

WELCOME

to the Frank and Dorothy Rees Conservation Land and self guiding trail. This information has been compiled to assist teachers and students on science and nature outings, as well as those who appreciate a quiet walk within the realm of the natural world.

The trail meanders through a variety of habitats, from forested areas into transitional ones, through an old cranberry bog, and along the edge of Factory Pond, an 11-acre pond most often seen from Woodland St.

LOCATION

You can access the trail from several locations, the trail head being the easiest, is found behind the Miller School playground on the far right side by the fenced retention pond.

HOW TO USE THIS GUIDE

There are currently 12 numbered stations at interesting points along the trail. For ease of use, or teachers with time constraints, each station is designed to stand alone. The number on the station post corresponds to the numbers in this guide. Each time you reach a station, consider yourself in the center of a clock. The arrow carved into the top of the post points to twelve o'clock. By facing in the direction of the arrow, you will be facing 12 o'clock, points of interest are described relative to that position.

TIPS FOR TEACHERS

Several questions relating to each station have been included to aid in getting the students thinking and relating to each particular area. **Answers are found at the end of this guide.**

Before starting, be sure to tell students not to pick plants, flowers, berries or leaves! Many poisonous berries look like their edible neighbors, plants such as poison ivy can cause severe rashes.

* Please stay on the trail and walk single file to minimize impact on the surroundings. There is room to gather at each station.

* The trail through the bog may not be accessible during the wetter times of the year, but by retracing your steps to the alternate trail (see map), you can still visit all the stations in this guide.

* **Most important; enjoy the trail!**

BEFORE STARTING DOWN THE TRAIL

To enjoy and observe more along the trail, it is suggested you stop for a moment, take a few deep breaths, and relax. Turn up your awareness and pour your senses into the surroundings. Look around. Listen to the wind moving through the trees, birdsong, and the chatter of chipmunks warning their neighbors of your presence. Smell the aroma of the woods and notice the subtle changes that occur with each passing step you take along the way.

By walking with appreciation and respect for all things, the magic and complex simplicity that is nature will reveal itself to you.

1. TRANSITION AREAS

Our first stop finds us on the border between a forest of large, old trees and a dense area of primarily plants, shrubs and scattered young trees. Transition areas, also known as "edge," are important habitats that provide a diversity of food sources and shelter for many animals and birds.

Trees and plant life are excellent indicators of many conditions including, climate, terrain, elevation, soil type, and water table levels.

Compare the difference between plants growing in the woods at the 8 o'clock position and those between 10 and 3 o'clock.

At 12 o'clock is a high bush blueberry, an indication that the area is poorly drained or has a high groundwater table. The shrubs with the speckled trunks and purple berries are buckthorns. Unlike the blueberries, buckthorn is an invasive species that negatively affects woodlands where it grows.

Check out the thick vine growing out of the ground at 2 o'clock. How high do you think that it will grow?

The trail to your left (at 10 o'clock), is the alternate trail to use should you encounter water up ahead in the bog at station 4.

QUESTIONS

- a. * What might be a few reasons for the presence of this transition area?
- b. * Why is there so much more plant growth along the "edge" as compared to under the large trees of the forest?
- c. * What do the plants and trees living in this area tell us?
- d. * Can you name some of the birds, animals and plants that live here?

*** Answers are found at the end.**

2. OBSERVING YOUNG TREES

There are several species of young trees growing here. Trees are often identified by the shape of their leaves or number of needles. Perhaps you have noticed that each type of tree also has a different bark. The bark also changes as the tree ages. Without moving, how many different species can you count? Try to locate the following: alder, white pine, aspen, ash, maple, oak, fir and birch.

Often when walking through forested areas, the trees tower overhead, their leaves shading the ground far below. This sea of green above is called the “canopy.” At the 11 o’clock position, look up and you can see a large “hole” in the canopy. These breaks in the canopy are common in areas of transition and also occur in mature forests when trees die or blow down in storms.

QUESTIONS

- a. * Why are the shrubs and plants growing so densely in this area?
- b. * The trees here are growing and reaching skyward as fast as they can . . . Why?
- c. * Which trees are growing the fastest?
- d. * Do you know the difference between a softwood and a hardwood tree?

A WORD OF ADVICE BEFORE PROCEEDING!!

Try moving SLOWLY and QUIETLY down the trail behind you (at 6 o’clock), to station 3.

3. A VIEW OF THE POND

Long ago, the stream that ran through here was dammed creating this area known as Factory Pond.

Many species of plants, animals, birds and insects live in and around wetlands. Take a look at what’s here today. If your approach was stealthy, you may have spied the great blue heron that often fishes in these waters.

What you may see here depends largely on the time of year that you are visiting. If it’s warm, turtles may be sunning themselves on the turtle ramp to the left, (at 11 o’clock). Ducks and geese also stay until the pond freezes over. Mink, muskrat, and beaver commonly frequent the pond and often can be seen early in the morning.

A few points of interest: a grey birch and white pine are at 2 o’clock. Beyond the birch at 3 o’clock is a large grapevine climbing high into a maple tree.

QUESTIONS

- a. * Ponds naturally fill in over time. Can you think of a few reasons how or why they do?
- b. * Why do turtles sun themselves?

4. THE BOG

Habitats are usually defined by the plants found living within them. Station 4 is located on the edge of an old cranberry bog.

Years ago, Holliston was a large producer of cranberries, with several hundred acres of the tiny vines under cultivation. Today all that’s left of a once thriving industry are scattered patches like the one in front of you.

Cranberries require the acidic soil of peat bogs and plenty of water to grow well.

Also present in wet, acidic areas are highbush blueberry and swamp azalea (at 9 o’clock), and leatherleaf at 3 o’clock. Grasses, sedges, rushes, moss and assorted other plants can also be found growing within this area.

QUESTIONS

- a. * Can you name the 3 fruits native to the Northeast?
- b. * Why is this area so open?
- c. * What purpose does this place now serve?
- d. * When do cranberries ripen?
- e. * What will happen here over time?

**** FUTURE PLANS INCLUDE A BOARDWALK FOR THIS AREA**

****IN THE MEANTIME, TO AVOID DAMAGING THIS FRAGILE HABITAT:**

PLEASE WALK THE PATH SINGLE FILE AND IF THE BOG IS FLOODED, TURN BACK AND USE THE ALTERNATE TRAIL (SEE MAP).

5. CONIFERS

Reading the landscape is a technique anyone can learn. By carefully looking at your surroundings, small clues can help identify unique areas and habitats. Start from the ground up. Look at the plants growing here, then look at the shrubs and trees. There are larger trees scattered about and an open area of sky to the right.

Now that you have looked around a bit, can you name the 4 species of conifers, (trees with needles), growing here?

Twenty feet up the trail at 11 o'clock is a juniper. There is a fir growing at 10:00. At 8:00 is a red pine, and a white pine is growing at 2 o'clock.

QUESTIONS

- a. * Many of the shrubs growing here are the same as on the other side of the bog at station 4 . . . What might that mean?
- b. * There is thick undergrowth in this area . . . why?
- c. * What might the open sky at 3 o'clock mean?

*** The main trail at 12 o'clock leads toward the school and stations 6 thru 12.**

*** To the right, at 3 o'clock is the "A" trail that follows the water.**

*** BOTH trails lead in the same direction and rejoin at station 6 and 7.**

5A. THE WATER TRAIL

This is the beginning of the Water Trail. Take a left here to follow alongside the stream that feeds Factory Pond. The stream is an important source of food and water for countless numbers of organisms. During the spring and early fall many varieties of plants bloom along the shore. Watch the far shore in early June for the magnificent flowers of yellow flag. In Summer, pond lilies and duckweed spread out across the water's surface.

Many interesting animals and water birds often can be seen from this trail. Watch for turtles and frogs, wood ducks, mallards, geese and swans. Animals include mink, muskrat, beaver and otter.

6A. CONNECTING TRAIL

This marker is only here to help you stay oriented along the way. Taking a left at the marker takes you back to the main trail. Continuing along the water takes you to station 7.

6. WHO'S SHADING WHO?

There is a race taking place throughout these parts. Trees, shrubs and herbaceous plants are all competing for the available sunlight. The outcome of this race has already been decided. Most of the plants and grasses, including those few remaining cranberries, will soon be shaded out by the lush growth of the shrubs and trees. Eventually the trees will grow tall enough to force out all but the most shade tolerant of plant life. At 3 o'clock is the Water Trail that also leads to station 7.

QUESTIONS

- a. * Is this still a transition area?
- b. * When you compare station 1 and this station, what is most obvious?
- c. * Why is that so?
- d. * What will happen here in a few years?
- e. * What small plants may establish themselves here after the trees grow tall?

7. MOTHER NATURE RULES!

Long before people existed on this planet, Mother Nature was hard at work. No doubt, long after we are gone, She will still be diligently working. This station is a perfect example of this unending process.

To the left (at 10 o'clock), lies an area once used as a gravel pit. Some of the large boulders you have seen along the way were dug from this spot. A close look will reveal depressions and small hills that were never leveled out, now disguised under vines and thick plant growth.

Mother nature is still working hard to restore this place with trees, plants, and topsoil. This is a wonderful spot to observe the thick and diverse growth of a transition area (at 9 o'clock), with that of an established forest on the right side of the trail at 2 o'clock.

QUESTIONS

- a. * Why is the growth so dense on one side and so sparse on the other?
- b. * Some areas here were dug up, others were filled in . . . Which ones?
- c. * What other signs can you see that people have disturbed this area?

*** YOU HAVE SEVERAL OPTIONS AT THIS POINT.**

- ...The 1st trail on the left brings you back to station 1 (It is steep and not recommended if you have students).
- ... Straight up the trail is the soccer field behind Miller school.
- ... Go right 20 yards ahead at the signpost to continue to station 8 at the waters edge.

8. THE WATERS EDGE

This is a great place to sit, relax, and observe life on and around the water. Blue and yellow flag, on the far edge of the water, flower during June. Purple loosestrife can be seen by mid summer. There are many other water loving plants here including skunk cabbage, arum, lilies, tussock sedge and blueberries.

A close look at the tree's reveals their likes and dislikes. Maples and alders are seen growing close to the water here. Both species don't mind getting their "feet" wet.

Needles, leaves, acorns and pine cones scattered on the ground are evidence of the large oak and pine trees growing behind you. They in turn, provide food and shelter to many other creatures that call this place home.

QUESTIONS

- a. * Why are the trees here so large?
- b. * How old do you think these trees are?
- c. * What are some of the animals and birds that find food here?

WITH YOUR BACK TO THE WATER, THE TRAIL LEADS OFF TO THE RIGHT.

9. INTO THE WOODS

Well over a hundred years ago, Chief Seattle said, 'Man does not weave the web of life, he is merely a strand in it. Whatever he does to the web, he does to himself'.

This station finds you almost in the center of this small, but important piece of forest. The wonderful diversity found here can help show you the workings of that web of life the Chief and Native Peoples understand so well. All Life is connected.

At 9 o'clock, a thick patch of young white pines compete for light shining through a hole in the canopy above. The school soccer fields lie fifty yards or so away at 12 o'clock. The same distance away at 6 o'clock are vast wetlands that feed the stream and Factory Pond.

Many animals and birds live within these connected areas that provide them with everything they need to live. Deer munch on the green grass at night. Mice and other rodents live along the edge of the field, and attract larger predators. Hawks, owls, fox and coyote search for food here, as do pheasant, turkey and grouse. The wetlands provide breeding areas for insects that in turn feed bats, and many local songbirds. Look around a bit and you will discover other pieces to the puzzle that makes up the great web of life of which we are a part.

QUESTIONS

- a. * What is the house used for that is located on the back side of the maple tree at 2 o'clock?
- b. * What is that big puddle of water between 11 and 2 o'clock and what purpose might it serve?

As you walk to station 10, watch for the wood duck house in the trees to your right.

10. THE BRIDGE AND POOL

The bridge crosses a ditch that sometimes carries excess water from the Vernal Pool at 12 o'clock to the wetlands and stream behind us at 7 o'clock.

Vernal Pools are temporary ponds that form during the late winter and dry up in summer. Because they dry up, fish cannot live in them. Long ago, several species of frogs, salamanders, and invertebrates figured this out and adapted their entire life cycle to take advantage of this unique feature.

Each spring as the snow melts, frogs and salamanders make their way to vernal pools. They mate, lay eggs and leave within a week or two. The eggs hatch into tadpoles that rapidly grow, feeding on small insects, and occasionally each other. It is a race to develop and mature before the pool dries up. The young hop or crawl back into the woods until next year, when they return to the pool to continue the cycle.

Come visit on a Spring night and listen to the concert. The sound of quacking wood frogs and music of the spring peepers is a primeval experience that defies description.

QUESTIONS

- a. * What happens if the pool dries up before the young are ready to leave?

- b. * What other creatures might live here?
- c. * What other predators might come here in search of food?

11. WET PLACES

This is a good spot to stop and look at the surrounding trees and landscape. Almost all the trees are the same height and diameter. There is not much of an understory, and plenty of sunlight filters down to the ground.

Knowing a few of your plants will help you realize this is a fairly wet area. The ground is hidden behind the thick growth of the many ferns here. Most of the trees are red maples that all started growing at the same time, explaining their similar height and girth.

QUESTIONS

- a. * What else have you noticed about this place?
- b. * How many varieties of fern can you find alongside the trail?
- c. * What does the lush growth of ferns tell us?

12. THE END OF THE TRAIL

Fenced in retention ponds are found at both the beginning, and here, at the end of this trail. Their purpose is to provide a place for the water from parking and paved areas to flow into. The idea is that salt, oils, sediments, and other nasty impurities picked up by rain or melting snows, will settle here rather than flowing directly into nearby wetlands. These retention ponds are interesting to watch as plants begin growing and a new habitat is formed.

QUESTIONS

- a. * What are the benefits of these pools?
- b. * What are some potential problems?
- c. * Are they Vernal Pools?

THIS IS THE END OF THE TRAIL FOR NOW . . .

YOU ARE BEHIND THE MILLER SCHOOL. ABOUT 200 YARDS FROM HERE, AT 9 O'CLOCK, IS WHERE YOU STARTED.

YOU CAN RETRACE YOUR STEPS OR WALK TO THE LEFT, BACK TO THE PARKING LOT.

THANKS FOR VISITING!!

ANSWERS

STATION 1. a) abandoned fields returning to forest, flooded land due to rushing water or beavers, fire. b) more available sunlight, favorable soil conditions c) can indicate past uses, soil type, water table

STATION 2. a) moist soil and lots of available sunlight b) trees need sunlight to make food, tallest trees get the most light c) softwoods generally grow fastest, hardwoods grow slower, but live longer d) some softwoods include; pine, fir, and aspen hardwoods here are maple, ash and oak

STATION 3. a) silt from streams, bank erosion, rotting vegetation b) cold blooded animals need sun to regulate their body temperature

STATION 4. a) cranberries, blueberries and grapes b) area was manmade, trees are still trying to establish themselves, wet, acidic soil c) open areas provide food for deer, rodents and predators d) Labor day through the end of October e) trees will soon take over, cranberries will get crowded, then shaded out

STATION 5. a) similar growing conditions . . . soil & water b) it's dryer here with plenty of sunlight, larger shrubs are getting established, human intervention could also be a factor c) an open area, in this case, the back end of Factory Pond

STATION 6. a) yes b) same plants, thicker growth c) there's more sunlight on this side d) trees will take over, most plants will die e) mosses, lowbush blueberry, sheep laurel, ferns

STATION 7. a) one side is mature forest, the other is transition area b) gravel from hill was used to create bog area c)

boulders piled here and there, old road, left over hills of gravel

STATION 8.. a) old, no disturbance for many years b) some are well over 100 years old c) turkeys, pheasant, deer, rodents, fox, coyote, and owls, to name just a few

STATION 9.. a) bats b) it's a Vernal Pool, a breeding area for certain frogs and salamanders

STATION 10. a) nature's version of population control, they die b) turtles, snakes, insects, crawfish, and more c) raccoons, skunks, great blue herons, ducks and others

STATION 11. a) it's brighter here, there's not many shrubs b) four c) a fair amount of sunlight, wet, acidic soil

STATION 12. a) keeps pollutants out of wetlands b) will these be tomorrow's hazardous waste pits? c) some hold water long enough to become vernal pools

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