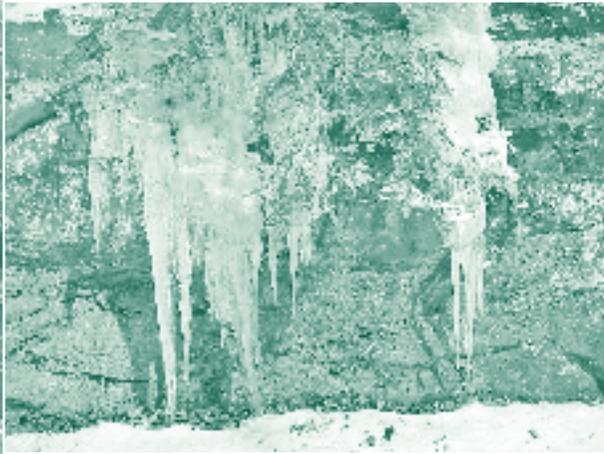
A great place for hiking, the preserve features nine trails, covering all kinds of distance and terrains. About half of the trails are listed as moderate to difficult and trail lengths range from .75 to 3 miles in length.

If you enjoy birdwatching, Brehm recommends beginning with the flat Creekside Trail which starts at the Creekside Meadows picnic area. The area is good for sighting warblers and waterfowl, such as blue herons and kingfishers.

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outcroppings and other deep wooded features of this trail.

Before visiting Clear Creek, consider spending some time researching all your trail and picnic area choices by visiting their link at www.ohiodnr.com/dnap.

Clear Creek's naturalist staff offer about five programs monthly, including many guided hikes. A few times each year, Clear Creek offers off-trail hikes as well. All programs are also listed on the Columbus and Franklin County Metro Parks' website at www.metroparks.net or request a copy of their quarterly newsletter, *Park Scope*, by calling (614) 891-0700.

If you're visiting for the first time—spring is a great time to visit.

"Any of the wooded trails, which most are, are good for spring wildflowers. The Fern Trail, which begins from the Fern picnic area, features many kinds of ferns and mountain laurel, and it connects to the Hemlock Trail."

But, according to Brehm, as beautiful as the Hemlock Trail is, it is one of Clear Creek's most difficult trails. If you like a challenging hike, you'll be rewarded by the ravines, stone

*Heidi Hetzel-Evans
Public Information*

Discover the best of Ohio's natural features



Natural Areas Discovery Series returns

After a successful first year, the Division of Natural Areas and Preserves is coordinating a new Natural Areas Discovery Series in 2005. Beginning in March, the series, which has expanded this year, features scheduled hikes, canoe floats, demonstrations and other special programs.

Here's a look at the first few scheduled events:

The chorus of spring

The 2005 series will kick off with an early evening look at Ohio's frogs and toads on **Saturday, March 26** at 6 p.m. in Lucas County. The program will begin with a slide show at the Secor Metropark's Center for Photography building and then proceed to Irwin Prairie State Nature Preserve for an evening walk. **For more information, contact Steve Harvey at (419) 445-1775.**

Spring beauty abounds

View the glories of springtime at Miller Nature Sanctuary in Highland County. An Open House is scheduled for **Saturday, April 23** from 10 a.m. to 5 p.m. It will feature a series of guided tours highlighting spring flora, the geology of Rocky Fork Gorge and other topics. **For more information, contact Martin McAllister at (937) 544-9750.**

Birding along Lake Erie's shore

Well-known for its migratory bird life, Sheldon Marsh will host two birdwatching hikes on **Saturday, April 30**. Colorful neotropical warblers, shore birds and waterfowl will be the featured sights for those joining the 8 a.m. or 10:30 a.m. walks. Bring your binoculars and meet in the parking lot. **For more information, contact John McFadden at (419) 433-4919.**

Woodland jewels

Here's another chance to see the beauty of spring in Ohio's woodlands. Visit Howard Collier State Nature Preserve on **Saturday, May 7** and you'll be astonished by the array of spring wildflowers. Two guided hikes (10 a.m. and 1 p.m.) will focus on identifying Ohio's common and uncommon spring blooms. **For more information, contact Walt Jinks at (419) 981-6319.**

To view a complete listing of the 2005 Natural Areas Discovery Series, log on to www.ohiodnr.com/dnap.

Dam removal benefits stream ecology

In the United States, more than 600,000 miles of river are behind dams, according to the American Rivers organization. Dam removal is emerging nationwide as a means to increase the health of river habitat by returning streams to their natural conditions. In Ohio, staff from the division's Scenic Rivers Program are taking a look at obsolete dams and how they impact the state scenic rivers system.



dam. The concrete support pillars were 12 inches wide on 7-foot centers, supporting a 4-inch concrete slab. The bottom of the slab rested against 12-inch square timbers that were bolted to the streambed bedrock. A cross-section of the dam would have looked like a right angle triangle.

In 2002, staff from the division's Scenic Rivers Program approached the Ohio American Water Company with a proposal.

The removal of St. John's Dam on the Sandusky State Scenic River is giving the division and river managers an opportunity to monitor and record the benefits of dam removal. The dam, located in Seneca County, originally provided a reservoir for public water supply for the city of Tiffin. It was purchased by the Ohio American Water Company in either 1935 or '42 according to company records, and that was also the last time major repairs were made.

The dam was never used for its original purpose. During the drought of 1988, there wasn't enough water behind the dam to be used as an emergency water supply. Over the years the dam seriously deteriorated. After an inspection in 1999, the water company was given two years to repair or remove the dam.

A 2001 report by the Ohio Environmental Protection Agency (EPA) found the river's impounded area affected by heavy siltation, limited habitat and lack of discernible flow. The dam impaired the stream's ability to attain the warmwater habitat use designation.

Several figures have been gathered for the size of the impoundment behind the dam—the largest being 14 miles. The structure was 150 feet long by 7.2 feet high and was not a solid concrete

The division offered to pay for the removal of the dam and in return, the water company was asked to donate their land on both banks surrounding the dam to the state of Ohio. The company agreed.

After a lengthy permit process involving Seneca County officials, U.S. Army Corps of Engineers and Ohio EPA, work to remove the St. John's Dam began. Ohio Civilian Conservation Corps members breached the dam in March 2003. But, the 15-foot breach was not large enough to lower the impounded area.

The dam was later removed in November 2003, by Mosser Construction. The impounded area behind the dam dropped about 3 feet over two days. The removal itself only took about

2-1/2 hours. According to engineers, it was only a matter of time before the St. John's Dam would have collapsed on its own. About 25 dump truck loads of debris were hauled to a landfill in Wyandot County.

The only physical impact of removing the dam was an issue with subsidence (a lowering of land surface elevation) at a nearby subdivision. The pressure of the river against the bank was no longer present, so the saturated bank soil moved, causing the subsidence. Engineers from the Ohio Department of Transportation (ODOT) inspected the settling and cracks, and repaired the problems.

In order to establish stream mitigation for future projects, ODOT paid \$77,970 for the removal of the dam. In return ODOT received stream mitigation credit of 79,755 linear feet.

The dam removal gave the Ohio Scenic Rivers Program an opportunity to conduct a five-year pre- and post-removal study, which has never been done in Ohio. The study will examine how a formerly impounded river naturally recovers over time.

The study includes: fish electro-shocking, macroinvertebrate trapping, mussel surveys, water chemistry, sediment transport, GPS mapping of cross sections of the river channel, GPS mapping of the river substrate and morphology (riffles, runs and pools) and monitoring of static water levels in 14 area wells. The researchers come from a variety of agencies including: ODNR, The Ohio State University and Heidelberg College's Water Quality Lab. The research is partially funded by monies raised through Scenic Rivers license plate sales.



For more information on the St. John's Dam removal or the five-year study, contact the Northwest Ohio Scenic Rivers office at (419) 981-6319. ✓

Bob Vargo
Northwest Ohio Scenic Rivers Manager
Heidi Hetzel-Evans
Public Information

Going Twiggy



The middle of winter would hardly seem to be the best time of year to start a nature study, but a lot can be learned even when the outdoors is not green. Winter is one of the best times to identify woody plants. Without leaves to distract us, we can concentrate on

characteristics which are often overlooked or covered up in warmer seasons. If summer is leaf time, then winter is twig time.

Differences between plants go deeper than leaves and flowers. This is especially true of woody plants—the trees and shrubs that form such an important part of Ohio’s landscape. By noting these differences, it is possible to identify them to the genus level, and often to the species. The trick is to look at the few structures woody plants share and learn how they vary.

Take a look at a twig. Any twig will do, but a big, fat one from a buckeye, hickory or tree-of-heaven will show the characteristics we’re looking for best. Do you see those light-colored patches dotted up and down its length? Those are leaf scars, places where the ends of leaf stems (technically called petioles) were attached during the growing season. Their size, shape and arrangement provide the starting point for our query. Are they opposite—that is, directly across from one another on the twig? Or are they alternate (off-set from each other on opposite sides) or whorled (three or more scars in a line around a twig)? What is their shape? Do they look like shields, crescent moons or ovals?

Inside the leaf scar there may be bundle scars—the dot-like ends of clusters of tubes that carried water into the leaf and the necessary products of photosynthesis out. The number of these in each leaf scar and their arrangement are also important characteristics.

Above the leaf scar there is usually a bud. In some plants, it occupies an indentation in the top of the scar; in others, the scar nearly surrounds it. Buds represent the future of the plant. It is from rapidly dividing cells protected within its sturdy covering that leaves and flowers and future branches will come. That covering can also be an important clue.

Some plants—walnuts, for instance—have no covering at all and so their buds are considered naked. Willow buds are protected by a single bud scale. In most plants, the bud is enclosed within numerous overlapping scales. Interestingly, multiple bud scales mimic the arrangement of leaf scars: opposite on plants with opposite

leaves and alternate on those with alternate leaves.

Other things to note when identifying plants by twigs are their color and the presence or absence of hairs, markings and thorns. That last trait is a bit more complicated than it appears at first.

Technically, thorns are short modified stems. Spines are modified leaves. Both contain vascular tissue (water and food-carrying tubes). Prickles, on the other hand, are sharp outgrowths of the outer layer of plant tissue (the plant’s skin) and are not deeply connected within the stem. The thorn of a rose is actually a good example of a prickle; if you push on it sideways, it peels off.

In order to put all of these observations together to come up with an identification for an unknown twig, you’ll need a guide. One of the best for Ohio is Lucy Braun’s *The Woody Plants of Ohio*, which has both winter and summer identification keys. First published in 1961, it has become a classic in its field. There is no better time to make its acquaintance than during the leafless days of winter. ✓

Tim Snyder
West Central District Preserve Manager

A simple checkmark can make a big difference

Please use Line 24 on your state income tax form (or line 16 on Ohio 1040EZ) to donate to the preservation of Ohio's nature preserves, scenic rivers and endangered species.



It's easy to support the protection of Ohio's natural heritage through the Natural Areas Checkoff Program. Taxpayers may donate any portion of their Ohio state income tax refund to support natural area acquisitions, education programs, scientific research and protection of threatened and endangered species.

Your generous donation helps protect high-quality scenic rivers, significant native plant communities, such as bogs, prairies, oak savannahs and old growth forests, and numerous rare plant and animal species.

Direct donations may also be made by sending a check made payable to:

Checkoff Special Account
Division of Natural
Areas & Preserves
2045 Morse Road, Bldg. F-1
Columbus, OH 43229

Today, only scattered remnants of Ohio's unspoiled natural landscape remain as tributes to our state's proud natural heritage.

Won't you join us... together we will make a difference! ✓

PRESERVING NATURE TODAY FOR THE NEEDS OF TOMORROW

The Division of Natural Areas and Preserves' Mission Statement
Administer a system of nature preserves and scenic rivers by identifying and protecting Ohio's significant natural features.

Vision Statement
Leading Ohio in the stewardship of its natural heritage.

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