

PROJECT NATURE NEWSLETTER

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NOVEMBER, 2018 ISSUE

Events



Energy and Environment Film Series

CBEC Building, OSU. 151 W. Woodruff Ave

5th, 12th, 19th, 26th November 7:00 pm - 8:50 pm

Watch compelling environment documentary films, followed by discussion with leading experts

Free (Adriatico's) Pizza at 6:30 pm!

Off-Trail Hike

Battelle Darby Creek Metro Park - Cedar Ridge Ranger Station

10th November 9:00 am - 10:00 am

Explore remote areas of the park on a 6-mile hike

Winter Hawks

Rocky Fork Metro Park - Millstone Shelter

10th November 9:00 am - 19:00 am

Take a 2-mile hike along a trail to observe wintering hawks

Weekly Bird Hike

Scioto Audobon Metro Park - Grange Insurance Audobon Center

10th, 17th, 24th Nov, 1st Dec 10:00 am - 11:30 am

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

Project Feederwatch Openhouse

Highbanks Metro Park - Nature Center

11th November 10:30 am - 12:00 pm

Learn identifying winter feeder birds and how you can get involved and contribute to the citizen science program

Feed The Stream

Battelle Darby Creek Metro Park - Nature Center

11th November 1:00 pm - 2:00 pm

Enjoy the fish feeding frenzy as you feed them worms, crickets and minnows

Owls

Battelle Darby Creek Metro Park - Indian Ridge

11th November 5:00 pm - 6:00 pm

Walk 2 miles along the creek and try and call in owls

Giant Tree Hike

Prairie Oaks Metro Park - Whispering Oaks Picnic Area

11th November 1:00 pm - 2:00 pm

Hike 2 miles off-trail through the prairie and the ravine to see one of the largest Burr Oak trees in the state

EPN Breakfast - Let's Make Biking Work

Nationwide and Ohio Farm Bureau 4-H Center 2201 Fred Taylor Dr

15th November 7:15 am - 9:30 am

Join for a discussion on creating infrastructure and ways to improve bicycle-commuting while enjoying breakfast hosted by the Environment Professionals Network

Registration - Free for students (\$10 otherwise)

Sandstone Ramble Back Country Hike

Clear Creek Metro Park - Maintenance Shop

17th November 10:00 am - 1:30 pm

Take a rugged 4-mile hike to see an impressive sandstone maze and explore a cave

Events



Walk To The Eagle's Nest

Three Creeks Metro Park - Confluence Area

17th November 10:00 am - 11:30 pm

Learn about our National bird and take a 2-mile off-trail walk to visit their nesting site

Waterfowl Walk

Blendon Woods Metro Park - Nature Center

18th November 9:00 am - 10:00 am

Walk out to Thoreau Lake to learn about visiting waterfowl

Leafless Tree ID

Rocky Fork Metro Park - Confluence Area

17th November 2:00 pm - 3:00 pm

Take a 2-mile hike and learn to ID trees without their leaves

Wild Turkey Display

Blendon Woods Metro Park - Nature Center

24th, 25th November 12:00 pm - 3:00 pm

Learn about this beautiful bird that has made a remarkable comeback in Ohio

Buckeye Fever

Battelle Darby Creek Metro Park - Nature Center

17th November 10:00 am - 12:00 pm

Learn about our state symbol and make your own buckeye necklace to take home

Morning Chores

Slate Run Farm Metro Park

24th November 9:15 am - 10:15 am

Join the farmer in feeding animals and other barnyard chores (sign up required)

Screech Owls

Prairie Oaks Metro Park - Beaver Lake

18th November 5:00 pm - 6:00 pm

Look and listen for these tiny owls on a 1-mile hike

Hike Thoreau Lake

Blendon Woods Metro Park - Nature Center

1st December 2:00 pm - 3:30 pm

Hike around Thoreau Lake and find the animals living there

You Can Eat That

Blacklick Woods Metro Park - Nature Center

18th November 2:00 pm - 3:00 pm

Take a 1-mile hike and learn what wild edible plants are available in late Fall

Hike Along the Creek

Three Creeks Metro Park - Confluence Area

1st December 10:00 am - 11:30 am

Enjoy a leisurely 2-mile walk along the creek in search of winter wonders

Winter is Coming

Glacier Ridge Metro Park - Maintenance Shop

18th November 1:00 pm - 2:00 pm

Visit with animals from Ohio Wildlife Center and learn how animals prepare for winter

Winter Bird Hike

Blendon Woods Metro Park - Nature Center

2nd December 9:00 am - 10:30 am

Walk the trails looking for winter residents

Fossils & Geology

A fossil is formed when an organism - plant or animal - is buried, usually under calm waters in low-energy sediments, where the hard body parts are preserved either as original material or imprint. Hence, fossils are mostly found in rocks such as limestone, mudstone, shale and siltstone. Hard-bodied organisms have the best chance of being fossilized. Original matter could only be preserved if the body settles in a low-oxygen environment, such that burial happens before it could decompose. Similarly, fossilization of soft-bodied organisms is only possible if the burial is rapid before any oxygen reaches it. One such example would be a catastrophic volcanic eruption and sudden burial in the volcanic ash.

In addition to fossilization by burial in sediment, the dead remains of an organism could be impregnated by underground water containing dissolved minerals which replace the original organic structure, literally turning it into a rock. Hence the name of the process - *petrification*. Usually, the replaced mineral is silica but in rare instances, in the form of precious opal.

Other mechanisms of fossilization include preservation in frozen ice (e.g. Ice Age animals and even humans), or being trapped in a tree sap that later hardens into amber (remember Jurassic Park!) A more bizarre means of fossilization is the natural mummification - a process peculiar to hot arid desert areas where the dry environment desiccates the remains and keeps it preserved.

Trace Fossil Trace fossils are produced by the activities of an organism. It may result from resting marks, burrows, feeding trails, and locomotion tracks. These fossils reveal the habits and lifestyle of the organism. For instance, fossil trackways could tell whether an animal traveled in groups or was solitary.

Trilobite (TRY-lo-bite)

Trilobites are arthropods that first appeared on the planet in the Cambrian period, some 540 million years ago (mya). Trilobites are an extinct class of phylum Arthropoda. The extant (still living) members of arthropods include crabs, lobsters, shrimps, scorpions, spiders, and insects. Trilobites were exclusively marine sea animals. The name trilobite refers to the three-lobed longitudinal division of its body. It was among the first organisms with an exoskeleton. It was also one of the first arthropods that developed vision with a compound eye comprising several tiny lenses made of clear calcium carbonate, allowing some species almost a 360 degree vision. For defense, some trilobites had sharp spines on their exoskeleton, and all had the ability to coil and enroll, much like an armadillo.

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Trilobites thrived on the planet for almost 300 million years before going extinct in the mass extinction of the Permian period 250 mya - the worst mass extinction the planet has ever seen in its entire history to date!

Now, in case you were wondering why are we talking about a long dead and extinct animal, particularly the Trilobites, and why should I care? Glad you asked.

Meet your state fossil! Yes, the trilobite *Isotelus* is the state fossil of Ohio! The genus *Isotelus* mostly lived through the Ordovician period (about 490-450 mya) and hence is found in the rocks of that age, outcrops (rock formation exposed on the surface) of which are in southwestern Ohio, around the Cincinnati area. Trilobites came in varying sizes. *Isotelus* genera were the largest of all trilobites, with some specimens over 18 inches long.

You can see a complete and intact fossil of *Isotelus maximus* (species named for its large size) at the OSU Orton Geological Museum.



Isotelus maximus, which became the official Invertebrate Fossil of Ohio in 1985, is a trilobite (a type of ancient arthropod) that lived in marine environments between 542 million years and 251 million years ago.

Photo source: ODNR Division of Geological Survey

Placoderms

Another fossil of interest/relevance would be the Placoderms that ruled the seas during the Devonian period (420-360 mya). The Devonian period had such a diversity of fish that it is referred to as the “Age of Fishes”. Placoderms (“plate-skinned”) are an extinct class of prehistoric fish. Placoderms were the first fish with jaws and didn’t have teeth, but rather razor sharp jagged boney plates. The skeleton was mostly cartilaginous with an armored head.



Fossil of armored skull of *Dunkleosteus terrilli* at Cleveland Museum of Natural History. Photo Source: www.cmnh.org

The largest of all the placoderms was *Dunkleosteus* (good luck pronouncing it!) - a monster of the sea that, without a doubt, sat at the top of the food chain during its time. When fully developed, it measured up to 20 feet in length and weighed over 1 ton, with a bite-force of 80,000 psi. A fossil of the jaw of *Dinichthys* - a smaller cousin of *Dunkleosteus* - was found at Highbanks Metro Park and is on display at Highbanks Nature Center.

A reconstructed head of *Dunkleosteus terrilli* is displayed at the OSU Orton Geological Museum and the actual fossil can be seen at the Cleveland Museum of Natural History. As a little help in remembering the name of this extinct animal, it was named in 1956 to honor David Dunkle, then curator of vertebrate paleontology at Cleveland Museum of Natural History, combining with the Greek word *osteus*, meaning “bone”.

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Strangely, the placoderms lived on this planet for a mere 50 million years - a relatively short time period, particularly when compared to sharks that have lived for over 400 million years! They became extinct at the end of the Devonian period.

In Ohio, Devonian-age rocks outcrop in a narrow north-south belt, about 20 miles wide and 150 miles long. Columbus sits right in the middle. Layers of Devonian rocks can be seen along the bluffs and ravine walls at places such as Highbanks Metro Park and Shale Hollow Preservation Park. One other fascinating geological feature of the Devonian-age rocks at these parks are the **Concretions**. Along the ravine walls at these parks, you will find balls of rock - about 1-3 ft in diameter, almost spherical in shape - embedded within the layers of dark colored Ohio shale. While there's still some debate over the actual process of the formation of these concretions, a common understanding is that these are formed by the precipitation of mineral matter around a nucleus that is commonly a fragment of a fossil.



A (fractured) concretion embedded within the shale layers in the ravine wall at Highbanks Metro Park

Fun Fact? Correction! Gross Fact

Even the excrement of an organism can fossilize by any of the processes described above. Yeah, that's right. It's poop fossil! But paleontologists choose to call it by a fancy term - **Coprolite**. A Coprolite is a type of a trace fossil, and studying these fossils could reveal the dietary habits of the organism.

Fossil Hunting

The Ohio Department of Natural Resources (ODNR) Division of Geological Survey lists several designated public sites for hunting and collecting fossils. Information about the permitted sites for fossil hunting could be found at <http://geosurvey.ohiodnr.gov/major-topics/fossils-in-ohio>

DO NOT go about collecting anything - fossils or otherwise - from any park you visit. It is prohibited by law. Even at the permitted sites, it's advised that visitors first contact the park management staff prior to collecting to obtain any permits and/or rules that may apply.



Orton Hall, OSU

To schedule a guided tour of the OSU Orton Geological Museum, organize a group of at least 10, and email the museum curator, Dale Gnidovec at gnidovec.1@osu.edu