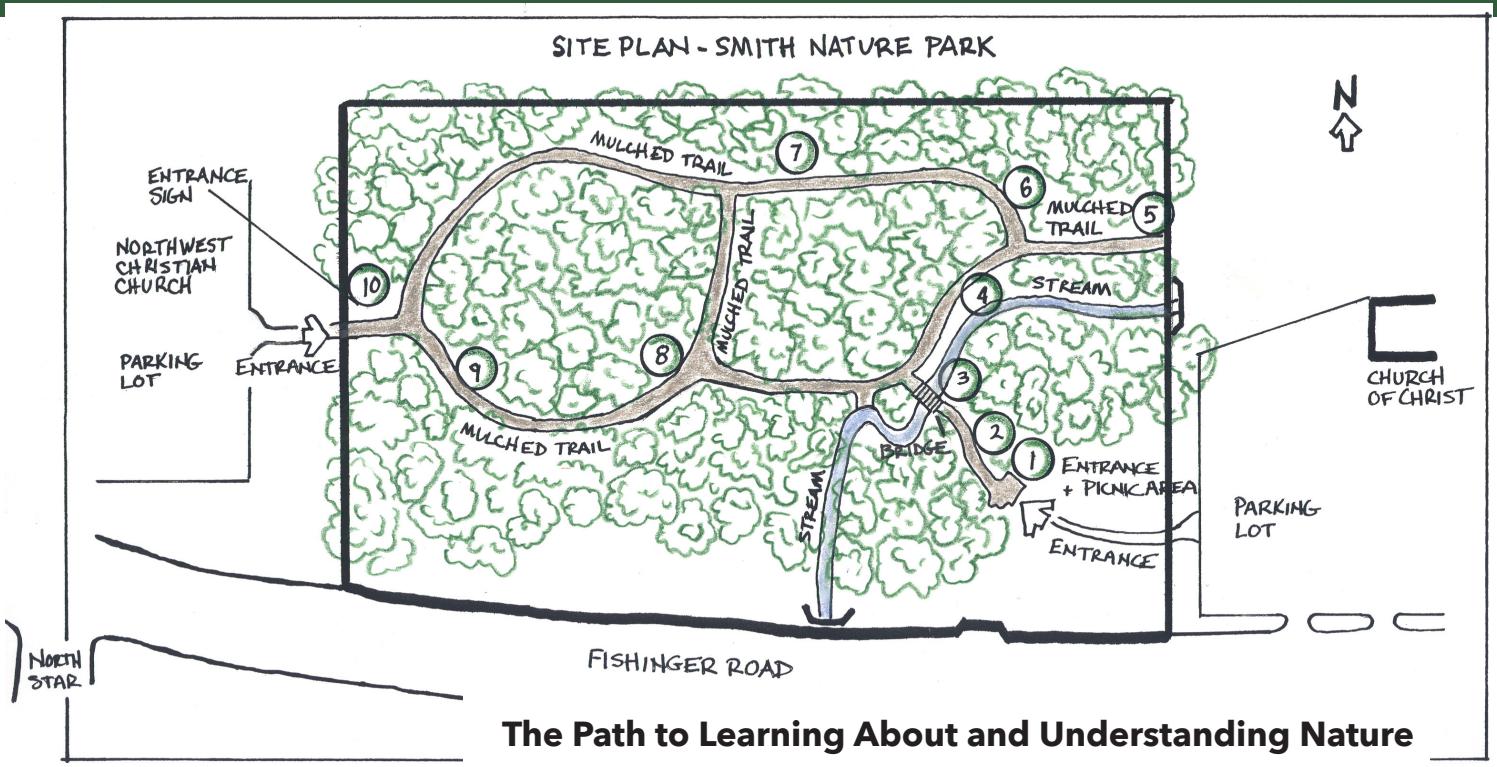
SMITH NATURE PARK - SELF GUIDED TRAIL



The Path to Learning About and Understanding Nature

Smith Nature Park was once the farm woodlot for the Smith family farm. The Upper Arlington Parks & Recreation Department has set aside Smith Nature Park for environmental study and enjoyment. We have provided this brochure for use while on the self-guided trail.

PLEASE NOTE: The following interpretive descriptions correspond to numbered trail markers. These markers are also keyed on the brochure map.

Appreciation is extended to the Church of Christ (Fishinger and Kenny Roads) and the Northwest Christian Church (Fishinger and North Star Roads) for their support in permitting use of their parking facilities. Brochure written by Doug Pontious and Steve Cothrel of the Upper Arlington Parks & Forestry Division, and Douglas Shrake, Senior Geologist, ODNR Division of Geological Survey.

1. The Ohio Buckeye Tree

Ohio is the "Buckeye" state. Historians disagree on how the name came to be associated with our state, but the Ohio Legislature designated the Ohio Buckeye (*Aesculus glabra*) as the official state tree in 1953. The name buckeye comes from the resemblance between the nut and a deer's eye. The Ohio Buckeye is a member of the horsechestnut family. It commonly grows near streams and rivers, reaching up to 50' in height, with a branch span of 30.' The distinct five-fingered leaves emerge early in the spring followed by clusters of yellow-green flowers. The shiny brown nuts are encased in a spiny hull until the hull dries and splits open. Even though some people believe buckeyes have mystical or medicinal properties, do not eat them, as they are poisonous!

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2. Glacial Erratics

Rocks and stones different from the local bedrock are known as "erratics." The erratics in the park are igneous, mostly granites, and metamorphic, mostly gneiss, rocks from the Canada Shield area in Ontario and Québec. The Wisconsonian-age glacier that covered the Ohio region up to 15,000 years ago transported these erratics here. Besides erratics, the glaciers also left a thick layer of till, or glacial drift, over two-thirds of Ohio. Till is composed of a mixture of clay, silt, sand and gravel. Data from water wells near the park indicate there is about 160' of drift here at the park.

3. The Park as a Wildlife Habitat

This park and the stream flowing through it provide a symbiotic living environment for a range of mammals, birds, fish, reptiles, amphibians, crustaceans, mollusks, insects and micro-organisms.

A glimpse into the flowing stream or quiet pools may reveal water striders, crayfish, tadpoles and some minnows. Closer examination of the stream can reveal nymph and larval stages of dragonfly, caddisfly, mayfly and dobsonfly. With the aid of magnification, you can examine protozoans such as amoebae and vorticella, as well as rotifers, water fleas and planarians. There are also various clean water algae and aquatic plants that contribute to this ecosystem.

At night, raccoons and opossums frequent the stream in search of mussels, crayfish, frogs and minnows. Look for their distinctive tracks along the stream bank and on the streambed. Amphibians to watch for in the park include the ravine and red-backed salamanders, american and fowler's toads, the spotted and green frogs, and bullfrogs. Reptiles to look for include turtles and snakes (hognose, black, and garter). The park also provides abundant squirrel habitat, and is an excellent location to observe birds. A lucky visitor may even see the occasional deer visiting the park.

4. Stream Development

Over the past two million years repeated advances of continental ice sheets, or glaciers, from the north have produced great changes to Ohio's landscape. Glaciers act like giant bulldozers, grading the landscape, changing the courses of rivers and streams, filling valleys and creating lakes and ponds. The last ice to cover Ohio is known as the Wisconsonian glacier and lasted from two million to 10,000 years ago. The Wisconsonian glacier created much of the landscape we see today. Many of the state's streams and rivers formed when this glacier melted and receded back to the north.

Cross sections of the deposits left by the glacier and soil forming processes are exposed along the stream. The top layer is humus composed of decaying vegetation. The next layer is the topsoil created from weathered till. The lowest layer is glacial till composed of silt, clay, sand and gravel.

This small stream has features common to even the greatest rivers. Note the sediment accumulating on the inside and being eroded on the outside of its channel meanders (turns). The stream is flowing over a bed of glacial till and has a mixture of erratics and limestone blocks in it.

Erosion along the banks of Slyh Run has increased as the watershed has been developed. Storm water now runs off streets, roofs, etc. and into the creek, increasing stream flow dramatically following heavy rains and carrying litter into the channel. This can undercut trees. Slyth Run is in the Olentangy River watershed and flows east. Part of Upper Arlington is in the Scioto River watershed and those streams flow west.

5. Fossils and Geology

The first bedrock encountered under the park and till layer is the Columbus Limestone. The limestone was created from the calcareous sediments (mud) deposited on the floor of a warm, tropical sea that covered Ohio during the Devonian Period of the Paleozoic Era (408 to 360 million years ago). The remains of Devonian-age plants and animals accumulated on the ocean floor, sinking into or being covered by accumulating sediment.

Over time this calcareous mud, along with the remains of various flora and fauna, lithified into rock. The Columbus Limestone is quarried today for making cement, building roads and buildings, and making lime for agriculture. This slab of bedrock was excavated at nearby Marble Cliff Quarry. Some of the fossils exposed on the top of the slab include solitary and colonial corals, brachiopods, bryozoans and crinoids.

6. Volunteer Efforts

Human enhancements, such as the one here, have been carefully incorporated into Smith Nature Park. In places, water erosion had carved a deep gully. Scout troops and students have donated their time and effort to try to control the erosion and to install steps for easy passage over the slope.

Other volunteer projects have included bridge installation, trail maintenance and mulching, bird and bat house construction, invasive plant removal and litter cleanup. The Upper Arlington Parks & Recreation Department is proud to acknowledge these efforts by the Friends of UA Parks and others, and invites active volunteer participation in the future.

You do not have to build bridges or maintain the trail to make a contribution to the park. Even small considerations such as leaving no visible evidence of your visit or picking up any litter you encounter are acts of volunteering. These seemingly small acts will be greatly appreciated by those who follow, and help to make this a better and more natural place to visit.

7. Tree Roots

Walking through a forest, you walk over thousands of miles of tree roots. Roots grow through soil pores and need soil oxygen to survive. Trees have two kinds of roots; large, woody transport roots and small feeder roots. The large roots are sturdy and long-lived. They store energy, transport nutrients and anchor the tree into the ground. Feeder roots are delicate and shortlived, lasting a few weeks or months and are primarily responsible for absorbing water and nutrients from the soil. Surprisingly, tree roots are quite shallow. In most Ohio soils, more than 90 percent of a tree's total root system is within three feet of the ground surface. Root systems can be three or four times as wide as the tree is tall.

8. Tree Rings in a Stump

Trees grow larger in diameter every year. This annual growth begins in the spring, and by the end of each summer, a new ring of wood has been permanently added just under a tree's bark. Growth occurs in the trunk, limbs and roots. A tree ring is composed of two distinct bands, a lighter color band that represents the early or spring growth, and a darker color band that represents the slower summer portion of the growth cycle. Once formed, rings do not change in size. By counting the rings, you can tell the age of a tree. Rings also indicate growth rate and provide a permanent record of the tree's life history. Dendrochronologists study ancient tree rings to document past events such as climate change.

9. Forest Structure

A forest is an ever-changing mix of trees, shrubs, wildflowers, vines and other plants. Forest plants are in constant, fierce competition for survival. The most important factor affecting a tree's survival is access to sunlight. Trees in a forest race each other toward the sun and grow differently than trees in the open. Trees that lose the race are shut off from the direct sunlight by the larger trees. The fastest growing trees become dominant, forming the uppermost canopy of branches and leaves. Intermediate and suppressed trees are often stunted as they are squeezed between dominant trees. Forest regeneration occurs when shade tolerant species grow below the dominant trees, or when a sunny opening is created in the canopy by the death or failure of a large tree.

Sugar maple grows readily in the shade and is a common component of mature Ohio woodlands. Honeysuckle shrubs and garlic mustard are also present, but these invasive exotics are not desirable additions and are periodically removed to enable native plants and animals to thrive. How many of the park's maples, oaks, ashes, walnuts, hickories and other species can you identify?

10. Forest Decay

Decay is a constant and essential process in a forest. Wood decay is caused by various fungi, which can produce visible mushrooms, toadstools and conks (shelf-like growths). These fungi can destroy wood in living trees, resulting in a hollow tree. Because only outer trunk rings carry sap, hollow trees can live for many years, but are not as strong as sound trees. Fungi, insects and worms consume dead tree trunks, branches, leaves and roots that cover the forest floor. The decay process returns organic material to the soil creating a deep, loose, fertile forest soil that is ideal for tree and plant growth. Occasionally, tree seeds germinate on decaying logs or stumps. The seedling's roots grow down through the rotting stump or log. Eventually the stump decomposes and the roots are left behind holding the new tree up in the air as if it was on silts.

City of Upper Arlington

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