

PROJECT NATURE NEWSLETTER

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FEBRUARY, 2019 ISSUE

Events



46th Annual Winter Hike Series

Highbanks Metro Park - Northern Shelter

9th February 10:00 am - 12:00 pm

Join us for the annual winter hike with options for 2.5 or 5 miles. Refreshments afterward

Winter Tree ID: Silhouettes and Branches

Inniswood Gardens Metro Park - Gardens Entrance

9th February 2:00 pm - 3:00 pm

Learn how to identify our local trees focusing on characteristics of tree form

Owls of February

Three Creeks Metro Park - Confluence Area

9th February 6:00 pm - 7:00 pm

Learn about Ohio's owls as we walk through the woods and try to lure them with calls

Weekly Bird Hike

Scioto Audobon Metro Park - Grange Insurance Audobon Center

9th, 16th, 23rd Feb, 2nd Mar 10:00 am - 11:30 am

Hike with experienced birders to find and learn about birds (Binoculars and field guides can be provided)

The Coyotes Among Us

Three Creeks Metro Park - Heron Pond

10th February 2:00 pm - 3:30 pm

Learn about this secretive animal as we wander off-trail in search of coyote signs

46th Annual Winter Hike Series

Glacier Ridge Metro Park - Shelter House

10th February 2:00 pm - 4:00 pm

Enjoy a brisk 2-mile hike through the grassland and forest

Water Conservation and Sustainability

Whetstone Public Library - 3909 N. High St.

11th February 6:00 pm - 7:30 pm

Learn about the importance of water conservation and simple techniques to save water by OSU water compliance engineer Kent Halloran

Great Backyard Bird Count

Blacklick Woods Metro Park - Nature Center

16th Feb 10:00 am-11:00 am, 17th Feb 2:00-3:00 PM

Watch the feeders and count birds to participate in the Great Backyard Bird Count

EPN Breakfast - Justice, Equity, Diversity, Inclusion

Nationwide and Ohio Farm Bureau 4-H Center

2201 Fred Taylor Dr

12th February 7:15 am - 9:30 am

Join the conversation about diversity and inclusion in environmental NGOs, while enjoying breakfast hosted by the Environment Professionals Network

Registration - Free for students (\$10 otherwise)

Winter Bird Hike

Blendon Woods Metro Park - Nature Center

16th February 9:00 am - 10:00 am

Visit Thoreau Lake and view our wintering waterfowl

Ice Age Ohio

Battelle Darby Creek Metro Park - Indian Ridge

16th February 2:00 pm - 3:00 pm

Learn about the effects glaciers had on the landscape and animals, including mammoths, mastodons, giant beavers and giant bears

So, You Want to Be a Metro Parks Volunteer!

Highbanks Metro Park - Nature Center

16th February 2:00 pm - 4:00 pm

Learn about the variety of volunteer opportunities at different MetroParks. Enjoy a guided hike, light refreshments and meet like-minded people

Owl Hike

Highbanks Metro Park - Oak Coves Picnic Area

16th February 7:00 pm - 8:00 pm

Hike 2-miles to search for both Great Horned and Barred owls

Winter Tree ID: Buds and Leaf Scars

Inniswood Gardens Metro Park - Gardens Entrance

16th February 2:00 pm - 3:00 pm

Learn how to identify our local trees focusing on buds, scars, and other branch characteristics

Events



Ice Cave Hike

Clear Creek Metro Park - Park Office

16th February 10:00 am - 1:00 pm

Take a self guided 3.5 mile backcountry hike to the Ice Cave. Warm up along the way with Das KaffeeHaus coffee and locally made pastries

46th Annual Winter Hike Series

Three Creeks Metro Park - Confluence Area

16th February 10:00 pm - 1:00 pm

Take a 1-,3- or 5.6-mile hike along the creeks followed by hot drinks and food

Ice Age Display

Battelle Darby Creek Metro Park - Nature Center

16th - 24th February 9:00 am - 5:00 pm

Learn about life in Ohio during the Ice Age

Feed The Stream

Battelle Darby Creek Metro Park - Nature Center

17th February 2:00 pm - 2:30 pm

Give the fish worms and crickets and watch the feeding frenzy in 53-foot living indoor stream

46th Annual Winter Hike Series

Slate Run Metro Park - Buzzards Roost Picnic Area

17th February 2:00 pm - 4:00 pm

Take a 2.5- or 5-mile hike through woods and fields. Food served

The Great Backyard Bird Count

Scioto Audobon Metro Park - Grange Insurance

Audobon Center

17th February 8:00 am - 2:00 pm

Bird watchers of all ages count birds to create a real-time snapshot of where birds are. To register please e-mail Michael at mgoldman@audubon.org

Invasive Species Display

Blacklick Woods Metro Park - Nature Center

23rd - 24th February 8:00 am - 6:00 pm

View a display about invasive species in Ohio to kick off National Invasive Species Awareness Week

46th Annual Winter Hike Series

Battelle Darby Creek Cedar Ridge - Ranger Station

23rd February 10:00 am - 11:00 am

Enjoy a 2-, 4- or 6-mile trek along the banks and bluffs of Big Darby Creek

Eagle Watch

Highbanks Metro Park - Nature Center

23rd February 11:00 am - 1:00 pm

Take a three mile hike to the Overlook Deck to look for Bald Eagles and signs of nesting activity

Skunk Cabbage Hike

Clear Creek Metro Park - Park Office

23rd February 10:00 am - 1:30 pm

Join for a rugged 4-mile hike and see Ohio's earliest blooming wildflower

Woodcock Watch

Three Creeks Metro Park - Confluence Area

23rd February 6:00 pm - 7:00 pm

Take a 1.5-mile walk to watch the aerial courtship display of the American Woodcock

Search for Skunk Cabbage

Blendon Woods Metro Park - Nature Center

24th February 1:00 pm - 2:00 pm

Find the first flower of the year and learn its medicinal uses

GPS Treasure Hunt

Sharon Woods Metro Park - Natural Play Area

24th February 2:00 pm - 3:00 pm

Search for hidden critters off-trail while using a GPS unit

Spring Birds

Blendon Woods Metro Park - Nature Center

3rd March 9:00 am - 10:00 am

Search for early spring migrants and resident species on a 1-mile hike

Caves and Karst

A cave is a natural void in the ground, and can be defined as any cavity in the ground that is large enough that some portion of it does not receive direct sunlight. Caves can form by a combination of chemical processes, erosion from water, tectonic forces, microorganisms, pressure, and atmospheric influences. The most common caves are karst caves, also called solutional caves.

Karst

Karst is a topography formed from the dissolution of soluble rocks such as limestone, dolomite, and gypsum. It is characterized by underground drainage systems with sinkholes and caverns. The term karst comes from the Slav word *krs* meaning crag or stone. The word became a term to describe the rocky region along the Dalmatian coast of the Adriatic Sea.

Karst features can form both on the surface as well as beneath the ground. Rainwater picks up carbon dioxide (CO_2) from the atmosphere forming a weak acid - carbonic acid (H_2CO_3). This slowly dissolves the calcium carbonate (CaCO_3) in rocks such as limestone along joints, bedding planes and fractures. It is however a very weak acid and would not normally be able to explain most of the world's caverns. Another gas, hydrogen sulfide (H_2S), seems much better suited and is gaining wide spread acceptance as the probable primary source of cavern development. H_2S is available from many natural sources. When an underground source of hydrogen sulfide wells up and mixes with down-percolating oxygenated water from the surface, the mixture of water, H_2S and oxygen forms sulfuric acid (H_2SO_4), which is a much stronger acid for dissolving rocks such as limestone to form massive caves.

Caves formed through karst process are called caverns. Thus all caverns are caves but not vice-versa. The formation and development of these caverns is known as **speleogenesis**. The most frequently occurring features of a karst system are sinkholes. Sinkholes (also known as *dolines*) are surface depressions formed by the dissolution of bedrock forming a bowl-shaped depression. These sinkholes or shallow basins may fill with water forming lakes or ponds. Rivers in karst areas may disappear underground in a number of places and spring up again elsewhere. These springs where ground water emerges at the surface of the earth are called karst *fensters* (karst windows). Disappearing streams are evidence of disrupted surface drainage and thus indicate the presence of an underground drainage system.

Cavern Features

Caverns are marked by a variety of beautiful crystal features, collectively called **speleothems**. Most common speleothems include *stalactites* (hanging from the cave ceiling from which they grow) and *stalagmites* (growing from the floor). Stalactites and stalagmites form when rainwater falling directly onto the limestone percolates down through the rock, gradually becoming saturated with calcium carbonate as it dissolves the limestone through which it passes. On reaching an open cave below, the calcium carbonate precipitates out (due to degassing of carbon dioxide) to form stalactites and stalagmites. Columns result when stalactites and stalagmites meet or when stalactites reach the floor of the cave. *Helictites* are stalactites that have a central canal with twig-like or spiral projections.

Ohio Caverns in West Liberty (open year-round) is famous for its beautiful crystal features. The largest and most famous formation in the Ohio Caverns is the Crystal King — a pure white wonder that is one of the largest and most perfectly formed stalactites in any cave, anywhere. Nearly five feet long, weighing an estimated 400 pounds, and estimated to be over 200,000 years old; it drips once every seven to eight minutes. Ohio Caverns is the largest known cave in Ohio.



Crystal features in the making in Ohio Caverns

Olentange Indian Caverns in Delaware county (open April through October) are caverns closest to Columbus. These caves were used by the Wyandotte Indians tribe. The cave system is

spread across four different vertical levels with an underground river flowing through the lowest level (not open to public) into the Olengtangy river.



400 pound stalactite - *Crystal King* - at Ohio Caverns

Mammoth Caves (Kentucky), the world's longest known cave system with more than 400 miles of surveyed passageways, is a unique karst - **Interstratal** karst. Interstratal karst is a karstic landscape which is developed beneath a cover of insoluble rocks. Typically this will involve a cover of sandstone overlying limestone strata undergoing dissolution. The overlying sandstone cap gives an unusual strength and stability to the Mammoth caves. Also, because of the sandstone ceiling, speleothems aren't very common in Mammoth caves except in a few places where the sandstone caprock layer has been dissolved or eroded.

Importance of Karst

The study of karst is of prime importance in petroleum geology since as much as 50% of the world's hydrocarbon reserves are hosted in porous karst systems.



Crystal features in Ohio Caverns

10% of the Earth's surface is occupied by karst landscape and as much as a quarter of the world's population depends upon water supplied from karst areas. Karst systems are very vulnerable to ground water pollution as the water may have run unimpeded from a sinkhole through caves, bypassing the normal filtering that occurs in porous aquifers.

About 20% of the United States is underlain by karst landscapes and 40% of groundwater used for drinking comes from karst aquifers.

Other Types of Caves

Glacier Caves form when seasonal meltwater or geothermal vents cut fissures and channels through an ice sheet. Because they are made of ice, glacier caves can be quite unstable and present unique challenges to spelunkers.

Corrasional or Erosional Caves form entirely by erosion by flowing streams carrying rocks and other sediments. These can form in any type of rock, including hard rocks such as granite. **Old Man's Cave** in Hocking Hills would fall under this category. Old Man's Cave is not a cave in the traditional sense of word. Instead it is a deep gorge with a large, overhanging lip made of erosion-resistant, Blackhand Sandstone. Hence it's more appropriately termed a *recess* cave.



"Cave Bacon" - a color variation in calcium carbonate flowstone due to precipitation of iron oxide

Collapse Caves form when the underlying rocks are dissolved creating a void, which causes the overlying rocks to collapse. **Seneca Caverns** in Ohio are an example. These caves are not created directly by dissolution of the limestone as are most caves. The dissolution of the underlying gypsum bed caused the overlying carbonate rocks to collapse into the void below, thus forming the caves.

All the aforementioned types of caves including karst caves fall under the category of secondary caves. Secondary caves are carved out of the host rock after it has been deposited or consolidated.

Lava Tubes Caves formed at the same time as the surrounding rock are called primary caves. Lava tubes are a common example of a primary cave formed through volcanic activity. As lava flows downhill, its surface cools and solidifies. Hot liquid lava continues to flow under that crust, and if most of it flows out, a hollow tube remains.

Cave Ecosystem

Cave-inhabiting animals are often categorized as *troglobites* (cave-limited species). Many animals, such as bats, cave crickets, and pack rats, regularly visit, raise their young, or hibernate in caves. These animals are called *trogloxenes* (species that use caves, but cannot complete their life cycle fully in caves). The troglobites are perhaps the most unusual organisms. Troglitic species often show a number of characteristics, termed *trogomorphic*, associated with their adaptation to subterranean life. These characteristics may include a loss of pigment (often resulting in a pale or white coloration), a loss of eyes (or at least of optical functionality), an elongation of appendages, and an enhancement of other senses (such as the ability to sense vibrations in water).



A Troglitic cave dweller in a Kentucky cave with no pigment or eyes

Because of the fragile nature of the cave ecosystem, and the fact that cave regions tend to be isolated from one another, caves harbor a number of endangered species.

Caves have been an important part of human civilization providing shelter and resources such as clean water, flint stones, etc. Additionally, caves have been used as intentional burial places. Consequently, the earliest human fossils have been found in caves.

Fun Facts!

For the Sinkhole Plain in central Kentucky, there are approximately 5.4 sinkholes per square kilometer over a 153 square kilometer area. For north Florida there are almost 8 sinkholes per square kilometer over a 427 square kilometer area.

The entire 400-mile long Mammoth Cave system discovered so far lies at different vertical levels under just two adjacent ridges and is contained within a diameter less than 7 miles.