

The Brooklin Lions Wilderness Trail



TRAIL GUIDE

A self guided tour for the
general public.

The latest version of the guide is always available on <http://www.lionstrail.org>

The Brooklin Lions Wilderness Trail is located in the Village of Brooklin just east of the junction of Highways 7 and 12. It parallels the East Lynde Creek south of Winchester Road starting from the Luther Vipond Memorial Arena.

The 1.6 kilometre trail officially opened on September 16, 2000 as a joint millennium project between the **Brooklin District Lions Club** and the **Town of Whitby Parks Department**. The goal is to provide a healthy walking area that benefits both humans and nature. The trail will provide an accessible, educational, ecologically balanced trail that will feature long term monitoring of the biotic and abiotic components of the creek, its floodplain, and the surrounding tablelands.



It is hoped that this trail guide will allow you an appreciation and an understanding of one of our greatest assets, the natural areas of the Town of Whitby. Enjoy the trail.

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Post 1: Butterfly Meadow

Of all the insects, butterflies are perhaps the most attractive to humans. We are fascinated by their brightly coloured wings as they flutter among the flowers seeking nectar, mates, and plants on which to lay their eggs. Bulky skippers, graceful swallowtails, numerous whites and sulphurs, small gossamers, varied brushfoots, camouflaged satyrs and wood nymphs, and the majestic monarch are groups of butterflies found in our fields and forests. There are at least 28 species of butterflies in the valley.



On either side of the trail, a butterfly meadow is being planted by the Brooklin Horticultural Society. Some of the plants it will contain are Butterfly Weed, Purple Coneflower, Elecampane, Dense Blazing Star, Wild Flax, Bee Balm, Swamp Milkweed, Black-eyed Susan, False Dragonhead, and Green-headed Coneflower. The Common Milkweed seen here and in much of the valley is an essential part of the Monarch Butterfly life cycle. The provincial

Ministry of Agriculture and Durham Region recognize that milkweed is not a noxious plant in non-agricultural areas. The meadow also serves the night time pollinators, the moths.

As habitat is continually being lost in the south of Durham Region, landowners can help butterflies and moths by planting their own butterfly meadow or garden. With larger properties, consider leaving areas of lawn uncut to create less work for you and more natural habitat for butterflies and moths. Reduced spraying of pesticides also gives the butterflies a better chance for survival.

If you are here in the winter, be assured the butterflies are too. Very few migrate south as does the Monarch Butterfly. Most over-winter in crevices as larvae or adults, or cocoon as pupae. Old split rails and piles of rocks have been added to the meadow as a winter shelter for butterflies and moths. On the first mild day of spring, be on the lookout for the beautiful brown and yellow Mourning Cloak!

Hey Kids !

Spring: Mark on your calendar the date of your first butterfly or moth sighting of the year.

Summer: How many kinds of butterflies can you see today?

Fall: Look for butterflies on the tall asters and goldenrods. Do you see any Monarchs? They may be heading south to Mexico!

Winter: Butterflies and moths change. It's called metamorphosis. Can you name the stages of a butterfly's life cycle?

Post 2: Succession

Nothing succeeds like success! Especially in nature. Ecological succession is the gradual replacement of one natural community of living things by another. The area in which you are standing was deforested long ago for crop and pastureland. Around 1970, the land was left fallow and has developed into the field community which surrounds you.

Over time this community with its herbaceous plants will be replaced by woody shrubs and trees such as poplar and aspen. At each stage the new community will slowly create the conditions that will encourage the growth of new species of plants but not allow its offspring to survive.

As a result, this field will be replaced by shrubs and cottonwoods, then by coniferous trees, and finally a climax community of maple, beech, and hemlock forest. The saplings of these trees can survive the shady conditions created by their parents and the climax community will remain barring climate change, natural disaster, or human intervention.

Hey Kids!

Spring: Nature changes during the day. What do you think it is like here at night? Well, starters it is darker. Is it cooler or warmer? Is it dryer or damper. Would there be more animals moving about or less?

Summer: Nature changes during the seasons. What do you think it is like here in the winter? Think about the temperature, the trees and other plants, the animals, and the soil.

Fall: Nature changes in different places. You're standing in Ontario. What do you think it's like right now in the Amazon rain forest of Brazil? What do you think it's like on the tundra of Baffin Island in Nunavut?

Winter: Nature changes over time. Hundreds of years ago this was a forest. A few decades ago this was a farmer's field. What do you think it will be like here a hundred years from now?

Post 3: Alien Species

Alien species in Brooklin? Sure, as there are in most places around the world. As Europeans settled in and changed the landscape of North America, opportunities for the spread of flora and fauna increased. Coyotes and Brown-headed Cowbirds moved in from the west of the continent. Ring-necked Pheasants, House Sparrows, European Starlings, and earwigs were brought from Europe.

Many of our wild plants are not native and some of these alien species are quite invasive. Purple Loosestrife and Dog-strangling Vine are present but not yet abundant. Common Buckthorn, Black Alder, and Manitoba Maple are some of the numerous non-native trees in the area. Because the valley succeeded from open pasture, a native seed bank was not present allowing the Common Buckthorn, in particular, to dominate.



Non-native species like buckthorn out-compete native plants and provide poor habitat for wildlife species. Many buckthorn trees were removed by experts with community help in November 2000 and replaced with native species in May 2001.

Hey Kids!

- Spring:** Have you ever seen a pet turtle? Some people let their turtles go into the wild. The problem is, most pet turtles are native to the south-east of the United States and do not belong in our creeks and ponds. Never release pet animals into our environment.
- Summer:** Look for tall plants with purple spikes of flowers. This is Purple Loosestrife a plant that came from Europe and is displacing many of our native plants in our wetlands.
- Fall:** Many of the trees that are nearby were not here 200 years ago. With the arrival of the European pioneers came many new trees. Try and keep an eye out for the trees that were here before the pioneers: maple, oak, pine, cedar, birch, hemlock, ash, and poplar are some examples.
- Winter:** Get a bird book out and look up the following: European Starling, House Sparrow, and House Finch. These are winter birds that have come from different places. Our most recent arrival, the House Finch was originally from the deserts of the south-west of the United States.

Post 4: Life in the Creek

As anyone who has gone fishing knows, there is life in a healthy creek. The fish the angler seeks is only a part of the living community of the stream. Feeding the fish are aquatic insects, crustaceans, and molluscs which in turn feed on other tiny animals or plants. Through photosynthesis, algae and other plants ultimately transfer the sun's energy into food energy that supply the aquatic ecosystem.

This section of the East Lynde Creek is classified as a warm water fishery by the Central Lake Ontario Conservation Authority (CLOCA). Their 1983 study of the entire Lynde Creek watershed recorded 10 species of fish in the East Lynde including the Red-side Dace, a nationally vulnerable species listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). The Red-side Dace is a small minnow that prefers shaded, cool, flowing waters as found by Winchester Road and to the south. A survey of fish species in 2000 found 11 species, but not the Red-side Dace. Perhaps if more people grow trees and tall plants along the creek banks to provide shelter and shade, the vulnerable dace will flourish again in the East Lynde.

The creek also serves as a migration corridor for spawning fish. In 1983, CLOCA recorded Rainbow Trout north and south of the trail. In 1999 White Suckers were observed moving upstream to spawn. Under the rocks, logs, and grassy edges are numerous invertebrates. The presence, or lack thereof, of certain species serves as indicators of water quality. A survey of the invertebrates in three sections of the creek in Fall 2000 found ratings of good, good, and fairly poor.

Hey Kids!

Spring: Some fish travel upstream to spawn or lay their eggs. These eggs turn into small fry or baby fish which later travel downstream where they become adults. Can you think of any other animals that travel or migrate to have their young?

Summer: If you are with an adult, travel to a creek and pick up and turn over a rock. If you are lucky you may get to see the insect larvae and nymphs that live on the rock. What do you think these animals eat? What do you think eats them?

Fall: In the early autumn there are a lot of insects in, on, and near the water. Can you name the different kinds of insects found near streams and ponds.

Winter: Do you think anything is living under the ice? Of course, there is! Fish, insects, crustaceans, molluscs, and tiny microscopic plankton are all living in the creek in the winter, but because they're cold-blooded they're not moving around too much. Remember, stay away from the edge of the creek. Even if it appears frozen, it's not safe.

Post 5: Hibernaculum

Snakes and other reptiles may not be everybody's favourite animals. But they are fascinating when you get to know them. Reptiles are cold-blooded and have scales on their skin. Ontario's only lizard, the Five-lined Skink, is not found in the valley. The Midland Painted Turtle and the Common Snapping Turtle have been sighted. Snake surveys include the Eastern Garter, the little Northern Red-belly, and the Northern Brown. Milk snakes have been reported nearby. All these snakes are harmless and do not bite unless you pick them up and mishandle them.



To the east, on the nearby forested valley slope is a hibernaculum for snakes. Constructed with the assistance of the Toronto Zoo, it is comprised of broken concrete, logs, brush, and well drained soil which will allow snakes an increased opportunity to get below the frost line for the winter. During the first year, instruments were placed at depth to record the fluctuations of temperature and humidity. The study will help to determine the effectiveness of human constructed hibernacula. Sloped to face the south, the hibernaculum will hopefully increase the survival rate for snakes during our cold winters.

Hey Kids!

- Spring:** If you are with an adult look for snakes in April and May near water. That's where they like to hang out in the spring.
- Summer:** Snakes, as do other reptiles like to bask in the warm sun. Why?
- Fall:** Snakes and other reptiles are getting ready for winter. Where do you think they would hibernate?
- Winter:** There are no reptiles around now. Use your memory. How many different kinds of reptiles can you name?

Post 6: Amphibian Pond

Many of us can remember the days of catching frogs and hunting for salamanders. This pond has been created to provide standing water habitat and breeding sites for amphibians separate from the flowing creek. Amphibians have thin, moist, glandular skin, and usually live part of their life as aquatic larvae breathing through gills and then metamorphose into adults. Frogs, toads, salamanders, and newts are all amphibians.

The pond is a great place for frogs and toads to lay their masses of gelatinous eggs which will turn into tadpoles before transforming again into adults. Perhaps the aquatic Red-spotted Newts will arrive to live in the pond. Mammals, birds, reptiles, and insects will surely visit as you are now doing. In the winter, cold-blooded amphibians are nowhere to be found as they “hibernate” under the pond mud or below the frost line in the fields and forests. A well planned pond in your garden will attract amphibians that just love to eat slugs, flies, and mosquitos.



Hey Kids!

- Spring:** Look for tadpoles. If you revisit, watch for any changes in the tadpoles, like legs!
- Summer:** Look and listen carefully. Can you see or hear any frogs?
- Fall:** Frogs and toads are not very active in the late fall. But, mammals are active. Can you name one difference between mammals and amphibians?
- Winter:** Where are all the frogs and toads now? How do they survive winter?

Post 7: Raptor Snags



At one time hawks, eagles, and owls were shot as they were considered vermin. Today they are protected. All birds of prey, or raptors, have keen eyesight and sharp talons for grasping their catch. Soaring Red-tailed Hawks, and tiny falcons called American Kestrels have been sighted in the valley. Perhaps the tiger of the woods, the Great Horned Owl, hunts at night as well as the shy and diminutive Northern Saw-whet Owl.

Raptors often perch on dead trees or snags as they offer a clear, foliage-free view of the surrounding area. Between the trail and the creek to the north-west and to the south-west are two telephone poles put in place with the co-operation of Whitby Hydro to act as raptor snags. Hopefully, birds of prey will use them for successful hunting, and hopefully too, we might catch a look of these wonderful carnivorous birds.

Hey Kids!

- Spring:** Some hawks stay for the winter while others migrate north in the spring. Keep an eye out for dark, soaring Turkey Vultures that rock in the wind and large crooked winged Ospreys.
- Summer:** If you see a large soaring hawk it is probably a Red-tailed Hawk. One problem though, its tail is not really red but a rufous or brown colour.
- Fall:** Beginning in September, many hawks migrate south. It's tough to identify hawks in flight, but check out a bird book and see if you can tell the difference between a Sharp-shinned Hawk, a Broad-winged Hawk, and an American Kestrel. Happy hawking!
- Winter:** Red-tailed Hawks can be seen in the winter as can Rough-legged Hawks that come here from the arctic. Rough-legged Hawks are similar to their Red-tailed cousins but have a dark band at the end of a white tail and they can hover in one position.

Post 8: Long Term Monitoring

Scientific data is a useful thing and you too can be scientists and data collectors! An integral part of the Brooklin Lions Wilderness Trail is not only the completion of the trail itself, but the long term monitoring of the ecological health of the East Lynde valley. In regards to humans, trail management will ensure that human impact is kept to a minimum. Studies and surveys will be periodically conducted of the vegetation and wildlife, including birds, mammals, reptiles, amphibians, fish, and insects. Students from the ecosystem management program of Sir Sandford Fleming College have begun monitoring the water quality.



Are you interested in helping and learning more about nature? Frog Watch, a program organized by Adopt-a-Pond of the Toronto Zoo, will allow you to listen and report frog and toad calls. Your local naturalists clubs are excellent groups that can involve you in bird and butterfly counts. Contact the Federation of Ontario Naturalists, or more locally, the Durham Field Naturalists and the Pickering Field Naturalists.

Hey Kids!

- Spring:** You can help out with Frog Watch too! Ask your parents for their help.
- Summer:** Take a picture of your family in the same spot every season or every year. After a few years, look for changes, not only in your family, but in the natural world revealed by the photograph.
- Fall:** If you are keen, use a string to create a square metre (1 metre x 1 metre) anywhere beside the trail. Pick a spot you can easily identify year after year. Record or sketch your observations of the types of plants or insects found in your square metre. In a year's time return and do the same and note any changes. Remember not to leave the string there!
- Winter:** Get a field guide from the library and try to learn how to read animal tracks in the snow. It takes some practise. Keep a list from year to year of the tracks you have identified in the valley.

Post 9: The East Lynde Creek

The southern part of Durham Region contains the drainage basins of a number of creeks: Duffins and Carruthers in Pickering and Ajax, Oshawa and Harmony Creeks in Oshawa, and the Soper and Wilmot in Clarington. Whitby contains the two branches and mainstream of Lynde Creek. The stream you are walking beside is called the East Lynde Creek. Originating in the Oak Ridges Moraine eleven kilometres to the north-west, the East Lynde flows in a southerly direction to meet with the West Lynde just north of Highway 2. Lynde Creek continues south to the Lynde Shores Conservation Area beside Lake Ontario.

As you look at the creek during your walk, you may notice a number of physical characteristics. The East Lynde bends or meanders over the floodplain. The outside curve of these meanders tend to erode the bank while the inside of the bend deposits gravel, sand, and silt. In this way the creek can move over time creating oxbows and meander scars as it cuts a new course. You may also notice that the nature of the creek tends to periodically change as you head up or down stream. It alternates between fast flowing riffles and slower moving pools.

The creek, its floodplain, and the surrounding tablelands serve as an important north-south wildlife corridor in a part of Ontario becoming increasingly urbanized. Wildlife need to be able to move to different areas. In Durham, the valley lands offer the best opportunities for wildlife to remain connected with the natural areas on the north shore of Lake Ontario, along the old Lake Iroquois shoreline, the Oak Ridges Moraine, and the Kawarthas in the north-east. If wildlife is left in isolated pockets of habitat, each species' chances of survival in the long term is poor.

Hey Kids!

Spring: Never go near a creek unless you are with an adult. In the spring they flood and help deposit sand, silt, and clay in the valley. The plants love this new soil. Remember, that fast flowing water is very dangerous and can carry you away.

Summer: The creek is full of life. Can you name the different types of plants and animals that would live in or beside the creek?

Fall: The creek provides life for many of the animals nearby. What kinds of animals would come to the creek for a drink? You should not drink creek water. It's not safe for humans.

Winter: Remember, if the creek is frozen it's still not safe. Flowing water keeps creek ice especially thin. Stay off creek ice!

Post 10: Natural Communities

The part of the Earth where livings can be found has been classified as the *biosphere*. The biosphere includes the oceans, ice, freshwater, and land where life exists. For the sake of understanding, ecologists have labelled broad geographic regions with a characteristic climate and an associated biotic community as a *biome*. We live in a mixed forest transition area, or ecotone, between the boreal or coniferous forest biome to the north and the deciduous forest biome to the south. In these biomes are a number of natural *communities*. These communities contain the plants and animals that are well adapted to their environment.

Some of the communities seen from the Brooklin Lions Wilderness Trail include: Forests: upland deciduous, riparian (river), mixed, and deciduous and coniferous plantation; thicket; upland and riparian meadows; and marsh. Each of these communities contains populations and individuals of a wide variety of species that are listed in the soon to be developed, *Species Lists* section of this guide. The diversity of the species in the East Lynde valley is amazing. Biodiversity is a good thing. Ecology shows us the interrelationships among living things and between those living things and their non-living environment.

If there is one thing that we all should realize is that all living things, including humans, are physically interdependent on each other. That's why the protection of habitat, the maintenance of biodiversity, the linking of natural communities, and the reduction of pollutants and toxins should be a major part of our political, social, and economic decision-making.

Hey Kids!

The term ecosystem is a funny word. It can be used to describe the living and non-living parts of something as small as a drop of water, or something as large as an ocean. Ecosystems can be of any size. And all ecosystems are made up of living and non-living things that interact with each other.

How do you fit in with ecosystems? Well, you are alive; that's good. You eat plants and probably animals to get energy. You create waste when you go to the bathroom. You inhale air that contains oxygen and you release carbon dioxide when you exhale. And here's another way of looking at it. You are a unique individual human who is a part of the over 6 billion human population. You live in a community which includes human built towns and natural areas. You are living in what used to be a large mixed forest region made up of deciduous and coniferous trees. And you live on the surface of Earth with lots of other creatures, plants, fungi, and one-celled organisms. In short you are a part of ecosystems; we just forget it sometimes because we sometimes ignore nature. Think about it!

Post 11: Storm Water Pond

Remember the water cycle? Well, Brooklin's streets are a part of that cycle. Water that makes its way to the streets and the storm sewers heads directly to the East Lynde Creek. The creek travels down to Lake Ontario which is a part of the Great Lakes-St. Lawrence drainage basin that empties into the Atlantic Ocean via the Gulf of St. Lawrence. Don't forget the transpiration and evaporation along the way! In the past, storm sewers often led directly into our creeks and rivers. The East Lynde receives one such outflow at the south-west corner of the Brooklin Memorial Park. Some of that water is now diverted to a recently built storm water pond.



The pond is designed to receive storm water at the northerly or deep end and it outflows at its southerly or shallow end into the creek. This human built aquatic feature allows most sediments to precipitate into the pond thus minimizing the chance of silting the creek bottom. Occasionally the pond has to be dredged. The pond itself is habitat for sedges and cattails that are essential in trapping many pollutants enhancing the cleansing value of the pond. Some of the wildlife seen at the pond include Tree and Rough-winged Swallows, Green Herons, Belted Kingfishers, Green Frogs, various dragonflies, Red-bellied Dace, and water striders.

Hey Kids!

- Spring:** When the rain falls on your street, where does it go? Do you know about the water cycle?
- Summer:** The water in the storm water pond empties slowly into the East Lynde Creek which travels south to join the West Lynde Creek and continue south to a large body of water. Can you name that body of water?
- Fall:** Pioneers used to throw toxins and waste into the creeks because they thought it flushed away. Today we know it doesn't just flush away. Where does it go? Where do most people in the south of Durham Region get their drinking water?
- Winter:** Snow is a part of the water cycle, although when frozen it doesn't move very far. It eventually returns to the cycle two or three ways. Can you name two ways snow returns to the water cycle?

Post 12: Historical Changes

The one thing that is constant is change. In our hustle and bustle world it is easy to forget the changes that have occurred over time. Over the past two centuries, the East Lynde valley has changed a lot. Over 400 years ago this area was heavily forested. The First Nations peoples may not have encamped here but may have travelled and hunted the forests surrounding the valley. In turn, Huron, Iroquois, and Mississauga lived in close association with the land and its resources. In the 1600's Europeans began to arrive in what is now Ontario. As the French developed trading relationships and missionary connections, rivalries developed that changed the political nature of North America.

It wasn't until the early 1800's that considerable migration from the United States, the British Isles, and Europe changed significantly the landscape of southern Ontario. The pioneers came to the backwoods of Whitby Township and began clearing the land. The Town of Winchester sprung up to service the new economy and as that economy moved from subsistence pioneering to agricultural in the 1840's, Winchester became Brooklin in 1847 and grew into a community containing a lumber mill, a tannery, a cheese factory, and a number of grist mills.

As described on the nearby plaque to be erected soon by the Local Architectural Conservation Advisory Committee, the East Lynde valley contained agricultural land and an earthen dam that created a large mill pond that was used to power the Kent Mills located just to the south. By the 1930's Kent Mills was no longer used and was demolished around 1960. Agricultural use of the valley stopped around 1970. Further changes can be expected. Residential development may continue on both the west and east sides of the valley and Highway 407 is to be built just south of the trail. Ever wonder what the next 40 years will bring?

Hey Kids!

Close your eyes and use your imagination. Let's go back in time in our minds.

Let's go back over 200 years. You would now be standing in a large dark forest. It would be shaded and darker. Native people might travel by on a hunting party. Now let's go back 190 years. The pioneers have arrived and started to clear the forests to plant their crops and orchards, and to make lumber for building and wood ash for soap. They would be living in their shanties or log cabins.

Let's go back 160 years. Some of the pioneers have become farmers and they are able to grow crops to be milled and sold in Brooklin. You might be wet right now as there is mill pond near by. The water is used to power the mill. Over the next 150 years things in the valley do not change too much but you notice air planes overhead and the sound of cars replacing horses. There are stories of wars far away and with the dam broken the mill pond empties.

Now let's go back 10 years. Brooklin has changed a lot since its agricultural days. There are less mills and businesses but there are more houses being built. A storm water pond has been made to settle the sediment from the street sewers before entering East Lynde Creek. The valley is no longer used for farming.

And now we arrive at today! A new trail winds through the valley and people can come and enjoy what the Brooklin Lions Wilderness Trail has to offer. Now think ahead. What will it be like here ten years from now?