Day: Friday	**Start Time:** 8:30 am	**End Time:** 2:30 pm
Co-Leader:	**Co-Leader**:	**Limit**: 15 people
Transportation: Bus	**Driver:**	**Radios**: 2 / **First Aid Kit**: 1
Fees: $18 Transportation Fee	**Travel Distance:** 15 Miles one way	**Travel Time:** 23 Min one-way

Moderate 3.8-mile Hike at Tumbling Waters and 2-mile Scenic Gorge Trails at the Pocono Environmental Education Center

Tumbling Waters Trail winds alongside creeks through hemlock ravines, leading to waterfalls and scenic views of the Delaware River Valley and Kittatinny Ridge in New Jersey. This moderately challenging 3.8-mile orange-blazed trail starts at Fossil Trail, across from the group lodges at the Pocono Environmental Education Center, about thirty yards from the dining hall.

After a mile, hikers enjoy overlooks at Hermits Hill, highlighting views of the Delaware Valley and Kittatinny Mountains. The path winds through oak and hickory forests and hemlock ravines with remnants of old farm sites.

At 1.5 miles, a series of switchbacks with stairs descends 240 feet to the waterfalls, a great lunch spot to enjoy their soothing sounds. After your break, climb back up before continuing the main trail, ascending Killer Hill for a total elevation gain of 340 feet from the falls to the summit. You will pass through hemlock forest, mixed oak forest, and pine plantation before reaching Pickerel Pond, just minutes from the trail's end.

After a restroom break at the main lodge, return for about one more hour hiking the moderate to easy 2-mile Scenic Gorge, which begins with Ridgeline Trail. Explore an open hardwood forest ecosystem alongside the dark, cool hemlock canopy that lines Spackman's Creek.

After the first hike, you can stay behind to explore the PEEC grounds. The main lodge has some interesting displays.

- Bring standard hiking gear: Hat, Walking Stick, Water, Food, Hiking Shoes
- Pack your lunch during breakfast.
- Distance from camp: 15 Miles /25 Min one-way
- Cost $18 Transportation Fee
- Video of Tumbling Waterfall / Video of Tumbling Waters Hike / Video of Hike 2
- Pictures of the trail

Leaders' Notes:

- For emergencies, call 911 first, then Park Dispatch at (570) 426-2435 or (800) 543-4295. The Delaware Water Gap of the National Park Service is at http://www.nps.gov/dewa.
- You will be on-site with another group hiking the Ridgeline Trail. The Scenic George and Ridgeline Trail hikes follow the same route for the last 0.7 miles. I suggest coordinating with the leader of the other hike on-site to meet up along the trail and finish at the same time.
- You are doing two separate hikes that end and start in front of PEEC's office.
- Expect to spend time at the waterfall — a good place for a snack break.
- There is a decent long uphill from the waterfall back to the office. Pace yourself.
- Bring plenty of water. Refills are available at the main lodge.
- Most of the trail is covered. Keep a hat on to keep the ticks/bugs off.
- During rainy seasons, this trail can be muddy in sections, so waterproof footwear is recommended.
- If transportation is via a School Bus, **do not stop for Ice Cream in Milford** on the way back unless **you are willing to pay Mosaic for the extra bus fees** (over $300 previously) caused by the additional time/stop. Please stick to the transportation schedule as planned.

Vendor: The Pocono Environmental Education Center (PEEC)

- 538 Emery Road, Dingmans Ferry, Pennsylvania 18328-9614
- 570-828-2319 / 570-828-9695
- peec@peec.org / https://www.peec.org
- https://maps.app.goo.gl/TABo3iUgQyvdHLa8A

Logistics

- 8:30 am – Depart from Camp
- 8:30 am – 9:00 am Travel from Camp Nah-Jee-Wah to Pocono Environmental Education Center
- 9:00 am – 9:15 am Bathroom, Gear Check, Leaders Circle Talk
- 9:15 am- 11:30 am: Tumbling Waters Trail
- 11:30 am – 12:00 noon: Bathroom break
- 12:00 noon – 1:30 pm: Scenic Gorge Trail (If you cannot start this by noon, either do not bother or set a turn-around time and do not make the whole loop.)
- 1:30 pm – 2:00 pm Bathroom, people round up.
- 2:00 pm - 2:30 pm Travel from PEEC to Camp

PEEC's Educational Goals

PEEC's Environmental Study Goals

- To develop awareness of environmental concerns through formal and non-formal education.
- To help people acquire knowledge, skills, attitudes, motivation, and commitment to enhancing the quality of the environment.

PEEC's Environmental Education (EE) Objectives

- **Awareness:** To help individuals and social groups acquire a strong feeling of concern for the environment and the motivation for actively participating in its protection and improvement.
- **Knowledge:** To help individuals and social groups acquire a basic understanding of the total environment, its associated problems, and humanity's critically responsible presence and role in it.
- **Attitude:** To help individuals and social groups acquire social values and the ability to make sound choices while developing sensitivity to the environment.
- **Skills:** To help individuals and social groups acquire the *skills* for solving environmental problems.
- **Evaluation:** To help individuals and social groups evaluate environmental measures and education programs in terms of ecological, political, economic, social, and educational factors.
- **Participation:** To help individuals and social groups move toward taking the necessary action to resolve environmental problems.

PEEC's Environmental Education (EE) Guidelines

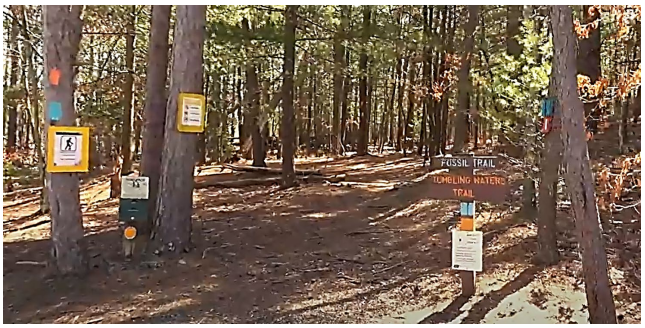
- EE is total education in a total environment—natural and human-made, ecological, technological, social, cultural, and aesthetic.
- B EE *is* a continuous life-long process both formally in school and non-formally out of school.
- EE is interdisciplinary.
- EE emphasizes people's direct involvement in preventing and solving problems.
- EE examines issues from a global perspective while accommodating regional differences.
- EE focuses on current and future environmental situations.
- EE examines *all* development and growth from an ecological perspective.
- EE promotes local, national, and international cooperation to help solve environmental problems.

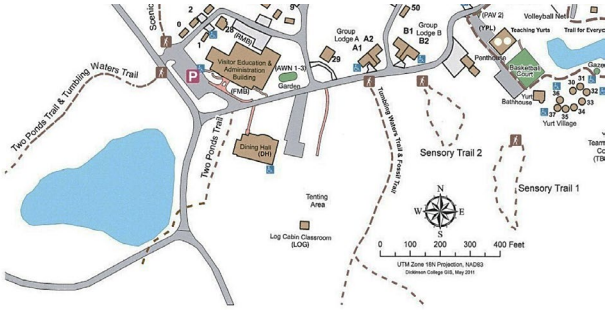
Tumbling Waters TRAIL GUIDE

- Moderate Difficulty Level: 2 hours -- 3.01 miles Elevation Gain: 518 feet
- Expected time: 1 ½ hours.
- Trail Condition: Well-maintained trail / Hike Type: Loop / Trailhead: The trail starts at the PEEC main lodge.
- Tumbling Waters: This 3-mile orange-blazed trail begins along the Fossil trail, across from PEEC's two group lodges, thirty yards up the campus road from PEEC's dining hall.
- At 1 mile, enjoy the beautiful overlook of the Delaware Valley & the Kittatinny Mountains in New Jersey
- At 1.5 miles, take a series of switchbacks to the waterfalls.
- Climb the switchbacks to continue the main trail, which quickly ascends Killer Hill through a hemlock forest, a mixed oak forest, and a pine plantation before arriving at Pickerel Pond, approximately 10 minutes from the trail's end.
- This takes you to the parking lot in front of the main building. Give yourself at least two hours to hike this scenic trail.

Tumbling Waters Hike Trail Guide

1. This 3-mile orange-blazed trail begins along the Fossil trail, across from PEEC's two group lodges, thirty yards up the campus road from PEEC's dining hall. You will find signs for Fossil and Tumbling Waters Trails starting here.





2. At 1/10-mile, the Fossil Trail (blue) will split off to the left. Stay on the trail of tumbling waters (orange) to the right. From this point, it is another 1.2 Miles to the stairs to the falls.

3. Right after Fossil Trail splits off, you go 2/10 mile to cross Brisco Mountain Road and cross over Alica Creek shortly thereafter.
4. Pass some ruins of a chimney.

5. About one mile after the fossil trail split, there will be a good outlook of the valley below with a bench.
6. Then descending steeply.
7. You will then reach a point where the trail turns right, going back uphill and stairs down. The waterfall is at the bottom of these stairs (about 240 ft below).
8. Carefully head down the stairs. There are several switchbacks to getting down to the falls.

9. Spend some time enjoying the falls while keeping track of time.
10. Go back up the stairs the way you came up. Take your time. It is steep.
11. Once back on top of the stairs, go left to continue along the path in the opposite direction you came from. The trail will be uphill for about another 0.3 miles and then level off.
12. At another .85 miles, you will come to Two Ponds Trail (White). Stay to the left to keep on the orange markings for another 0.5 miles. You will pass the first pond along the way.
13. Carefully cross over Brisco Mountain Road.
14. Then, continue another 0.5 miles to pass small Thomas Pond and to the end of the trail.

Description of Tumbling Waters Trail by PEEC

1 **WELCOME** to the Tumbling Waters Trail at the Pocono Environmental Education Center. This trail is three miles long and is marked by bright orange blazes. The trailhead is located across from Lodge A. You should give yourself about two hours to complete this trial. This trail winds its way through several diverse habitats characteristic of the Pocono region, such as hemlock ravines, upland-mixed oak forests, and pine plantations. Other highlights of this trail include a scenic vista overlooking the Delaware River Valley and a waterfall in a shaded hemlock ravine. The numbered markers along the trail correspond to the entries in this guide. These explanations will give you a glimpse into this beautiful area's natural and human history. While hiking, please respect the environment, pay attention to your presence in the woods, and practice Leave No Trace hiking ethics.

3 EXPOSED BEDROCK Here is a large area of exposed bedrock. Notice the parallel grooves and scratches in the rock. If you were standing here about 13,000 years ago, you would be at the bottom of a glacial ice sheet more than a mile thick! Rocks carried in these glaciers made these marks as they scraped across the rock's surface. These glacial striations prove that glaciers covered this area during the last ice age. Using a compass, you can measure the orientation of the striations to determine the direction of the ice flows.

4 CEDAR KNOLL This area is called Cedar Knoll. From the Knoll, the trail goes downhill to Brisco Mountain Road, descending through an open field with red cedars, gray birches, and scotch (Scots) pines. Be careful when crossing the road. After crossing the road, continue the gravel path, following the orange blazes. Look along the right side of the trail for traces of wire fences put up by people who used to own this land.

5 LANDOWNER S' HOUSE This small clearing is where the landowners' house once stood. Look for evidence such as a telephone pole, an old spring house, and some persistent garden flowers. Much of this area was farmed as late as the 1930s.

6 MIXED OAK FOREST The woodland you are in now resembles higher elevations in the Poconos. It is known as a mixed oak forest. The dominant trees here are chestnut oak (Quercus prinus), red oak (Quercus rubra), some ashes and hickories, and shrubs like shadbush (Amelanchier) and blueberry (Vaccinium Boreale). Scattered throughout are a few white pines. Just ahead on the trail, look for several tall white pines. The sizeable dead pine on the right side of the trail was struck and killed by lightning in the summer of 2000. Look for the split that spirals down the tree. You may be inclined to assume that this is the path the bolt took as it came down the tree, though that is not true. When a tree is struck by lightning, it superheats the sap inside. When the sap boils like this, the gases need somewhere to go, so escape by blasting off a chunk of a tree like this one. The structure of a tree varies by species, and this white pine grows spiraling, so the chunk blown off wraps around the tree.

7 EAGLES, SNAKES, HAWKS & MORE! This stone fireplace is all left of a small cabin that once stood here. While walking along the ridge, watch for soaring bald eagles (Haliaeetus leucocephalus), turkey vultures (Cathartes aura), and hawks—especially during migration time in the spring and fall. There are two species of venomous snakes in this area—the northern copperhead (Akistrodon contortrix moccasin) and the timber rattlesnake (Crolatus horridus). Both prefer wooded hillsides and sunny, rocky ledges. Many people often misunderstand and fear these snakes (and all snakes, for that matter). This fear leads to persecution and senseless killing. Snakes are essential to a healthy, diverse ecosystem and are entirely harmless when left alone.

8 DELAWARE RIVER VALLEYS Take some time to enjoy the beautiful view of the Delaware River Valley. All the land you see, including the land you are walking on, is part of the 80,000-acre Delaware Water Gap National Recreation Area. The federal government acquired the land in the 1960s with plans to build a dam on the river. The entire valley below you was a giant reservoir until plans for the dam were dropped, and the government gave the land to the National Park Service. You can see the Kittatinny Ridge in New Jersey across the river valley. This 400-mile-long ridge is part of the Appalachian Mountains, and the 2,100-mile-long Appalachian Trail runs along the ridge. The bushes growing out of the rocks here are scrub oaks (Quercus sp.) – The smallest member of the oak family in the Poconos.

The trail continues with a descent into the ravine below. Watch your step—the trail is steep with loose rocks. On warm, sunny days, look for the elusive fence lizard (Sceloporus undulatus) running over the rocks and hiding behind trees. The fence lizard is one of only three actual lizards native to Pennsylvania.

9 SWITCHBACKS TRAIL The switchback trail will lead you down to the waterfalls! Please stay on the trail following the switchbacks – no shortcuts. The trial is designed to minimize erosion, a problem in steep areas. As you walk down the trail, try to feel the drop in temperature. The type of forest will change from the mixed-oak forest to what is known as a hemlock ravine. The eastern hemlock (Tsuga canadensis), Pennsylvania's state tree, is a large evergreen tree with short, flat needles and tiny cones. The bark of this tree was harvested for its tannic acid, which was used to dye leather.

10 ENJOY THE WATERFALL By now, you can see the waterfalls. Stay awhile and enjoy the beauty. This is the halfway point of the trail. Hemlocks dominate the forest here. Due to the lack of sunlight, not many plants can grow on the ground here. Plants such as rhododendrons, mosses, and ferns are shade-tolerant and can thrive under these conditions. Water levels fluctuate throughout the seasons, and depending on the time of year, you can see salamanders, crayfish, frogs, and fish. The water tumbling over the rocks adds vital dissolved oxygen. The source of this stream is a combination of lake water, groundwater, and runoff from rainfall. About a mile downstream, the stream empties into the Delaware River.

- To continue the trail, go back up the switchbacks. When you get to the top, the trail goes to the left.

11 BETULA LENTA This marker is attached to a black birch (Betula lenta) tree. Black birches are occasionally found in association with hemlock forests. The sap from these trees was traditionally used to make birch beer, an alcoholic drink in early settler times. The wood is hard and heavy and is used to make furniture. Various birds eat buds and seeds, including goldfinches (Carduelis tristis) and ruffed grouse (Bonasa umbellus).

12 MIXED DECIDUOUS FOREST You are about to go through another transition in forest type. Since leaving the waterfalls, the forest has been chiefly hemlock-dominated. The following forest community is typically mixed-deciduous. This area is characterized by birches, hickories, white and red oaks, and many small red lines. The canopy here is not as dense as the hemlock forest so that sunlight can reach the lower levels. This allows other plants like shrubs, flowers, and grasses to grow here. Notice the many small hemlocks growing along with the transition. These transition areas are called ecotones, and ecotones such as this one are excellent places to observe wildlife. The varied plant life allows animals to take advantage of both plant communities for food and shelter.

13 PINE PLANTATION You are now entering a pine plantation. These pines were planted about 50-60 years after the preceding forest was logged. Notice how they are in straight lines. The two most common species of pine planted here are red pine (Pinus resinosa) and Scots (Scotch) pine (Pinus sylvestris). Look on the ground for needles from both. The Red Pine has 3-8-inch needles that come in clusters of two. The Scots pine also has needles in two clusters but is much shorter— about 1-3 inches. The Scots pine also has bright orange (or butterscotch) colored bark on the upper half of its trunk.

14 PICKEREL POND This is Pickerel Pond. This is not a natural pond; the Pharo Family originally built it by damming a small stream. Ponds such as this provide habitat for a variety of plants and animals. Amphibians such as newts, salamanders, and frogs can be found here. Choruses of singing frogs can be heard here during the breeding season. Look for evidence of the resident beavers, such as chewed sticks and pointed stumps.

15 LOOK UP! You will notice an unnatural object in this tree if you look up. What is it? It is a house designed to attract a nursery colony of bats. Despite what many believe, bats are not blind, do not fly into people's hair, and are responsible for fewer rabies cases than dogs. Bats are essential for maintaining balanced ecosystems because they are the only major predator of night-flying insects. Our most common bat, the little brown bat (Myotis lucifugus), can eat up to six hundred mosquitoes an hour! Unfortunately, many bats are in trouble due to loss of habitat, senseless killing, and white-nose syndrome. According to the EPA biological survey, six of Pennsylvania's eleven species are considered of "special concern" (rare, threatened, endangered, or undetermined status). This bat box could house over five hundred female bats and their young.

16 STONE ROWS You may have noticed many stone rows along this trail or elsewhere in the Poconos. These stone rows are evidence of earlier human activity. This area was once cleared for lumber, farming, and pastureland. As settlers cleared the ground of stones, they made these walls. As flatter and more fertile farmland were opened to settlement in the West, these fields and pastures were abandoned. Over time, the forest grows back, but these walls are a reminder that this land was once much different. These old walls are now a favorite home for snakes and chipmunks.

17 NON-NATIVE PLANTS Notice the old foundation here. Again, this land was once occupied. Around this area, there are many species of non-native plants, such as multiflora rose (Rosa multiflora), honeysuckle (Lonicera), and garlic mustard (Alliaria petiolata). Early settlers intentionally brought Many non-native plants here, and some were introduced accidentally. Some plants "escaped" from gardens and were well-suited for the conditions here. Almost one-fourth of the plants in the east are introduced species. From here, the trail crosses the road and continues through a large hedgerow of forsythia (Forsythia) (another non-native plant).

18 EMERGENT WETLAND This area is known as an emergent wetland. This wetland is dominated by green plants such as skunk cabbage (Symplocarpus foetidus), sensitive fern (Onoclea sensibilis), and gray dogwood (Cornus racemosa). Wetlands are a vital part of a healthy environment. They filter water and control flooding. They provide essential habitat for many reptiles, amphibians, insects, and birds. This marker is attached to shagbark hickory (Carya ovata). Notice the bark which gives the tree its name. Bats are often found hiding behind these 'shags. Wood is traditionally used as a tool and for ax handles.

The trail continues along another wall. Look for little piles of chewed nutshells on top of the rocks. Chipmunks like to eat where they can survey the area for dangers such as predators.

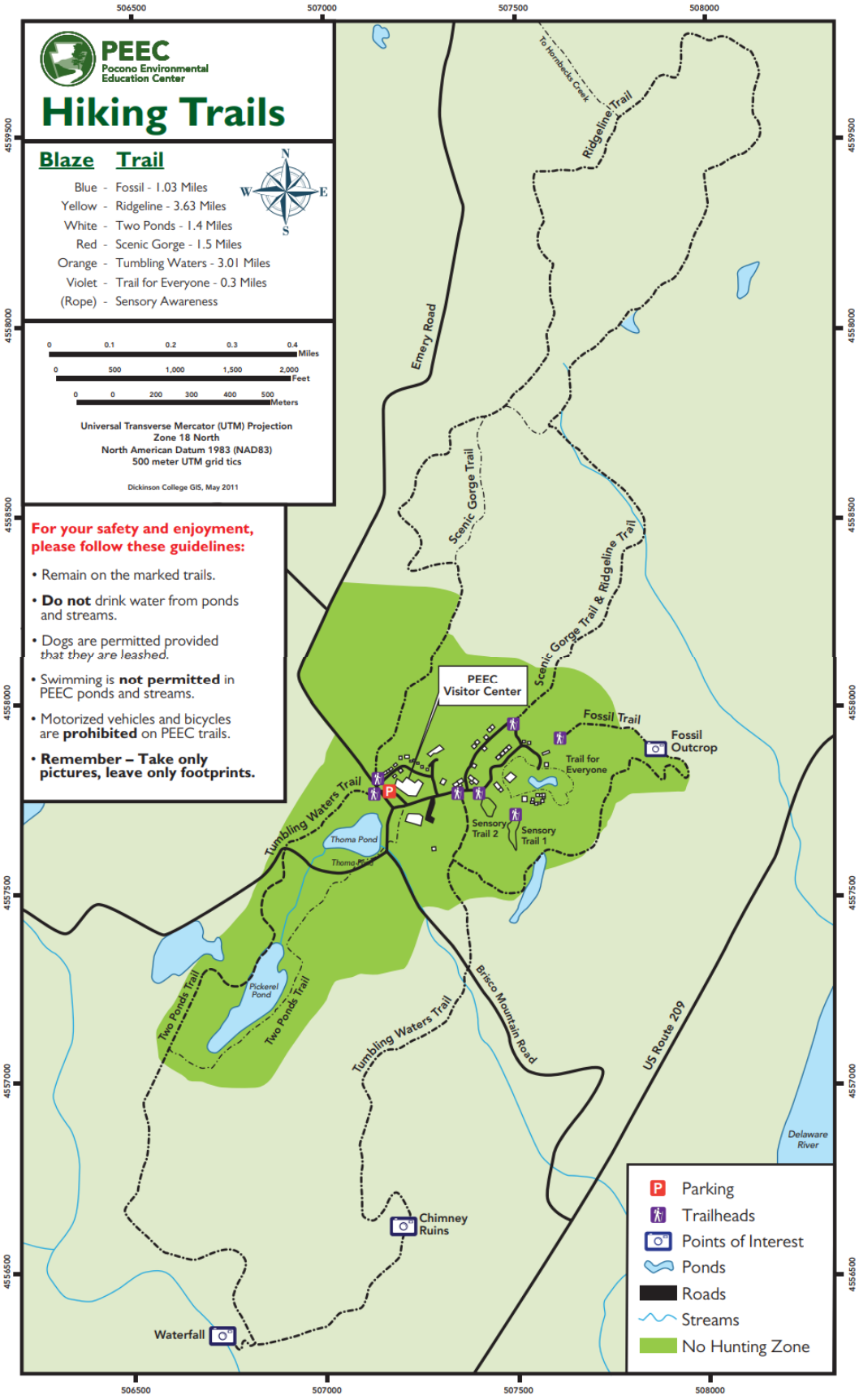
19 THE SUCCESSION The open field is a different habitat from the wetland and forest areas. The soil is drier, and sunlight reaches even the tiny plants. This field is a suitable place to see many varied species of wildflowers (no picking, please). The field is mowed periodically, but if left undisturbed, small plants would be replaced by taller plants, shrubs, and trees. This gradual change in a habitat is called succession. The 'trash graveyard' was established in 1998 to demonstrate the amount of time it takes for trash to decay, decompose, or break down. Please do not litter.

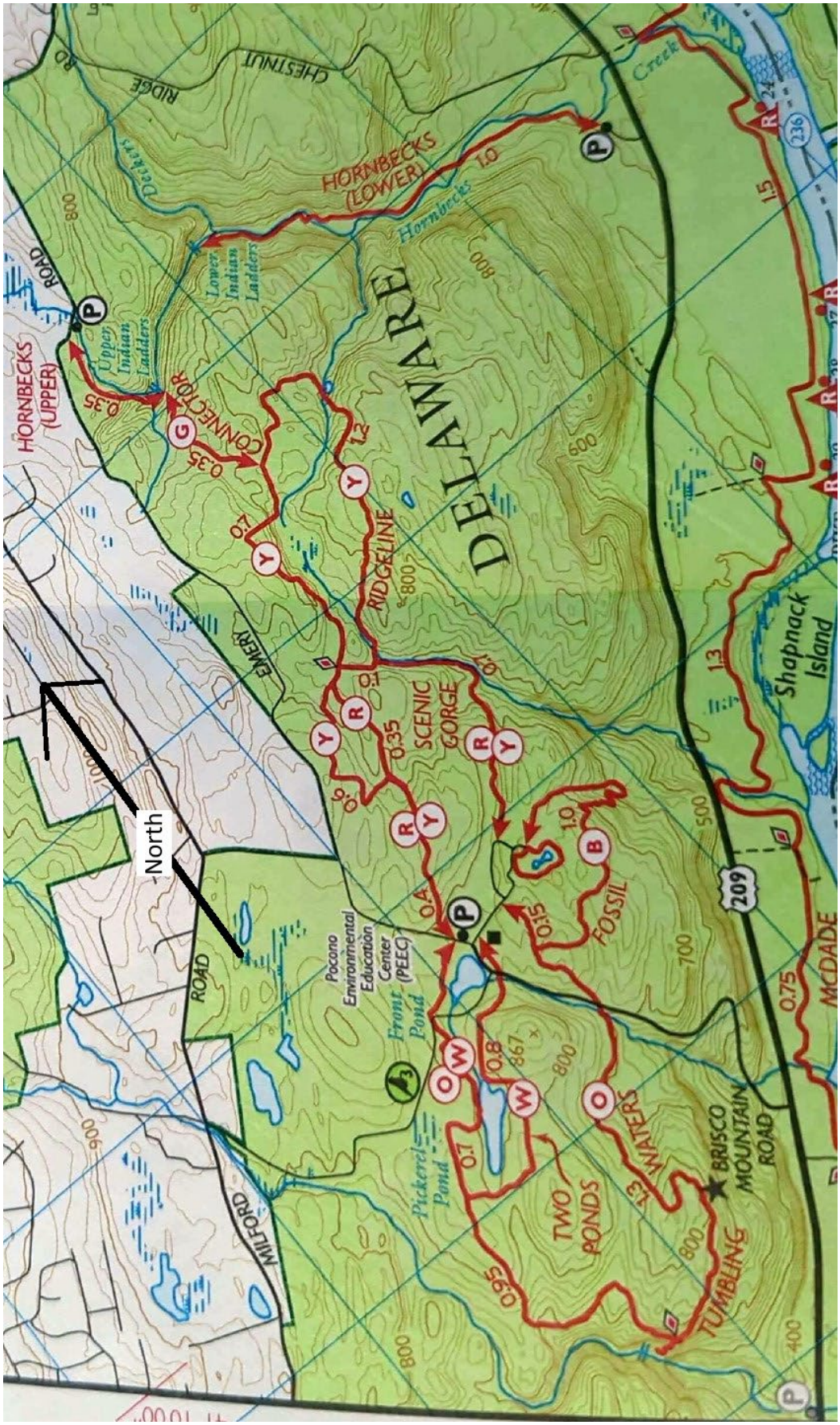
Follow the tree line through the field, taking a right turn at the post. Look around for a tree with three different-shaped leaves. This is a Sassafras tree. The roots were traditionally used to make root beer.

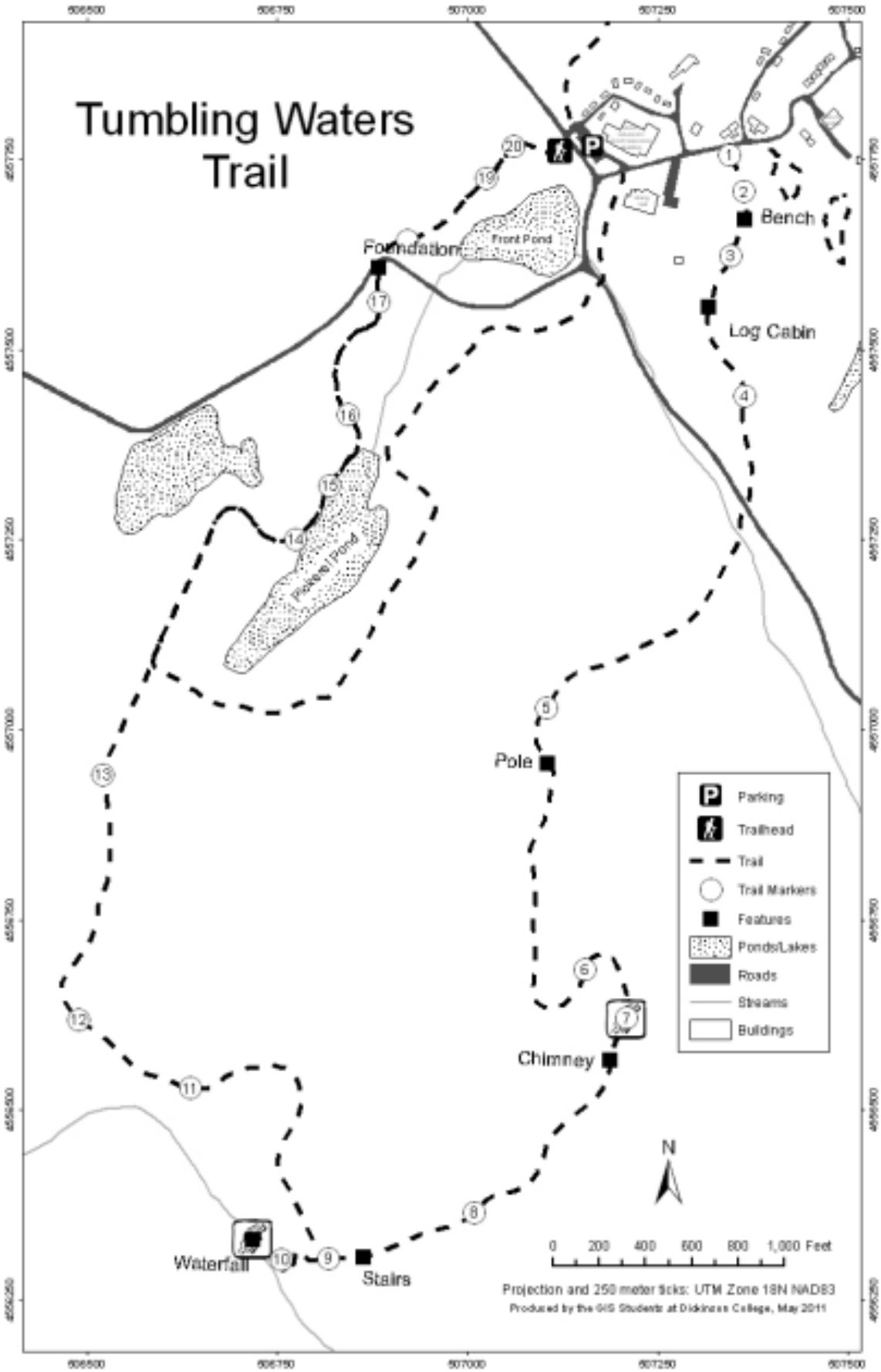
20 SHRUB WETLAND You are now walking over a shrub wetland. The boardwalk helps to protect this fragile area. This wetland represents transitioning from a drier upland habitat (the field) to a pond. Plants and animal life are diverse here. Local wildlife is a wonderful place to view some of the local wildlife. Some of the shrubs growing here include gray dogwood, chokecherry (Prunus virginiana), arrowwood (Viburnum dentatum), and multiflora Rose (Rosa multiflora)

Continue along the boardwalk leading you back to PEEC.

The natural world is constantly changing. It changes from season to season, year to year, century to century. Both natural and human forces are continually reshaping the face of this landscape. Time itself brings change. We hope this trail has given you a glimpse into the natural world and the beauty of the Poconos. If you have any questions, feel free to ask at the front desk.


PEEC
Pocono Environmental Education Center
Hiking Trails
Blaze Trail
Blue - Fossil - 1.03 Miles
Yellow - Ridgeline - 3.63 Miles
White - Two Ponds - 1.4 Miles
Red - Scenic Gorge - 1.5 Miles
Orange - Tumbling Waters - 3.01 Miles
Violet - Trail for Everyone - 0.3 Miles
(Rope) - Sensory Awareness
Universal Transverse Mercator (UTM) Projection
Zone 18 North
North American Datum 1983 (NAD83)
500 meter UTM grid tics
Dickinson College GIS, May 2011
For your safety and enjoyment, please follow these guidelines:
• Remain on the marked trails.
• Do not drink water from ponds and streams.
• Dogs are permitted provided that they are leashed.
• Swimming is not permitted in PEEC ponds and streams.
• Motorized vehicles and bicycles are prohibited on PEEC trails.
• Remember – Take only pictures, leave only footprints.
PEEC Visitor Center
Ridgeline Trail
Emery Road
Scenic Gorge Trail
Scenic Gorge Trail & Ridgeline Trail
Fossil Trail
Fossil Outcrop
Trail for Everyone
Sensory Trail 2
Sensory Trail 1
Tumbling Waters Trail
Thoma Pond
Two Ponds Trail
Pickerel Pond
Briceo Mountain Road
US Route 209
Delaware River
Chimney Ruins
Waterfall
Parking
Trailheads
Points of Interest
Ponds
Roads
Streams
No Hunting Zone

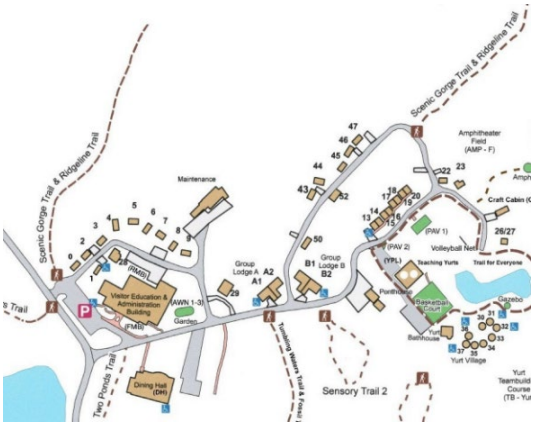

DELAWARE
HORNBECKS (LOWER)
HORNBECKS (UPPER)
CONNECTOR
RIDGELINE
SCENIC GORGE
FOSSIL
TWO PONDS
TUMBLING WATERS
Pocono Environmental Education Center (PEEC)
Front Pond
Pickerel Pond
Shapnack Island
BRISCO MOUNTAIN ROAD
MILFORD ROAD
EMERY
MCDADE
Upper Indian Ladders
Lower Indian Ladders
Hornbecks
Creek
North
209
236


Tumbling Waters Trail
Bench
Log Cabin
Foundation
Front Pond
Pickerel Pond
Pole
Chimney
Waterfall
Stairs
Parking
Trailhead
Trail
Trail Markers
Features
Ponds/Lakes
Roads
Streams
Buildings
N
0 200 400 600 800 1,000 Feet
Projection and 250 meter ticks: UTM Zone 18N NAD83
Produced by the GIS Students at Dickinson College, May 2011

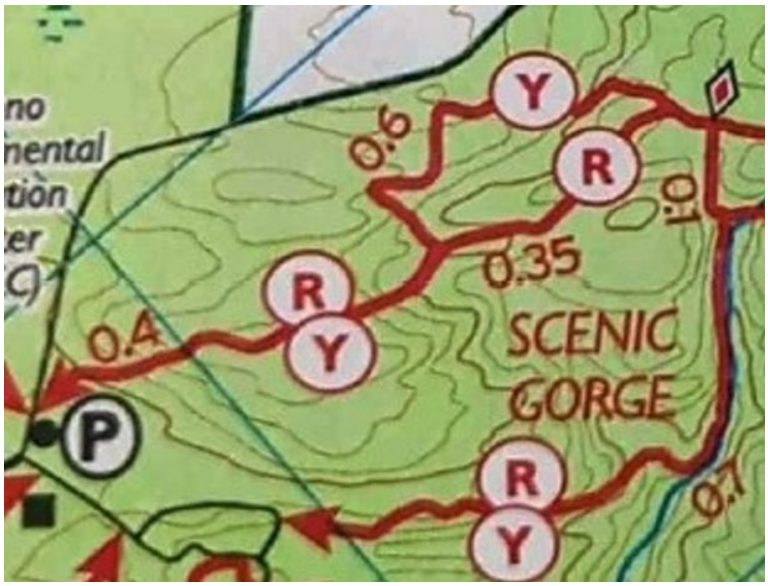
Scenic Gorge Trail

Allow at least an hour to enjoy this 2-mile trail. This trail is blazed in red and begins with the Ridgeline Trail behind Cabin #1. For the first half mile and the last mile of the trail, the Scenic Gorge Trail runs concurrently with the Ridgeline Trail. The trail is moderately challenging, with a few steep sections. Hikers enter a deep, majestic hemlock forest following Spackman's Creek and walk from an open hardwood forest ecosystem into the dark, cool hemlock canopy. This trail can be muddy in sections during rainy seasons, so waterproof footwear is recommended. A small waterfall and spring add another layer of natural features to the hike. The trail ends, along with Ridgeline Trail, on Lower Campus. Follow the campus road back to the main building—difficulty: Easy-moderate Blaze: Red Elevation Change: ninety-four feet.

Scenic George Trail Directions



1. Head from the main building to Cabin 1 to the trailhead for Ridgeline and Scenic Gorge Trails
2. Follow Red Markers for Scenic George Trail. The elevated mounds you will pass are part of a series of septic mounds that hold wastewater from PEEC's campus.
3. At 0.4 Miles, you will come to a sign. Bear right to stay on the Scenic George Trail (Red). Ridgeline Trail (Yellow) is to the left.
4. Come to a bridge where the Scenic Goerge trail meets the Ridgeline Trail again briefly.
5. Stay right at the fork to stay on the Scenic Trail. This is where the trail starts to loop back.
6. In the 0.1 Mile, you will meet with the Ridgeline trail again.
7. Both trails stay together for the hike for another 7/10 miles, finishing at the road within the PEEC campus.
8. Beer right on the road. It will end at a T between group lodges A and B.
9. Turn right at this intersection. Then, head back to the main building, where the bus will be waiting.
10. Bathrooms are in the main building.



Scenic Gorge TRAIL GUIDE by PEEC

1 **Welcome to the Scenic Gorge Trail at the Pocono Environmental Education Center (PEEC).** Allow at least an hour to enjoy this 2-mile trail, blazed in red and moderately tricky with a few steep sections. The trail begins next to Cabin 1 and goes through the upland deciduous forest and a hemlock grove along Spackmans' Creek, ending on a lower campus. This guide focuses on the differences between the two significant habitats and explores several microhabitats. A habitat is an organism's environment, including climate, altitude, moisture, sunlight, and human activity. The numbered markers along the trail correspond to the explanations in this guide.

2 CREATIVE PLAYGROUND This area was known as the Creative Playground. The numerous tree stumps and the four wood posts ahead on the left were all part of this natural playground.

3 POISON IVY Poison ivy (*Toxicodendron radicans*) is in the family *Anacardiaceae*, the same family as cashews. Poison ivy is essential here and in many other forest ecosystems. Birds and deer eat the small white berries without consequences. Unfortunately, humans are not so lucky! You may develop an itchy rash if you touch any part of the plant, including stems, leaves, berries, or the hairy trunk. Do not touch the plant at any time of the year! To identify poison ivy, look for a leaf with three leaflets and a vine with red-brown hair-like roots growing up the sides of trees. **If you touch the vine, wash it with cold water, as hot water will open the pores in your skin and let in more of the toxic oil.**

4 TREE LIFE SPAN Trees die for many reasons: age, virus, fungus, insect manifestation, lightning, and cutting. Many insects live in dead trees, helping to break down the tree and return nutrients to the soil. Woodpeckers and other animals eat insects in dead-standing trees, making standing dead trees an essential part of the forest ecosystem. Owls, raccoons, porcupines, flying squirrels, and other animals raise their young in tree cavities. Moss, fungi, and lichen aid in the decomposition process. Fungi, like mushrooms, have no chlorophyll to convert sunlight to energy. They depend on energy from organic material to survive.

5 EUROPEAN LARCH TREES In front of you are some European larch trees (*Larix deciduas*), also called Tamarack. Although these trees are conifers, they are deciduous, as their scientific name implies. Thus, they drop their leaves annually. Tamarack trees are harvested for their strong, disease-resistant wood used in telephone poles and railroad ties. Rabbits, squirrels, and ruffed grouse eat seeds from the 1.5-inch cones.

6 THE PUMP HOUSE The building in front of you is the pump house. Water from wells around PEEC is held in tanks below the ground's surface. The pump house, aided by gravity, disperses the water throughout PEEC. The large, grassy mound is a water tank storage area behind the pump station. Behind the pump station on your left is a septic system called turkey mounds.

The trail continues along the right of the mound.

7 WATER BARS You are about to start down a steep hill. As you travel, you will step down wooden beams – water bars – that seem like stairs. The beams were placed there to control erosion along the path. Plants keep the hillside from eroding by securing the soil with their root systems. No plants can grow along the route, so the soil is loose and can easily wash away. The water bars help prevent significant erosion of the trail.

8 LE TREES If you look down the path, you can see several le trees (*Acer*) lining the trail. If you investigate the woods, you do not see any. Why is that? Did some crazy PEEC staff member decide to line the trail with less? No, let us require a lighter. In the woods, other trees shade out the young less. Plenty of light comes through the trail, allowing the less to grow.

9 LICHEN A lichen is an organism with a symbiotic relationship between its two components, fungus and algae. A symbiotic relationship is beneficial to both parties. The algae serve as the phycobiont. Algae have chlorophyll, which allows it to obtain energy from the sun. The fungus serves as the mycobiont. It supplies protection from adverse conditions such as drought. Notice the abundance of lichen on the trees and rocks around you. Lichen is an indicator of immaculate air, so breathe deeply!

10 WHITE PINE Notice the soft-looking pines in front of you. Which pine is this? Examine the needle bundles, or fascicles, closely. How many needles are in each fascicle? Each fascicle has five needles, which quickly help to identify this tree as a white pine. Notice that the word "white" also has five letters – a helpful hint! White pine (*Pinus strobus*) was named for its white sap. This pine can grow to two hundred feet, making it useful as timber during colonial times. The pine suffers from two maladies: the white pine weevil and the white pine blister rust. The weevil kills the topmost shoot of young pine, causing the pine to grow deformed and reducing its value as timber. The blister rust is a serious fungal pest.

11 PILEATED WOODPECKERS Look at the large holes in the trees on the right. What caused them? If you guessed a woodpecker, you are right! The pileated woodpecker (*Dryocopus pileatus*), the largest surviving woodpecker in North America, excavated these holes. Without watching the woodpecker make the hole, we know that the pileated is the culprit because the holes are large and rectangular. Pileated woodpeckers are about

the size of a crow and have a conspicuous red crest. Tree holes are created to search for carpenter ants, nest in the spring, or roost during winter. Three to six eggs are laid during May. If the hole is fresh, a new sap runs down the side of the tree. Older holes have scar tissue growth around the edges. The older the hole, the more scar tissue the tree has grown.

12 CHESTNUT OAKS VS. HEMLOCK'S Look to your right, then to your left. What differences do you see? To your left is a chestnut oak forest, sunny and dry. To your right is a cool, damp hemlock grove. Chestnut oaks (*Quercus prinus)* need well-drained soil and much sunlight. Eastern hemlock (*Tsuga canadensis*) grows in a wet, calm environment. The gorge is an ideal environment for hemlocks.

Hemlocks help increase the suitability of their habitat in two ways. First, their constant leaf covers trap moisture and block sunlight, making the habitat even cooler. Hemlock's root system does not travel deep into the soil, as do many other species of trees. Instead, the root system is vast, covering a large surface area. This means hemlocks can survive in as little as one to two inches of soil, making the gorge an ideally suited habitat.

13 WHITE OAKS This area is not very well-drained and is sunny, so neither chestnut oak nor hemlock can survive. The conditions here are suitable for white oak (*Quercus alba*). White oak has smooth-lobed leaves and white, thin-scale bark. The roots grow deep, so several inches of soil are required for the oaks to survive. The acorns are sweet when boiled, and Native Americans used them as food when necessary. Unlike red oaks, white oak acorns germinate in the fall but must be buried by squirrels or will freeze during winter. White oaks in this area have a common adaptation for survival in wet areas – the trunk base is more expansive than the rest of the trunk.

14 CLIMAX FOREST Notice the rock wall parallel to the trail. Before becoming a National Recreation Area, this land was extensively farmed. The rocky terrain made farming on the Pocono Plateau difficult. All the rocks had to be removed from the field, but what did the farmer do with all the stones? The rocks were piled on the side of the field, creating a wall. Sometimes, you can see an old tree in the middle of the wall or beside a huge boulder the farmer could not move on. The farmer kept the tree there since it was not in the way of farming and provided shade in the middle of a sweltering day. Eventually, the rock walls served as property boundaries. Through the process of succession, fields slowly change into forests. Succession occurs when a plant more suited to a habitat becomes dominant through competitive and reproductive adaptations. Native grasses, wildflowers, and small shrubs were the first vegetation to take over this field. Light-loving tree species came next. White oak (Quercus alba) and shagbark hickory (Carya ovata) came next. In this area, the climax forest, or the final stage of succession, is American beech (*Fagus grandifolia*).

15 HEMLOCK RESOURCES The hemlock grove in this gorge has retained much of its pre-European character. Most forests in the eastern US have been cleared, but this gorge remained untouched. Why? The knotty wood of the hemlocks produces only low-grade lumber. Because most hemlocks are found in steep gorges, removing the trees is time-consuming, complex, and, therefore, not profitable. Hemlock has only one economic value – tannic acid. Found in the bark, it is used to tan animal hides to make leather. The resulting leather is very reddish-brown. Often, tannin from chestnut oak acorns is added to reduce the redness.

16 LOOK DOWN! Look down at the stream. Notice how the waterfalls over the rocks turn white. Here, air mixes with the water, causing the water to look white. Downstream, the water is well-oxygenated. The pools below the falls have deep, well-oxygenated, calm water ideal for trout and other fish. Immature insects, such as the dragonfly, fishfly, stonefly, and caddisfly nymphs, live in the streambed. Stream-dwelling insects are adapted to maneuver and obtain food in a fast current. They are well camouflaged – try to find some! Please return them to the water quickly since they can only live out of the water for a few minutes.

17 SEDIMENTARY ROCK Look at the rock face along the stream. This rock was created 370 million years ago during the Devonian period. At that time, this area was a shallow sea with silt deposition on the seafloor. The silt compacted and lithified – cemented together – creating the layered sedimentary rock you see. When Africa collided with North America 230 million years ago, during the Permian period, the eastern part of North America went through an orogeny or mountain-building event. Since then, this stream has been carving out the rock, exposing the layers we see today.

18 BLACK BIRCH Black birch (*Betula lenta*), also called cherry birch and sweet birch, grows in damp and cool areas, making it one of the few deciduous trees able to grow in a hemlock grove. Large black birches can be found hanging precariously on cliff edges, where they can obtain sunlight, an adaptation for living in a hemlock gorge. Notice that the dark bark has horizontal lines called spiracles. Spiracles are visible only on birch, cherry, and tamarack trees. The black birch is made of rugged, heavy wood, often used to make furniture. The twigs and leaves contain wintergreen oil. Taste one! Fermented sap from the twigs is used to make the drink of birch beer. The ruffed grouse (*Bonasa umbellus*), Pennsylvania's state bird, eats the buds and seeds, while white-tailed deer (*Odocoileus virginianus*), Pennsylvania's state mammal, and eastern cottontail rabbits (*Sylvilagus floridanus*) eat the twigs.

19 EASTERN HEMLOCKS Eastern hemlocks (*Tsuga canadensis*) are native to North America but are currently suffering a serious threat to survival. A tiny invasive insect, the hemlock woolly adelgid (*Adelgis tsugae*), attaches itself to the base of the needles and sucks the fluids out from the needle. The needles turn brown and fall off. In a few years, the hemlock tree dies from a lack of nutrients needed from the needles. Hemlock groves all over the nation have been seriously damaged and destroyed. Research is underway to introduce the woolly adelgid's natural predator to control the population.

20 GROUNDWATER Water flows from this spring all year round. The rock layers block the horizontal flow of the groundwater and force it to the surface. With this constant supply of slow-moving water, small green plants grow here year-round. This is also a good place to find aquatic insects. Remember, if you find any, return them to the water quickly.

21 STREAMS: Look at the gully in front of you. Is there any water flowing? This stream is highly seasonal. During the spring, the stream reaches its highest flow due to melting snow and high rainfall levels, making the small bridge necessary. During the summer and fall, rainfall decreases, causing the stream to become a trickle or a series of small puddles. During a drought, this stream completely dries up.

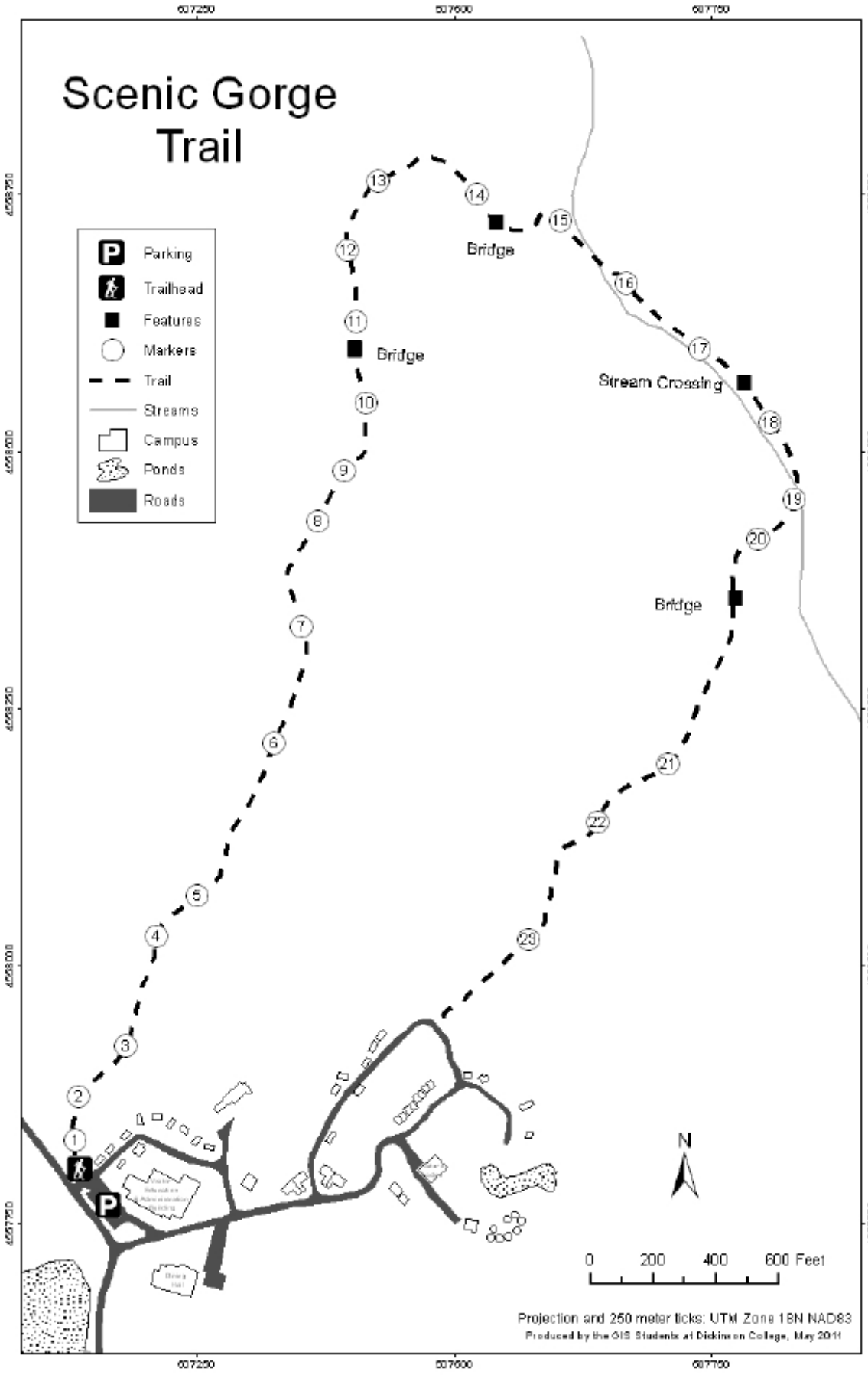
22 AMERICAN BEECH American beech (*Fagus grandifolia*) is a popular tree because of its smooth gray bark, sometimes called elephant skin. The leaves turn golden brown in winter but do not fall until spring. The theory behind this phenomenon is that beeches and oaks were in the tropics during the last ice age. At the end of the ice age, the glaciers retreated, and the beech and oak migrated north. Their leaves had to die for the trees to survive the winter but did not drop until they were replaced by new growth.

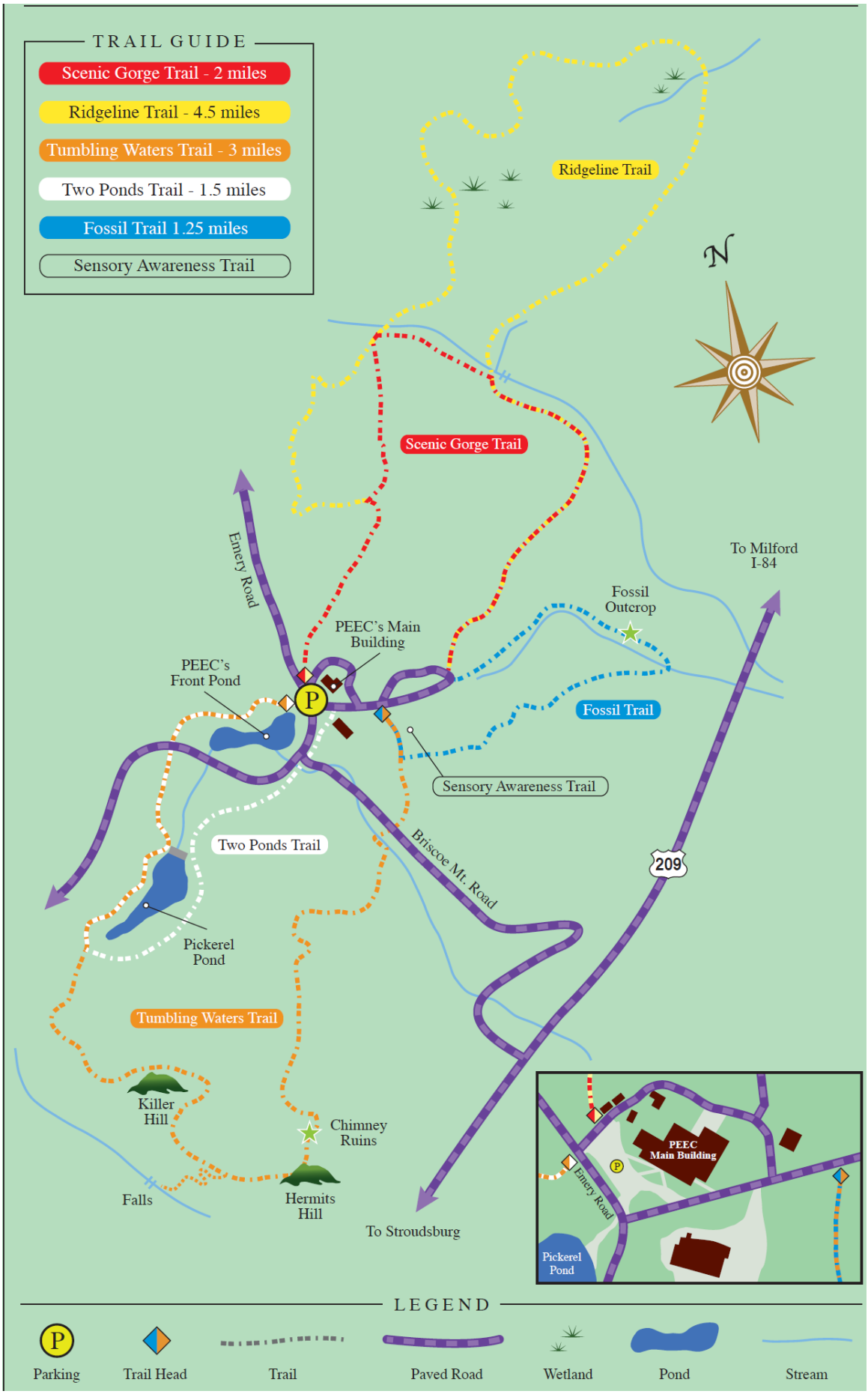
23 CHESTNUT OAKS Chestnut oaks (*Quercus prinus*) are the predominant tree in this area. The tree can be identified by its multi-lobed, smooth-edged leaves and square-shaped, profoundly grooved bark. Look at the ground. Do you see any acorns? Like all oaks, chestnut oaks drop their acorns in the fall. The fallen acorns are multi-colored, ranging from red to green. Chestnut oak acorns, like white oak acorns, start to sprout immediately, not waiting for spring. This adaptation gives the chestnut oak time to develop before competing with other saplings. On well-drained ridgetops in this part of the United States, the climax forest comprises chestnut oaks. Before the chestnut blight, the American chestnut (*Castanea dentata*) was the dominant tree on top of ridges. Approximately three-quarters of all trees in the eastern U.S. were American chestnut until the blight completely wiped them out.

24 TURKEY MOUND The mounds of grass visible through the trees on the left are human-made. Notice the white pipes sticking out of the sides. The mound is made of sand and filters sewage water since the shallow, rocky soil is not sufficiently clean. It is called a turkey mound because wild turkeys (*Meleagris gallopavo*) can often search for food on top.

25 STAGHORN SUMAC: Do not touch this tree! It is covered with poison ivy that may cause an itchy rash. In front of you across the street is staghorn sumac (*Rhus typhina*). This tree is unrelated to poison sumac and will not give you a rash if you touch it. Look closely at the stems. The fuzzy, v-shaped stems often remind people of a male deer's antler in velvet, thus the name "staghorn." The large compound leaves turn bright red and entirely fall off in the autumn. Large clusters of small red berries are left at the end of each twig throughout the winter. Birds eat the berries when other food sources become scarce.

This is the last marker on the trail. Head up the road to the right, then follow the main road to the right back to the main building. We hope you enjoyed the trail. Feel free to ask PEEC staff any questions you may have.


Scenic Gorge Trail
Parking
Trailhead
Features
Markers
Trail
Streams
Campus
Ponds
Roads
Bridge
Bridge
Stream Crossing
Bridge
N
0 200 400 600 Feet
Projection and 250 meter ticks: UTM Zone 18N NAD83
Produced by the GIS Students at Dickinson College, May 2011

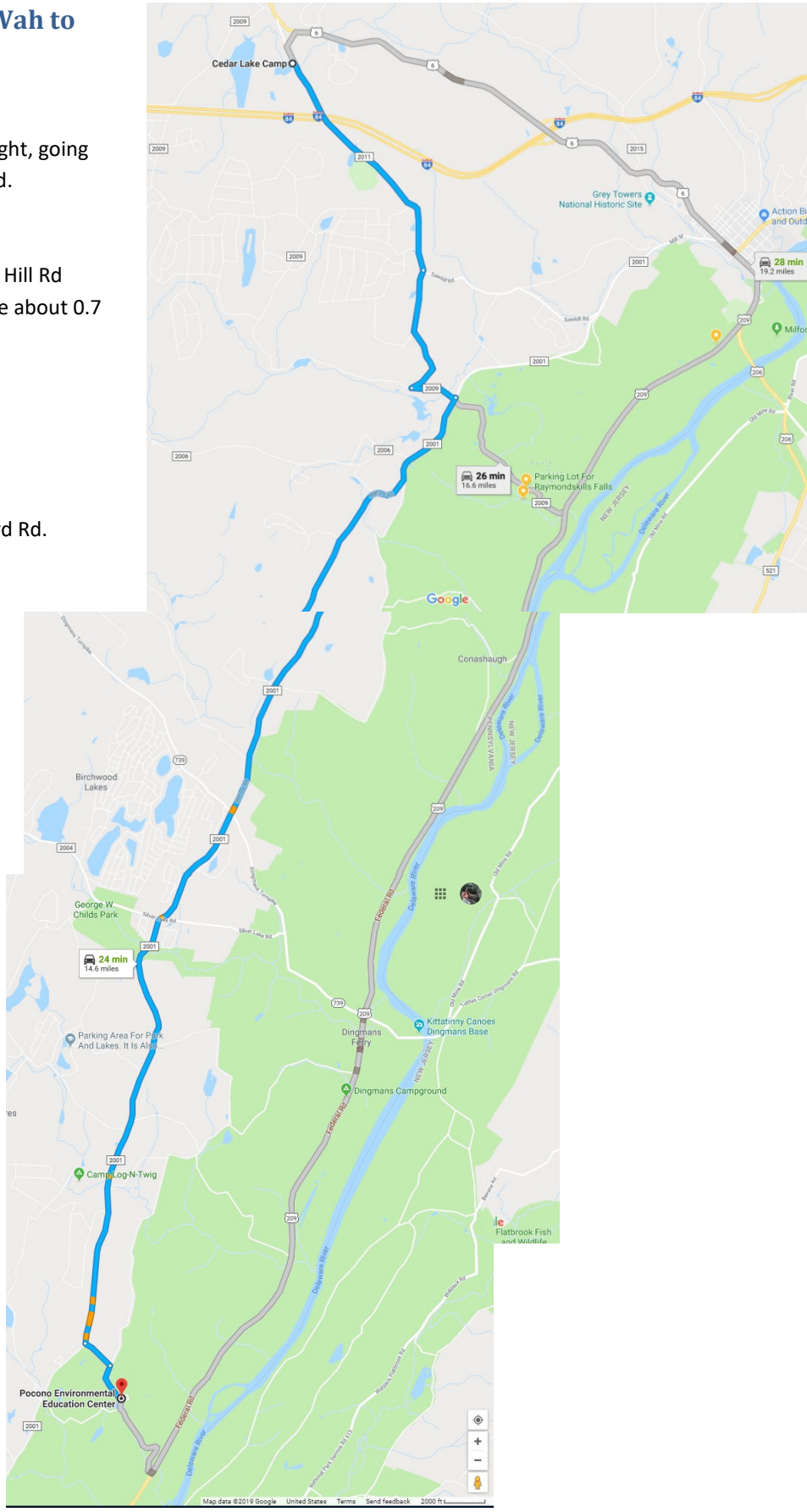

TRAIL GUIDE
Scenic Gorge Trail - 2 miles
Ridgeline Trail - 4.5 miles
Tumbling Waters Trail - 3 miles
Two Ponds Trail - 1.5 miles
Fossil Trail 1.25 miles
Sensory Awareness Trail
N
Ridgeline Trail
Scenic Gorge Trail
Emery Road
To Milford
I-84
Fossil
Outcrop
PEEC's Main
Building
PEEC's
Front Pond
P
Fossil Trail
Sensory Awareness Trail
Two Ponds Trail
Briscoe Mt. Road
209
Pickerel
Pond
Tumbling Waters Trail
Killer
Hill
Chimney
Ruins
Falls
Hermits
Hill
To Stroudsburg
PEEC
Main Building
Emery Road
Pickerel
Pond
LEGEND
Parking
Trail Head
Trail
Paved Road
Wetland
Pond
Stream

Driving directions from Camp Nah-Jee-Wah to PEEC

https://maps.app.goo.gl/nwi5eARcd4ZwdHEN7

1. Start heading out of the driveway and turn right, going southeast on Sawkill Rd toward Honeywell Rd.
    a. Then 2.35 miles, 2.35 total miles
2. Turn right onto Kiesel Rd.
    a. Kiesel Rd is 0.1 miles past Vanauken Hill Rd
    b. If you reach Fisher Ln, you have gone about 0.7 miles too far.
    c. Then 1.26 miles, 3.60 total miles
3. Turn left onto Raymondskill Rd.
    a. Then 0.44 miles, 4.04 total miles
4. Turn right onto Route 2001/SR2001.
    a. Then 1.83 miles, 5.88 total miles
    b. Route 2001/SR2001 becomes Milford Rd.
    c. Then 7.99 miles, 13.87 total miles
5. Turn left onto Thurner Rd.
    a. Thurner Rd is 0.7 miles past Valley View Dr
    b. If you reach Roosie Rd, you have gone about 0.2 miles too far.
    c. Then 0.32 miles, 14.18 total miles
6. Turn right onto Emery Rd.
    a. Then 0.40 miles, 14.58 total miles
7. Pocono Environmental Education Center, 538 EMERY RD.
    a. If you reach Brisco Mountain Rd, you have gone too far.

26MIN 14.6MI Total



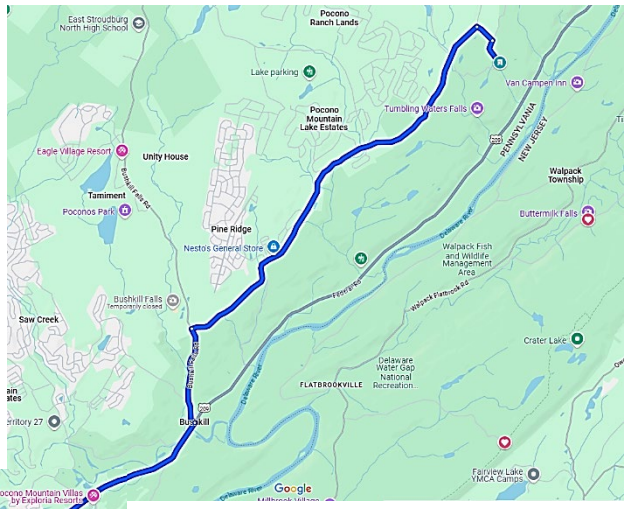
Emergency Phone Numbers:

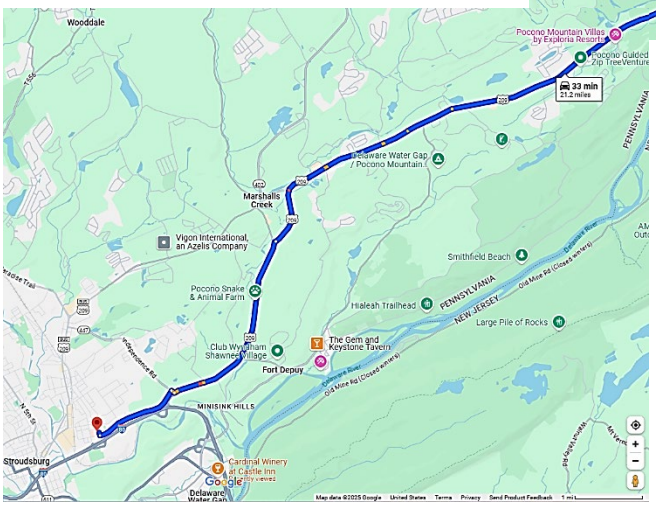
Pocono Environmental Education Center 570-828-2319
The Delaware Water Gap of the National Park Service:
http://www.nps.gov/dewa
Call Park Dispatch at (570) 426-2435 or (800) 543-4295 for emergencies.

The nearest level III trauma center for an urgent situation is the

Lehigh Valley Hospital - Pocono Medical Center

206 E Brown St, East Stroudsburg, PA 18301
(570) 421-4000 General Switchboard
Emergency Services (Mattioli Emergency Center) 570-476-3353





from Pocono Environmental Education Center, 5...
to 206 E Brown St, East Stroudsburg, PA 18301

via Milford Rd and US-209 S
Fastest route, the usual traffic

Pocono Environmental Education Center
538 Emery Rd, Dingmans Ferry, PA 18328

- Take Milford Rd to US-209 S — 14 min (8.8 mi)
  - Head west on Campus Dr toward Emery Rd — 43 ft
  - Turn right onto Emery Rd — 0.4 mi
  - Turn left onto Thurner Rd — 0.3 mi
  - Turn left onto Milford Rd — 6.7 mi
  - Turn left onto Bushkill Falls Rd — 1.5 mi
- Continue on US-209 S to East Stroudsburg. Take exit 308 from I-80 W/US-209 S — 19 min (12.5 mi)
  - Turn right onto US-209 S
    Pass by Taco Bell (on the left in 5.6 mi) — 8.0 mi
  - At the traffic circle, take the 2nd exit onto US-209 — 3.2 mi
  - Use the right lane to merge onto I-80 W/US-209 S via the ramp to Stroudsburg — 1.1 mi
  - Take exit 308 toward East Stroudsburg — 0.2 mi
- Continue on Prospect St to your destination — 2 min (0.3 mi)
  - Turn right onto Prospect St — 0.1 mi
  - Turn right onto E Brown St — 0.1 mi
  - Turn left
    Destination will be on the left — 246 ft

206 E Brown St
East Stroudsburg, PA 18301