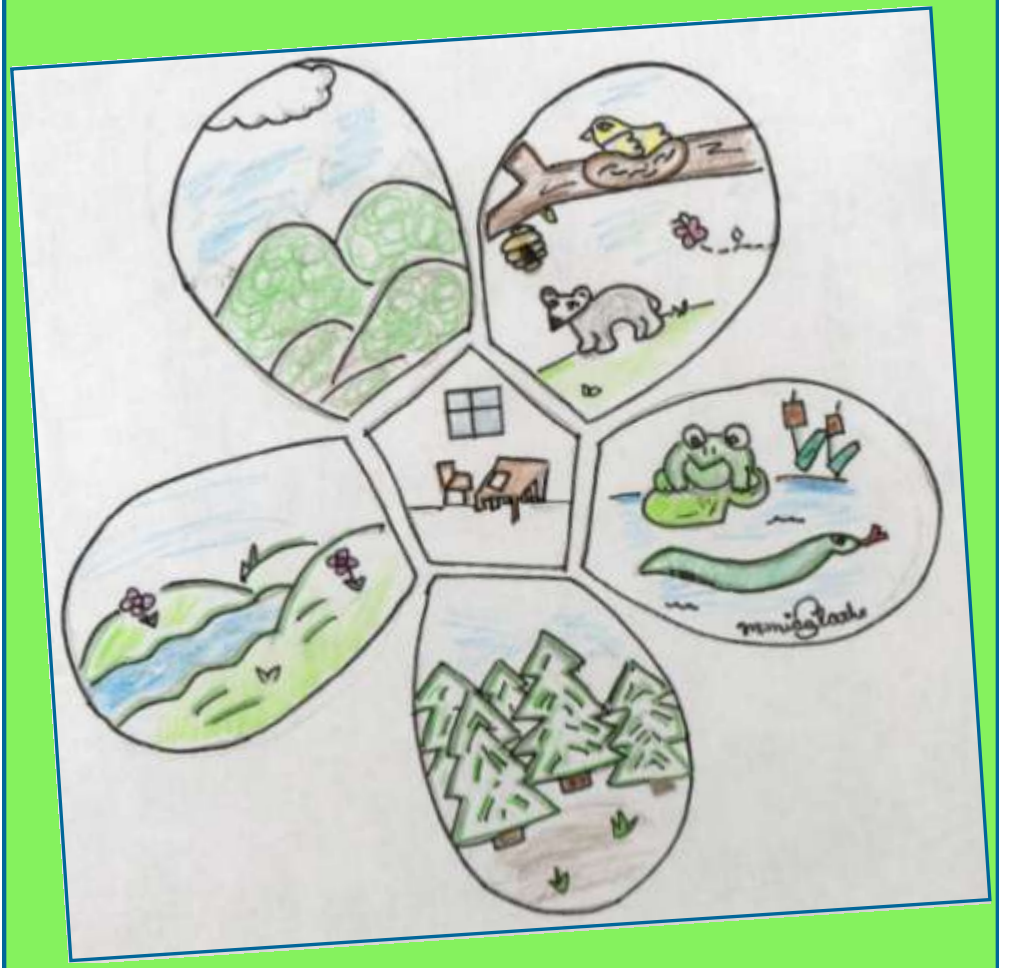
North Campus Trail

At East Stroudsburg Area School

District's North Campus



Interpretive Trail Guide

What is an Interpretive Trail?

An Interpretive Trail is a trail where natural and/or cultural environments are explained by a guide or other self-guiding methods such as illustrative signs. These trails can help us to understand how natural and cultural environments relate to our own and can help us appreciate other aspects of life around us.

How should you act on an Interpretive Trail?

Please treat our trail as a "leave no trace behind" location. We would like the people using the trail after you to experience the same trail you are going to learn from and enjoy.

Please Note:

- Please do not pick any plants or remove any wildlife.
- If you encounter a bear back up slowly and try to put more space between you and the bear. Talk calmly so that it can identify you as human, and slowly back up. Do not make direct eye contact, but keep a close watch on the bear as you back away.

Please stay on the trail at all times and please report any trail problems to your teacher.

Trail Safety:

Ticks: After any trip into the woods, it is always a good idea to check yourself for ticks. Ticks are small insects that are related to spiders. Instead of building webs and catching bugs, ticks wait at the end of branches and leaves and latch on to deer (or humans) when they travel past these areas. Tick bites can make you sick. If you find a tick on yourself, make sure to tell your teacher and your parents. You can minimize your chances of getting any ticks by staying on the trail and avoiding brush. You should always check yourself to stay safe! Try to wear light colored clothing to easily spot any ticks that may have latched on to you during your walk.

Mushrooms: While you may have eaten mushrooms on a pizza or in a salad, it is important to remember that those mushrooms were grown and picked by professionals. Some wild mushrooms can be incredibly toxic and will make you sick. Certain mushrooms can also cause skin irritation, so it is very important that you avoid ANY contact at all with mushrooms or other fungi you encounter along the trail. You can look, but don't touch. Make sure to wash your hands after using the trail AND especially before you eat.

Snakes: There are several snakes that are native to northeast Pennsylvania, including the venomous timber rattlesnake and northern copperhead. Snakes may sometimes be seen on rocks where they absorb heat to keep themselves warm. Snakes will also nest underground and underneath rocks. While these snakes will generally avoid a conflict with humans, they can strike if they feel they are in danger. To avoid any encounters with snakes, make sure to stay on the trail and within the boundaries of the learning stations. Avoid lifting any rocks you may find, unless instructed to do so by a teacher. If you see a snake, slowly move away to show the snake that you are not a threat.

photo source: Charlie Eichelberger

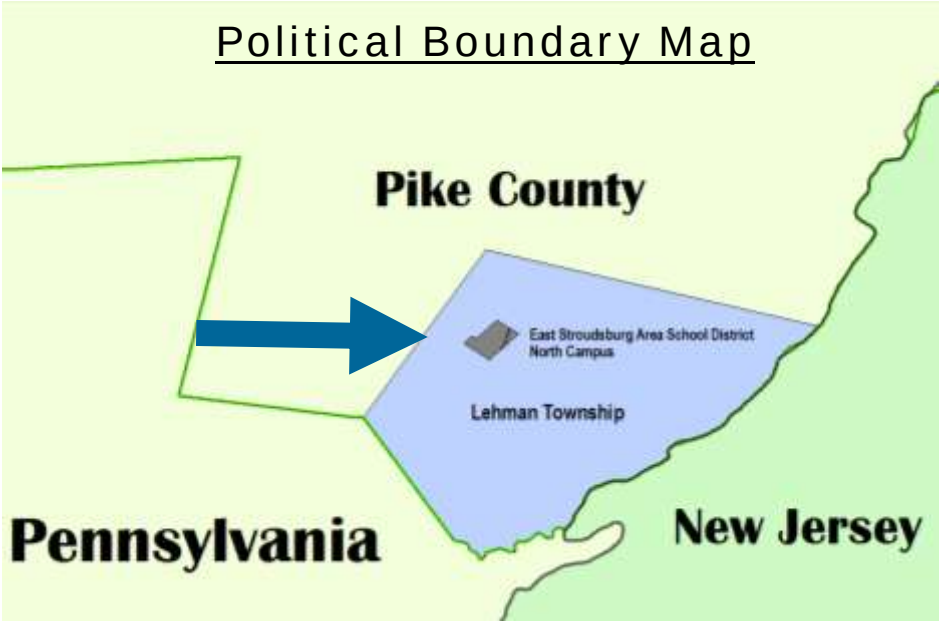
Trail Safety Reminders:

1. **Wear Light Colored Clothing (To easily spot ticks)**
2. **Stay on the trail or inside the learning stations**
3. **Avoid lifting rocks, unless instructed to do so**
4. **NEVER touch or taste any mushrooms or fungus you may find**
5. **ALWAYS wash your hands after using the trail**
6. **Keep the trail clean of any food or snack wrappers. Litter can attract bears to the area.**
7. **Watch where you walk. If you're not paying attention, you may trip.**

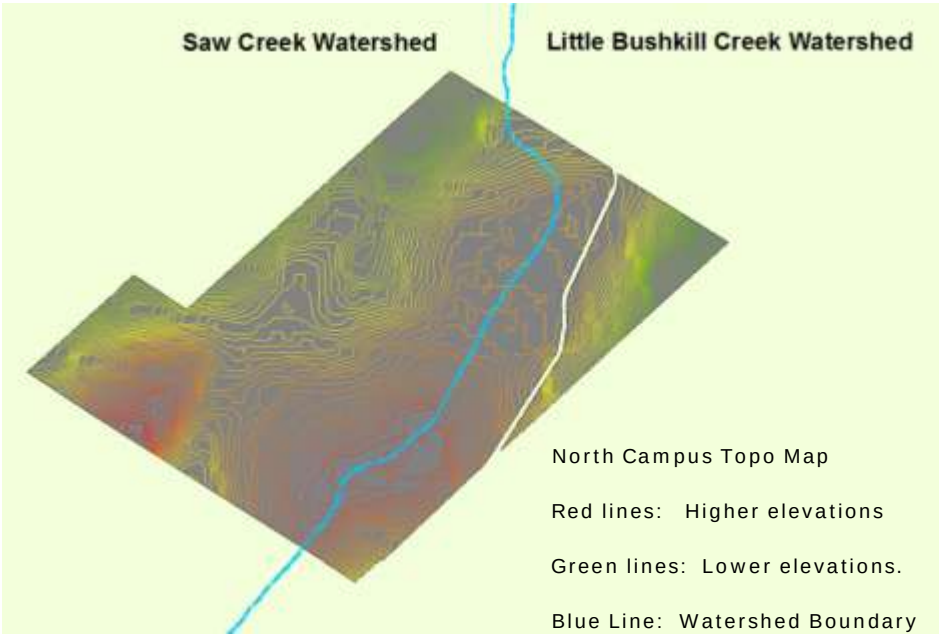
Welcome to Northeast Pennsylvania!

Many of you probably know you live in the state of Pennsylvania, but where in the state do you live? Where do you go to school? If you are reading this while on the North Campus, you happen to be in Pike County, in Lehman Township. There are 67 Counties within Pennsylvania. Within Pike County, there are 11 townships including Lehman, as well as two boroughs. As you may know, these boundaries are known as political boundaries. When you're in a certain country, state, county, village, borough, township, town, school district, fire district, library district, and so on, that is known as your political jurisdiction. While political boundary maps can tell you the names of certain places, they do not always describe the natural features of a given location. Maps with natural features are referred to as physical maps. So, now that you know where you are on a political map, where are you on a physical map? What are the natural features that make Lehman Township unique from the rest of Pennsylvania, or even from the rest of the United States? One map you may want to consider is a topographic map, sometimes nicknamed a "topo map." These maps show changes in elevation which have a large impact in the movement of water.

Political Boundary Map



Physical Map (Topographic Map)



North Campus Topo Map

Red lines: Higher elevations

Green lines: Lower elevations.

Blue Line: Watershed Boundary

Lines closer together indicate steeper slopes.

Physical Geography

Watersheds: Do you know your watershed address? Do you know what a watershed is? A watershed is a geographic area of land across which water and the sediments and dissolved materials it contains flow on their way to a single common outlet, either a stream, lake or river. This not only includes the land within its boundaries, but also the surface water of lakes, streams and wetlands as well as the groundwater moving beneath the surface. Why is this important? Most of eastern Pennsylvania is part of the Delaware River watershed, as waters in this part of the state eventually drain into the Delaware River. If you were to pour a glass of water onto the trail, eventually it will make its way to Philadelphia, near the end of the Delaware River. The same thing would happen if hazardous chemicals were dumped in this area, that's why it is always important to know that your actions in a watershed can have an influence downstream.

Above: The Delaware River Watershed spans four states, including Pennsylvania, New York, New Jersey, and Delaware. Source: Delaware River Basin Commission.

Large watersheds, such as the Delaware River watershed, are divided into smaller subwatersheds. The North campus sits on the border between two of these subwatersheds, the Saw Creek and Little Bushkill Creek. An easy way to determine where water will travel is to look at a topographic map. As mentioned in the previous section, "topo" maps indicate elevation changes in an area. Since water cannot move uphill, one can estimate a watershed boundary based on the topography of an area in relation to nearby waterbodies. If you look at the topo map on the previous page, you will notice that it sits on the boundary of the Saw Creek and Little Bushkill Creek subwatersheds. If you look at the blue dividing line, you will notice that it goes through an area of the North Campus that has red and orange color lines. These lines indicate higher elevation, meaning a drop of water that falls in this area will travel downhill to one of these subwatersheds.

Geology

The Pocono Area of Pennsylvania was covered by a glacier during the last ice age, which ended around 10,000 years ago. Glaciers carved many of the lakes, mountains, and valleys you see today. Glacial movement also cleared away many of the soils from this area, but left soils and rocks from other areas. The soils here today are a mix from our existing bedrock, and those soils deposited by the glaciers thousands of years ago. While soils may not appear to be different from one another, their unique characteristics play a large role in what plants can grow, and where

Forests

The terrestrial area of the North Campus is characterized by oak forests, surrounded by wetlands. The vegetation of this temperate broadleaf biome is similar to most of Pike County and the Pocono region where forests are dominated by oak and hemlock trees. In fact, forests cover over 80% of Pike County! Forests play many roles in protecting our air and water. Forests provide shade, which can reduce the temperature beneath them. This is important for lakes and streams which depend upon cooler waters to support fish such as trout. Forests also help to absorb and slow rainwater and other runoff from entering lakes and streams. This helps to protect water quality, while also providing plants with water to grow. Forests protect air quality by removing carbon dioxide gas from the atmosphere and replacing it with oxygen. This cycle is known as the carbon cycle, where carbon is moved from a gaseous state (carbon dioxide), to a solid state (stored sugars in the tree). This process is known as photosynthesis, when trees use light from the sun and carbon dioxide to create energy. Since trees absorb carbon, they are known as carbon sinks, since carbon "sinks" into them. Entities that produce carbon are known as carbon producers. Trees can also become carbon producers when they cannot create energy through photosynthesis and must use their stored energy at night.

As you walk the trail you will see numbered posts that correspond to the numbered paragraphs in this guide. The numbered paragraphs describe what you will be observing at that particular location.

1

When you reach the first numbered post, look at the trees around and above you. Notice anything different? No matter what time of year, these trees will not have any leaves. They are standing dead. The reason for that is the gypsy moth, an invasive insect in Pennsylvania that will eat the leaves off of oak and other trees. Without leaves, these trees are unable to use chlorophyll to turn sunlight into energy to live. The trees may eventually die, resulting in what you see here. When gypsy moths eat all of the leaves off of a tree, they need more food and look for other trees that they find edible. When a cluster of these trees exist, you see what you have here, a large area of dead trees. Fewer oaks means a reduction in acorns, which can act as a limiting factor for some species, such as deer. Their impacts are not all bad, however, as these forest openings allow for more sunlight to reach the forest floor, giving smaller plants and younger trees a chance to compete and survive to grow tall.

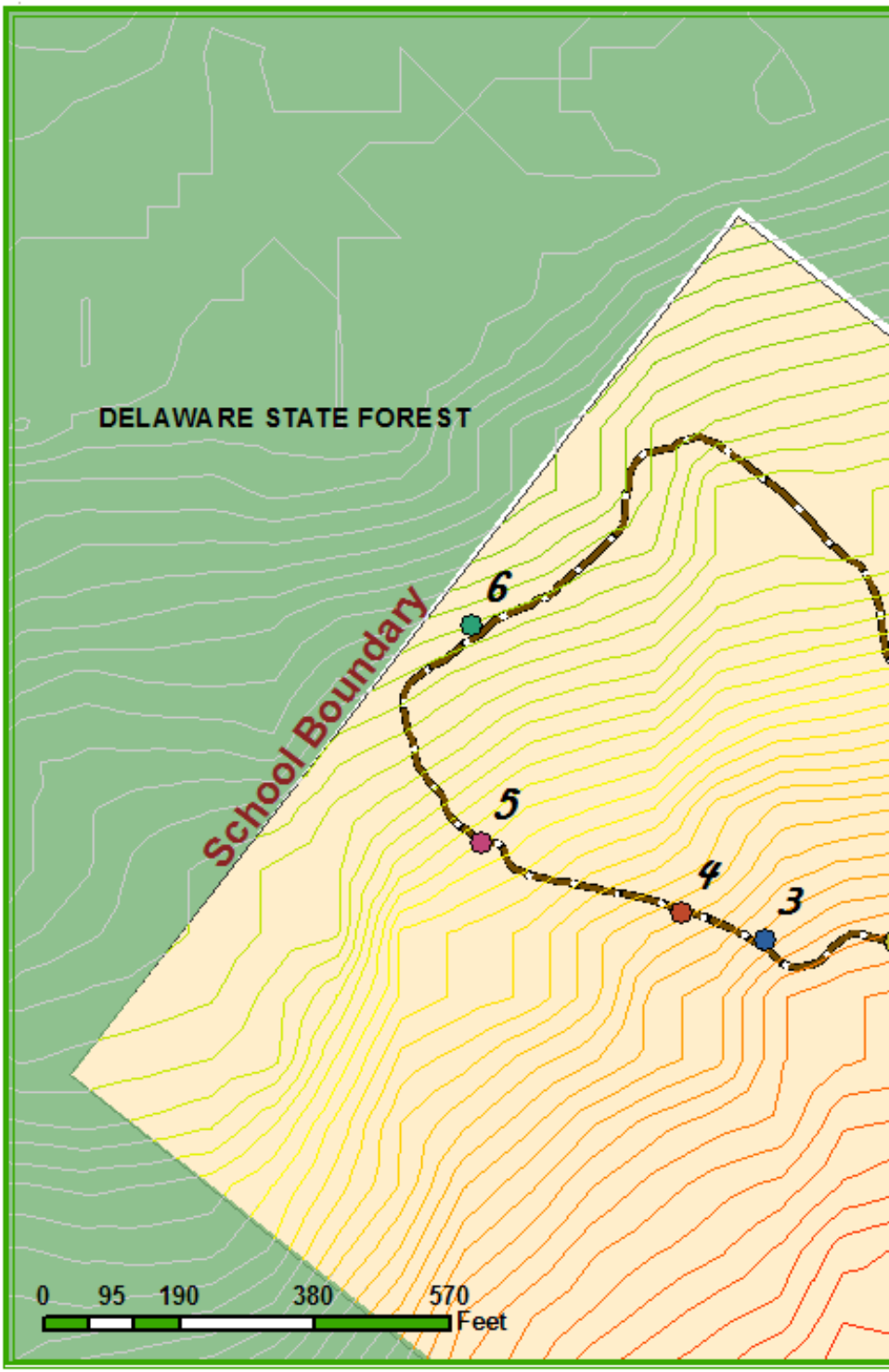
2

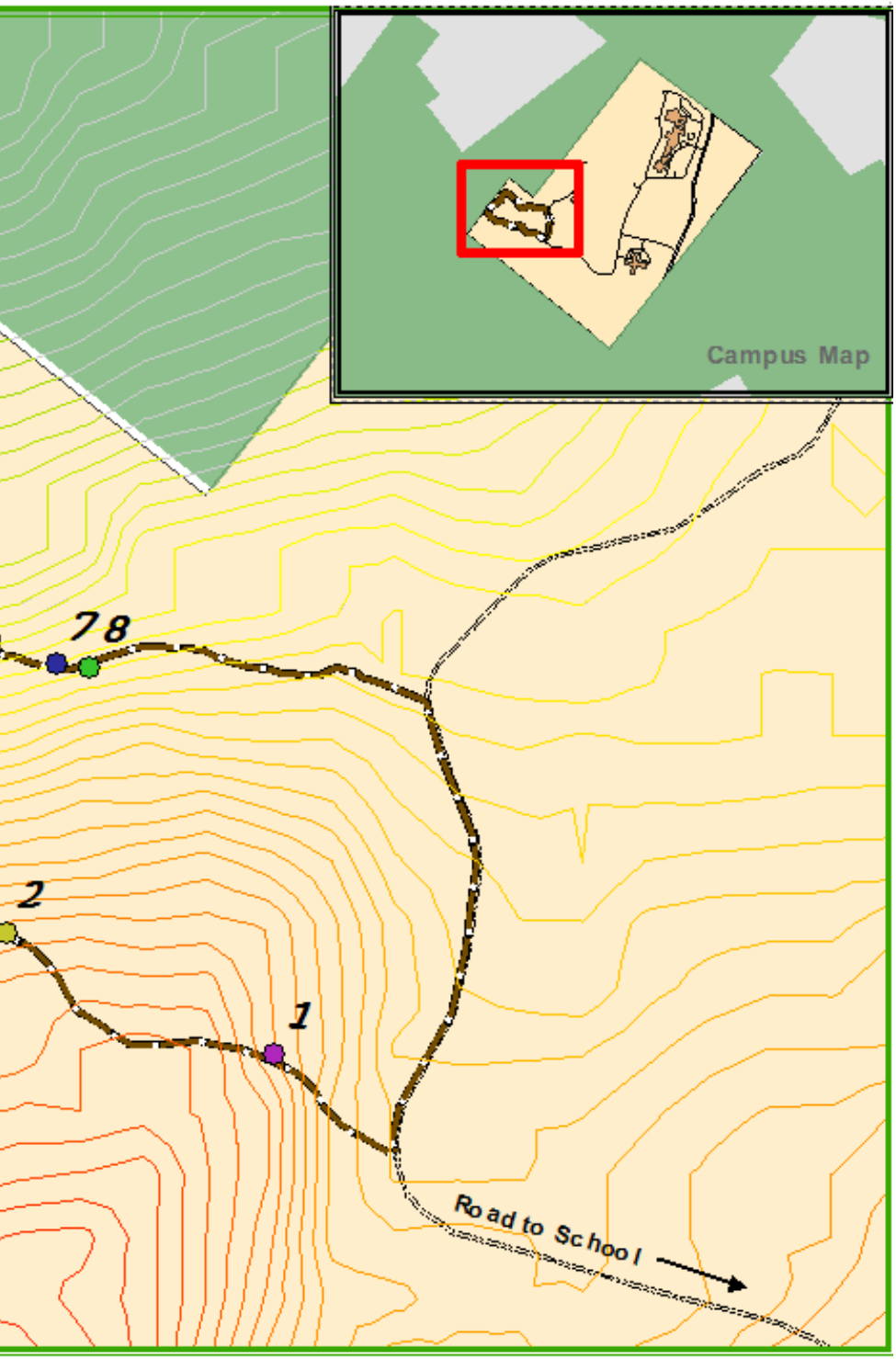
At Station #2, you will notice many white-green fan-shaped objects on the bark of the tree. These are not part of the tree but rather another organism, known as shelf fungi. Fungi are distinct from both plants and animals in their cellular design and obtain their food in a different manner. Plants are known as producers because they make their own food. Animals are known as consumers because they eat producers. Shelf fungi will feed off of the tree's dead or waste parts, obtaining the necessary nutrients in a process called decomposition, making them decomposers.

3 You will notice that many of the trees along the trail have leaves; these are called deciduous trees. You may see some larger trees that do not resemble the other trees. These trees are known as conifers. Conifers differ from deciduous trees in that they produce seed cones (pine cones), and their leaves are needle-shaped and will not fall off of the tree in the colder months. The conifer you are looking at here has a hole in its trunk.

Pileated Woodpecker

The hole is the work of one of Pennsylvania's largest woodpeckers the Pileated Woodpecker (*Dryocopus pileatus*) as it looks for insects inside the tree cavity for food. The Pileated Woodpecker is a magnificent bird, standing roughly 16 inches tall with striking red, black and white coloration. This large majestic bird is truly a sight to be seen.


DELAWARE STATE FOREST
School Boundary
6
5
4
3
0
95
190
380
570
Feet

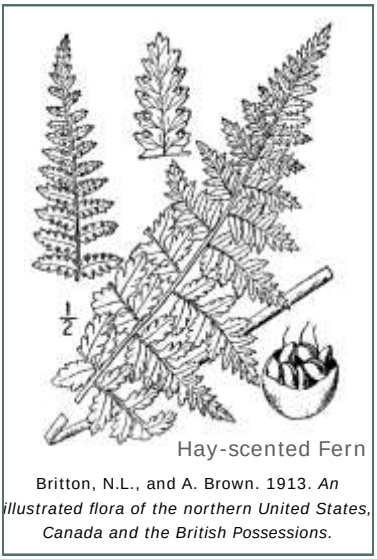

Campus Map
7 8
2
1
Road to School

4

At Station #4, you will notice some smaller woody shrubs near the forest floor. These are wild blueberries, and are very similar to the ones you see in the grocery store. These wild blueberries help to feed many local animals, including birds, deer and even bears that live near the trail. While these blueberries look similar to the ones you are familiar with, DO NOT TOUCH OR TASTE THEM. The forest also contains many similar non-edible berries that can make you sick.

5

An abundance of Hay-scented Fern is found at Station #5. Hay-scented Fern (*Dennstaedtina punctilobulba*) gets its name from the pleasant aroma of fresh cut hay that the plant produces. Hay-scented Fern will produce large beds of pale green fronds which spread by above-ground rootstocks. They are prolific and sometimes shade areas, preventing young tree seedlings and other plants from growing. Hay-scented Ferns do well in dry soil conditions and partially shaded woodlands.



Hay-scented Fern

Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions.*

6 Watch your step along this section of the trail! If you look at the ground in front of you, you will find that the trail surface contains many large rocks. Rocks like this are reminders of when this area was covered by glaciers over 10,000 years ago. When these large sheets of ice moved, they scraped the bedrock beneath them, pushing sand, rocks, and even boulders in this area of Pennsylvania. The rocks you are looking at may have come from hundreds of miles away!

7 When you get to this station, look up. You'll notice a tall coniferous tree that does not seem to fit in with the surrounding landscape. This is a pitch pine (*Pinus rigida)*; it has uniquely adapted to survive forest fires. Pitch pines have a thick bark that protects them during periods of fire disturbance. Their pine cones can not only withstand a forest fire but will also open and release seeds after a fire. This gives the pitch pine seedlings a head start in the race to reach sunlight in the forest.

8

The next stop on the interpretive trail takes you past uprooted trees and disturbed forest canopy. The forest canopy, created by trees and their leaves, is the "roof" of the forest. Small disturbances in forest canopies have positive effects by creating

new opportunities for species. When trees are blown down, like the one directly in front of you, a microhabitat is born. These downed trees create moist damp areas for newts, salamanders and frogs to escape from the heat of the day. These trees also provide den sites for numerous small mammals and reptiles. The tree can act as a "nursery tree" by also providing a micro habitat for starting other young tree seedlings.

Here, you may also notice a cut tree. If you look carefully, you will notice a series of rings that get smaller as you move towards the center. These rings help to determine the age of the tree. Each dark ring represents a growing season that the tree lived. The thickness of each line helps to explain the weather of that season. Years with ample rain result in wider rings.

Resident Species

Our area of northeast Pennsylvania is home to a wide range of plants and animals. While you may not always see these creatures (some tend to sleep during the day, others hide when they feel threatened), the area around your school has some of the greatest variety of animal species in the entire state of Pennsylvania! Here are a few of the creatures you may see on the trail or in your backyard.

RED-TAILED HAWK *(Buteo jamaicensis)*

The most common hawk, a year-round resident of our state, is the Redtail. As you might guess from its name, its most striking characteristic is a rusty-red tail. Spread in flight, with sun shining down through it, that tail is quite striking; when conditions are not so good however, it may not look red at all. The back and upper wings are brown, the underparts more or less speckled but with a distinct band of darker speckles across the belly. Often seen perched in a tree near open country, or soaring above, searching with sharp eyes for small rodents.

BLACK BEAR *(Ursus americanus)*

The only species of bear in Pennsylvania; most common in northcentral and northeastern counties. Some are brown ("cinnamon") rather than black. Prefers forests, dense swamps; sometimes visits farmlands. Bears eat almost anything, including garbage. One to four cubs are born while the female is in winter den. Most females have cubs every other year. Bears don't truly hibernate, but sleep soundly in nests or dens in hollow stumps, caves and under trees. Average adult weights: Male—150-400 pounds; Female—115-200 pounds.

Illustration: Doug Pifer. Information from: PGC Wildlife Note, *The Fisher*, by Dr. Matthew Lovallo.

Fisher *(Martes pennanti)*

The fisher, sometimes also called the fisher cat, is a sort of misnomer, meaning it does not usually eat fish, nor is it a cat. The fisher is a medium-sized nocturnal carnivore that hunt porcupines, but will also eat reptiles, insects, fruits and fungi. The fisher is actually a member of the weasel family, and is a wildlife success story. Development and destruction of native forest habitat nearly wiped out the fisher population in Pennsylvania. Several states, including West Virginia and New York helped reintroduce fishers to Pennsylvania.

Ruffed Grouse *(Bonasa Umbellus)*

Our State Bird. In other parts of the country, grouse may be called "partridge." Ruffed grouse weigh about 1.5 pounds on the average. The predominant color may be gray or reddish-brown. Nests on the ground, often at the base of a tree; one brood per year. The male displays to attract females: he fans his tail, erects the black ruff on his neck, and beats cupped wings to make a booming sound, called "drumming." Food includes buds, fruits and leaves of aspen, birch, beech and maple; grapes, other fruits and nuts. Grouse populations peak about every 10 years.

Eastern Screech Owl
(Megascops asio)

Small (about eight inches) but very common owl, with ear-tufts and yellow eyes. Mottled; color varies from reddish to brownish to gray (gray is most common in Pennsylvania). Year-round resident in lightly wooded areas and suburbs. Nests in tree cavities or nest boxes, and will defend nest fearlessly, attacking humans which venture near. Mostly nocturnal; flies silently. Eats small mammals (mostly mice); also insects, small reptiles, house sparrows. Voice: a quavering, descending wail, heard most often at dusk.

WHITE-TAILED DEER *(Odocoileus virginianus)*

The Whitetail, which had virtually disappeared here by 1900, has become a common sight across the state through careful management. Male deer, or bucks, shed their antlers yearly and grow a new set each spring. Well nourished females (does) often have twin or triplet fawns every year. In spring and summer, deer eat green plants; in fall and winter they switch to acorns and other nuts, twigs and buds. If fed rich food such as corn in winter, they may get sick and die. Like cattle, deer are ruminants. The Whitetail is our state game animal.

PORCUPINE *(Erethizon dorsatum)*

The “porkie” is one mammal most people recognize—his quills (really modified hairs) are an outstanding feature. They stick into just about anything that brushes against them, and are hard to remove. The porcupine eats almost any kind of vegetation, and in winter will eat twigs or the inner bark of trees. He may gnaw on wooden tools or buildings, to the owners’ dismay. A creature of forests, the porkie is most active at night. Under the quills he’s about the size of a large housecat. Females usually have one baby every year or two.

Illustrations and text adapted from: *50 Birds and Mammals of Pennsylvania*, no date. Text by Toni Williams, Illustrated by Ned Smith.

Southern Flying Squirrel *(Glaucomys volans)*

Despite its name, this squirrel doesn't really fly, but glides from high to lower points using skin stretched between front and hind legs. The flying squirrel lives in wooded areas, but is seldom seen because they are only active at night. One or two litters of blind, naked young are born yearly in tree-cavity nests. Food is varied: seeds, nuts, berries, insects, sometimes mice, small birds and eggs.

Grey Squirrel *(Sciurus carolinensis)*

The nickname "bushytail" refers to his fluffy tail, almost as long as his body, which lends balance in his amazing acrobatics. Grizzled gray (more or less rusty along the back) with a white belly. The black color phase is common in northern Pennsylvania. The hind legs are powerful, the front paws dainty and agile for handling nuts, seeds, fruits, and occasional insects and mushrooms. Squirrels may build temporary "nests"—balls of leaves and twigs high in a tree. Young (4-5) are born in a tree cavity or manmade nest box. Adults weight about 1-1.5 pounds.

Eastern Coyote *(Canis latrans)*

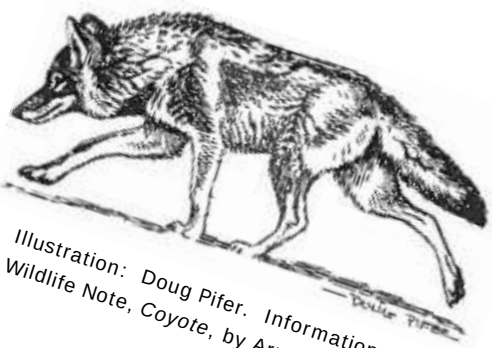


Illustration: Doug Pifer. Information from: PGC Wildlife Note, Coyote, by Arnold Hayden.

The eastern coyote is a common animal in Pennsylvania, and is probably known best from its familiar howl. While you may never see coyotes during the day, evidence of their habitation may be found from their droppings. Coyotes will eat many different foods, including mice, voles and even deer. Unlike other animals, coyotes will travel in large groups. Coyotes can weigh 35-55 pounds.

Unless noted, illustrations and text from: *50 Birds and Mammals of Pennsylvania*, no date. Text by Toni Williams, Illustrated by Ned Smith.

Resident Insects

Our area of northeast Pennsylvania is also home to a wide range of insects. With the diversity of forest, open field, and wetland habitats around the North Campus, chances are, you will definitely see, hear, or feel these creatures during your travels!

Dragonfly

The term "dragonfly" is a general term that refers to a wide variety (several thousand known) of species in the Odonata order of insects. In this area, there are a number of different dragonflies, including the mottled darner, halloween pennant, mustached clubtail, slaty skimmer, and the rare elfin skimmer. Many dragonfly species live near water and wetland habitats to lay their eggs, but will move to other habitats during their adult stage. Dragonflies are beneficial insects to have in an area because they will feed on mosquitoes.

Firefly image courtesy of firefly.org.
Firefly information from: Texas A&M Agricultural Extension

Firefly *(Photuris pennsylvanicus)*

While not actually a fly, but rather a beetle, the "firefly" or "lightning bug" is a common site in Northeast Pennsylvania. One species of firefly, the Pennsylvania Firefly is our official state insect. The firefly measures a half inch in length and is probably known best for its bioluminescent abdomen, which it has in both its larval and adult stages. The light produced by the firefly is a result of a biochemical reaction between the chemical luciferin and an enzyme, luciferase. Fireflies feed upon other insects, worms, slugs and snails.

Invasive Insects

Not all of the creatures you find on the trail are necessarily welcome additions to the local forest community. These invasive species can alter the local environment by harming existing species who cannot compete with this new insect.

Caterpillar image courtesy of JH Ghent, USDA Forest Service; Moth image courtesy of USDA

Gypsy Moth

Mentioned earlier in the guide, the gypsy moth, despite its small size, probably has the most noticeable impact on the forest along the North Campus Trail. Most of the standing dead trees you see were a result of a gypsy moth infestation. These infestations happen in cycles. An increase in the gypsy moth population feeding on tree leaves causes them to reach their carrying capacity (especially when they run out of living trees to eat) and their populations die off. One way the gypsy moth travels is when it lays its eggs on tree bark. When a tree is cut to make firewood, the spread of these eggs can cause problems in new locations. If you ever purchase wood to burn in your fireplace or in a campfire, make sure to buy the wood in the area in which you plan to use it.

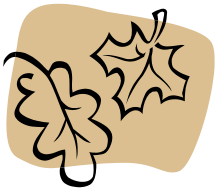
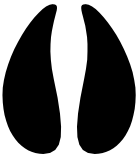
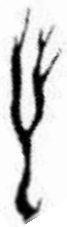
Asian Longhorn Beetle

While this insect has just recently become a resident in parts of Pennsylvania, it has also been found in neighboring New York, New Jersey, and Ohio. This troublesome insect only measures 1/2 to 1 inch in length, but can do some serious damage to trees. The Asian longhorn beetle is known to eat ash, birch, elm, maple, poplar, willow and other trees to the point where the tree can no longer survive. While the insect is harmless to humans, this is one insect you hopefully do not want to find while outside in Pennsylvania. If you find a beetle that looks like the Asian longhorn beetle, notify your teacher, and have them take a picture of it and call the Pennsylvania Department of Agriculture, or the Department of Conservation and Natural Resources. Similar to that of the gypsy moth, avoid transporting campfire/fireplace wood far distances to prevent the spread of this pest.

Image and data courtesy of the USDA's Animal and Plant Inspection Service

What can you see?

Watch for these things while on your adventure! Please don't pick up or disturb any items on your hunt. Want another challenge? Take a picture of all the items you find so you can look for them at home too!

2 Leaves  Do you know which trees they are from?	Acorn  What tree do acorns come from?	Feather 	Animal tracks  What animal made these tracks?
Woodpecker Holes 	Mushroom / Fungi DO NOT TOUCH  Some are poisonous!	Something with a strong scent	Roots 
Invasive Species  Do you know its name?	Y-shaped Twig 	Animal Droppings (DO NOT TOUCH!!!)	Something out of place that could be recycled 

We hope you enjoyed your visit to the North Campus Trail. Thank you for treating our trails with the same respect you show your own property. A responsible trail user follows the “Leave No Trace” nature ethic and makes sure not to leave any garbage along the trail. Always remember to leave the trail in a better condition than when you visited, so that others may enjoy the trail as much as you did. If you no longer need this trail guide, please return it to your teacher so that it can be reused for another class.

Development of this guide was the result of a partnership between the East Stroudsburg Area School District, the Pike County Conservation District and the Pike County Office of Community Planning. Grant funding from the Pennsylvania Department of Environmental Protection’s Environmental Education Program contributed to the production of these materials.