

ECOLOGY CLASS



GREENPORT HIGH SCHOOL

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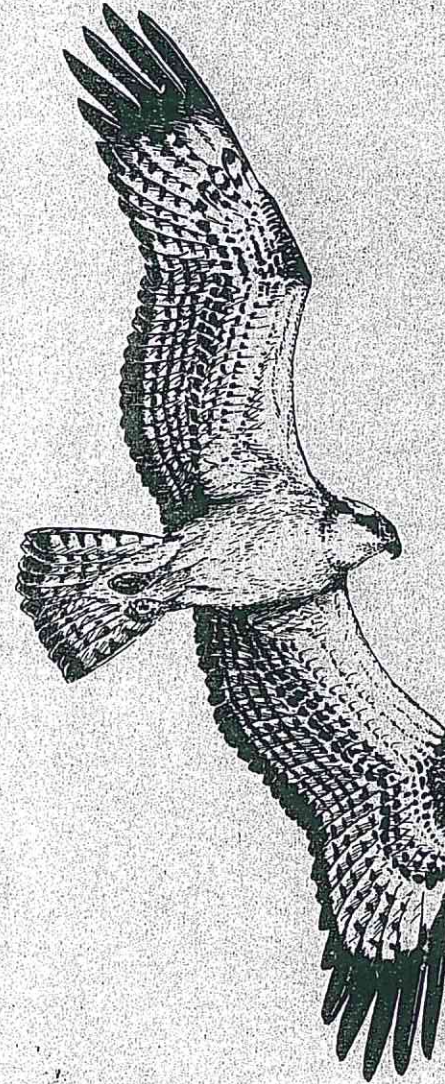
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# Greenport Nature Study Area



*Tracé*

*A project of the Ecology and Earth Science students of Greenport High School, 1971-1972, this guide to Moore's Woods is dedicated to the Greenport Village Board for their foresight and wisdom in keeping this unique area in its natural state as a living sanctuary for this generation and those to come.*



## Introduction

Welcome to the Greenport Nature Study Area. You are about to explore one of Nature's most charming hideaways on Eastern Long Island. The cool and dimly lit green forest of Moore's Woods offers a pleasant change from the more vivid sand, sun and sea. This trail takes you into the woods easily and safely.

There is little reason to step off the trail. Remember, that by so doing, you will trample and kill plants and spoil the appearance of the forest for others to enjoy. Carriages and baby strollers will find much of the trail impassable and dogs are to be kept on leashes. Trail bikes and motor cycles are strictly forbidden. The numerous rest areas are meant for relaxing and observing. Camping is not allowed, litter barrels are placed at the end of the trail.

The three trails, all converging at the main bridge site have a combined distance of about 1½ miles and should take approximately 1 hour to walk. The entire Nature Study Area was designed, cut, cleared and constructed by the Ecology and Earth Science students of Greenport High School and marks the climax of a 1 year work-study project. The 60 foot bridge over the main drainage ditch, the 420 feet of boardwalks, 48 trail posts and 12 rough cut log benches were all constructed during the 1971-72 school year. The 800 white pine seedlings around the parking area were planted in the spring of 1972 and will start a long range reforestation and woodlot management program to be followed by other classes.

Special thanks should be given to the Greenport Village Board not only for permission to use this area but also for their contribution of construction materials and tools. The North Fork Chapter of National Audubon has financially supported the initial publication of this booklet.

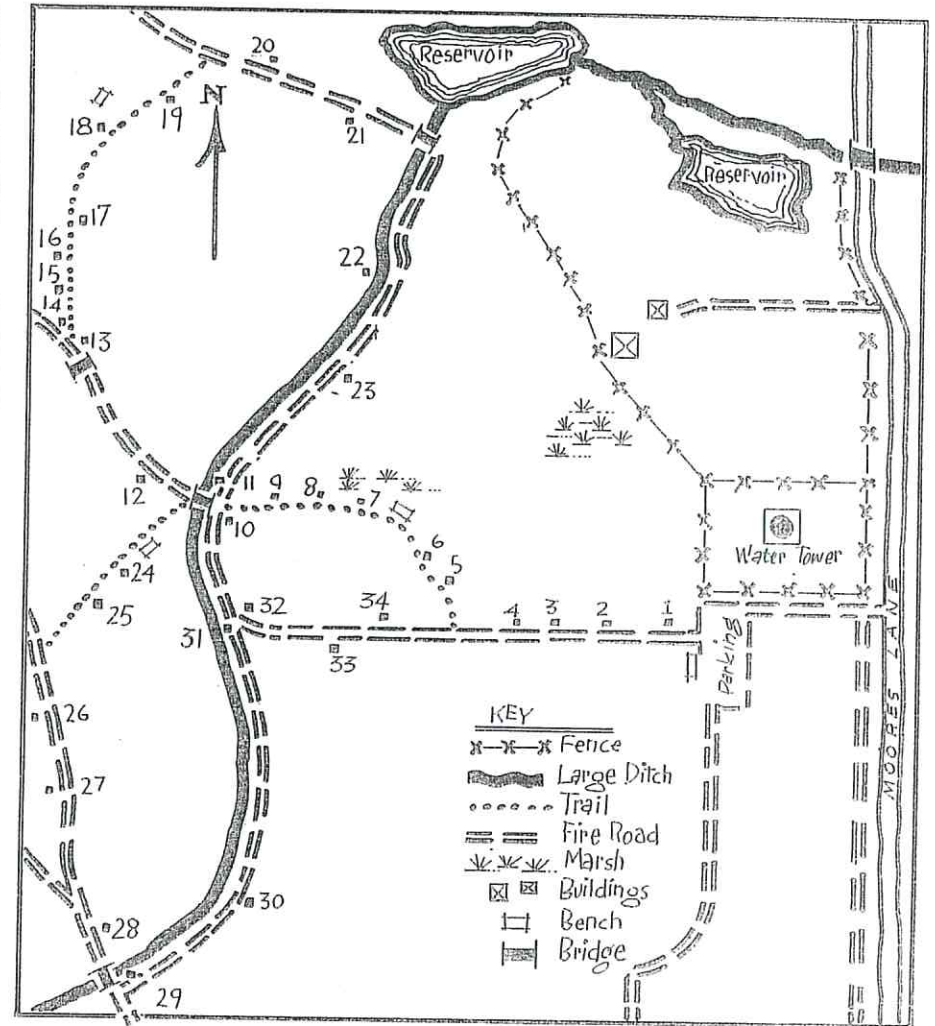
The Interact Club of Greenport Chapter of Rotary purchased materials for the large sign on Moore's Lane and the Junior Order of United American Mechanics, Greenport Empire Council No. 128 and many local businessmen and citizens have financially supported the summer work program.

Many individuals have given freely of their time and energies to help make this program a success. Mr. Richard Manwaring - Project Chairman and Asst. Principal of G.H.S. handled our administrative affairs; Mr. James Monsell - Supt. of Public Utilities, Village of Greenport, helped with mapping, technical advice and historical documents; Mr. Pat Crosland - Chief Ranger Naturalist, Fire Island National Seashore assisted in laying out the trails; Mr. Paul Stoutenburgh - Naturalist and Industrial Arts Chairman G.H.S., for wildlife counseling, technical guidance and use of shop equipment; Miss Barbara Metassa - Art Teacher, G.H.S., for art supplies and sign painting; Mr. Judd Bennett - Naturalist and Advisor for identification help from numerous printed guides and personal manuscripts; Mr. Sam Copin - Fleet Lumber Co. for construction advice; Mr. Archie Harroun - Chief Custodian G.H.S., for use of school tools and truck for without them, this project could never have been completed.

Special thanks go to Mrs. William Dove - President of the North Fork Chapter of the National Audubon Society for many hours of work and research in helping to prepare this guide.

Above all congratulations to the students of G.H.S. who worked so well to ready this area for public enjoyment and education. I hope you will have a feeling of accomplishment and pride in the job you have done.

Charles R. Jantzen, Project Director  
Instructor of Ecology and Earth Science  
Greenport High School



The routed numbers on the trail signs correspond to the numbered descriptions in this trail guide. The numbers progress in sequence along the three trails. At the completion of the second trail it is necessary to recross the main bridge to pick-up the third trail. The three trails are color coded.

Trail 1 - Yellow  
Trail 2 - Green  
Trail 3 - Blue



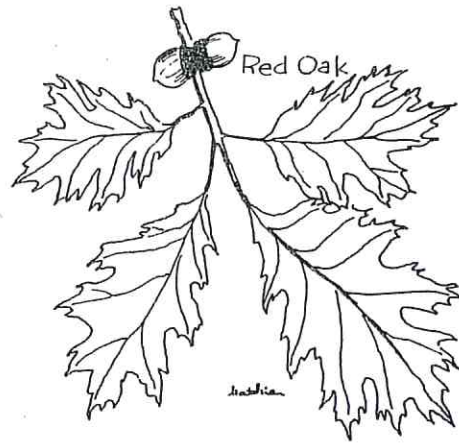
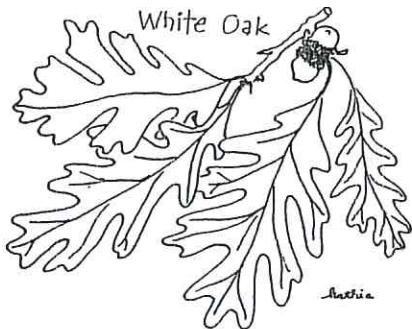
## 1. History of Moore's Woods

Moore's Woods was given to the Moore family in 1640 by a grant from King James, and thus, got its name. Around 1870, Mr. William Moore decided to drain Silver Lake, as around this time Moore's Woods and the surrounding area was a dismal swamp, and a great insect problem. He hired laborers from New York City to dig ditches to drain Silver Lake therefore drying up the woods and relieving the insect problem. Unknown to him, Silver Lake is spring fed, and is impossible to drain. This attempt was known as Moore's Folly.

This 200 acre parcel of land is today owned by the Greenport Water Authority, and is used as a water shed. In 1971 the Greenport High School Ecology class was given permission to use the woods and develop it as a nature study area.

## 2. The Young Oak Forest

The predominant trees in this part of the forest represent a relatively young stand of oaks. There are two major families, both found in this area. Those members of the black oak family may be distinguished by glossy leaves with deep lobes and bristle tips. In the white oak family



the lobes of the leaves are rounded and the bark is a light ash-gray color with scaly plates. Oak trees made a valuable contribution to the early Greenport economy, being used for home construction, fences, grist mills, churches and schools. A large portion had been turned into sea-going craft from which a major industry developed.

### Moore's Woods Oak Species

#### Black Oak Family

*Black Oak-Quercus velutina*

*Red Oak-Quercus rubra*

*Pin Oak-Quercus palustris*

#### White Oak Family

*White Oak-Quercus alba*

*Chestnut Oak-Quercus prinus*

## 3. Understory

In this part of the forest, the shrubs and lower vegetation are more luxuriant than that found in the older part of Moore's Woods, a little farther down the trail. This is because the upper branches of the younger trees have not yet developed a thick canopy of bran-

ches and leaves, and thus allow sunlight to reach the forest floor and promote understory growth.

The dominant shrubs here are the maple leaf vibernum (*Vibernum acerifolium*) with typical maple-like leaves, and the toothed vibernum (*Vibernum dentatum*), whose leaves are described by its name. Both bear fruit valuable for game and wildlife.

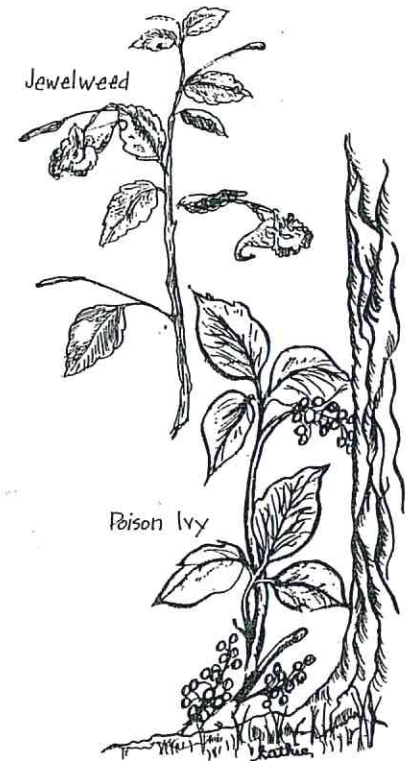
The most common vine found in this area is the Japanese Honeysuckle (*Lonicera japonica*). This is an introduced species, not native to this country, that is now well established.

Scattered among the vibernums and honeysuckles is another shrub with slender leaves and grayish branches covered in early spring by dense clusters of small, fuzzy, yellow flowers. The stems, leaves and flowers of this plant are very aromatic, giving it its common name, Spice bush (*Lindera benzoin*). It can be used to make a very fragrant tea and the new bark is pleasant to chew. The berries, dried and powdered, have been used as a substitute for spices. It's sweet scented, trumpet shaped yellow and white flowers provide the favorite nectar of honeybees.

## 4. Poison Ivy - *Rhus radicans*

Twisting around the oak trees (red and white) on both sides of the trail like a brown, hairy snake is poison ivy, a common, and therefore successful, plant in Moore's Woods. Usually poison ivy grows as a shrub, but here it reaches for energy-giving sunlight by climbing trees. In any shape, poison ivy can be identified by the three shiny leaflets making

up each leaf. All parts of the plant can cause an allergic skin eruption



on most humans but not on animals. In fact, some birds eat the berries.

During the spring and summer seasons, nature provides her own antidote for the poison ivy just described. Growing on either side of the trail you will find a 2-5 ft. high plant with small orange and yellow trumpet shaped flowers. The stems and leaves are very succulent and this juice, when applied to the affected skin area, will relieve and prevent poison ivy irritation. The ripe seed pods (early fall) explode when touched, to release and disperse the seeds—perhaps this is the reason for its common name—touch-me-not (*Jewelweed, impatiens biflora*).



## 5. Canker Gall

Canker galls are odd looking swellings or deformities that may occur on a plant in such places as the buds, leaves, flowers, twigs, and under the bark. Even the roots are affected. They are caused by a wide variety of organisms, insects, mites, nematodes, fungi, and bacteria. The gall develops when an insect "gall maker" lays her eggs on a chosen species of plant and injects an irritant which initiates gall formation. After the right amount of time has elapsed, the egg hatches into a little larva which continues development of the gall by releasing its own irritating secretion. An example of this type of growth can be found on the red oak tree, approximately 20 ft. east of this trail marker.

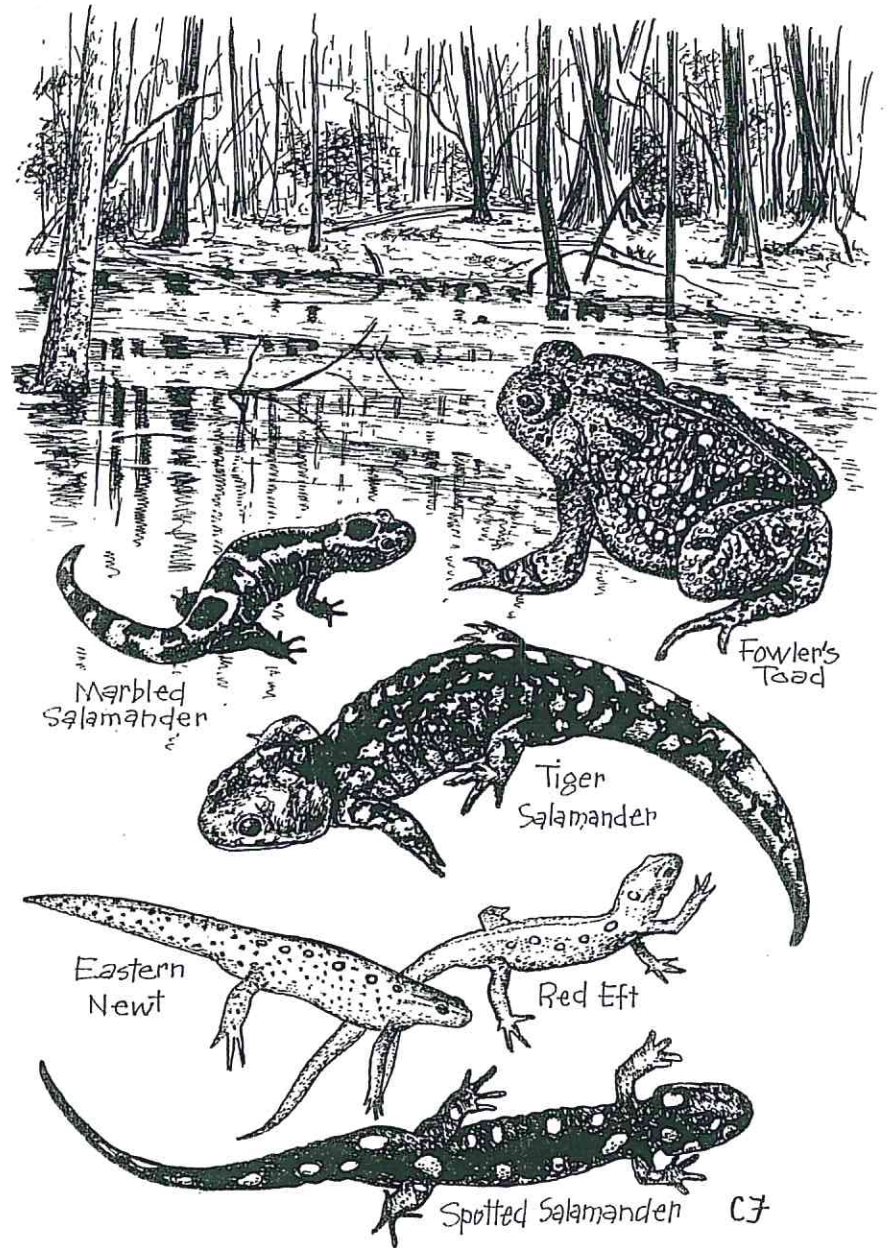


## 6. Vernal Pond

Vernal ponds are shallow depressions in the land left during the last glacial period. Underlying deposits of clay and humus temporarily enable the pond to hold water from winter run-offs and spring rains, thus explaining the name vernal which means spring.

An unspoiled vernal pond in the springtime is a very beautiful natural pond to be cherished for its aesthetic values. It is the crossroads for many of nature's creatures. Often as summer progresses, it is a major source of fresh water for birds and animals. Water loving, flowering plants, shrubs, and trees form a ring around the pond quite different from the types of flora found in dryer areas. The Red or Swamp maple (*Acer rubrum*), spice bush (*Lindera benzoin*), liverworts, and sphagnum moss are all examples of moisture loving plants found in this wet area. Sphagnum moss is capable of retaining tremendous amounts of water over long periods of time providing necessary moisture for plants and animals that would otherwise perish during times of drought.

These vernal ponds are favored as breeding areas for many amphibians (animals which spend most of their lives on dry land but must return to the water to breed and lay their eggs). Examples found here are salamanders which migrate to these vernal ponds in very early spring. They can be seen more often at night when they are most energetic. After the eggs hatch, the salamanders' larva have gills and quickly develop legs. The young in



their land form, may easily be found by overturning decayed logs and leaves. An example of this stage is represented by the red eft, which will develop into its adult form, called the Eastern Newt.

As adults, salamanders assume

characteristic markings such as the bright yellow stripes of the tiger salamander (*Ambystoma tigrinum*).

The spotted salamander (*Ambystoma maculatum*) is black with yellow spots and the marbled



salamander (*Ambystoma opacum*) is smaller, black with white barrings.

Fowler's Toad (*Bufo woodhousei fowleri*) with its hoarse, trilling voice, the wood frog (*Rana sylvatica*) recognized by its characteristic black mask, and the spring peeper (*Hyla crucifer*) whose piping song heralds the start of spring, are all examples of amphibians who must return to ponds such as this to reproduce.

The immature stages of these animals, called tadpoles, are perhaps more familiar to us.



The vernal pond also abounds in insect life whose larval forms are food for amphibians. Certain species found here include mosquitoes, mayflies, dragonflies (which also feed on other insects) and water striders.

Although these ponds might look like stagnant puddles in late summer, ideal spots to dump old tires, boilers, and trash, or to be dredged to obtain their rich humus, they are in reality a complete world of plant and animal life that forms a necessary part of the woodland environment.

## 7. Lichens

Lichens are flowerless plants that grow on bare rocks, tree limbs, and stumps. They may be found from

Antarctica to the tropics, growing on beaches as well as mountain tops. Scientists have classified over 15,000 kinds of lichens. The plants may be gray, yellow, brown, green, blue, or black. Each lichen consists of an alga and a fungus that live together in a mutually beneficial relationship known as symbiosis. The green alga produces food for the fungus which absorbs and stores the water.

Lichens have no roots, stems or leaves. They consist of layers of irregularly shaped extensions called thalli and according to the form of these structures are classified into

three groups. Foliose lichens resemble leaves and are attached only in spots with their margins often lobed and free.

Crustose lichens grow flat on rocks or tree trunks and may be embedded into them.

Fruticose lichens look like moss or tiny shrubs and may be found on trees or barren ground.

These "pioneer plants" usually grow where other plants do not compete, aiding in the weathering process by producing acids and breaking down rocks to soil. They are among the slowest growing plants in the world, taking approximately 50 years to add 1 inch in radius.

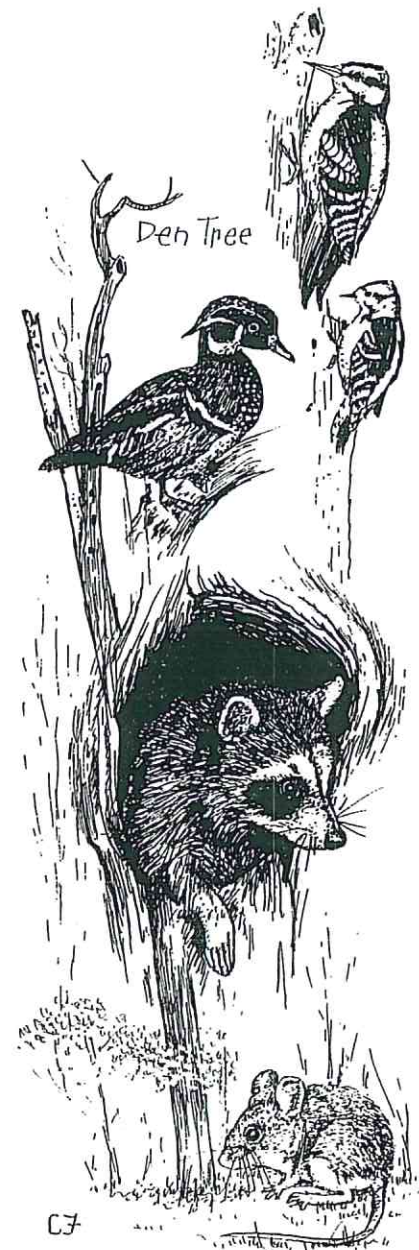
The presence of lichens indicates pure air. Near large cities and in-

dustrial sites lichens are noticeably absent. They will not grow in polluted conditions.

## 8. Den Tree

Dead trees are considered by most people to be good for nothing but firewood, but in reality they harbor a whole community of animal life. Starting at the base of the tree such small rodents as field mice and white-footed mice may occupy small openings and crevices. A number of animals inhabit holes part way up the tree such as raccoons and opossums. Perhaps the most numerous denizens of the hollow tree are the birds, such as hairy and downy woodpeckers, white-breasted nuthatches, chickadees, flickers, wood ducks, and starlings. Birds nesting in the holes of trees are able to start nesting at an earlier date and many have white, unmottled eggs. These eggs are well protected from predators such as crows, and blue jays and therefore need no camouflage. The greatest menace to these hole nesting birds is the starling; an introduced species with no natural predators whose population has exploded. It is an aggressive, hardy bird which fiercely competes with native species for nesting sites, often driving them out.

These dead trees are also a rich source of food for many insect eating birds and animals. The branches are often used by large birds of prey such as hawks and owls for butchering their prey. They habitually return to the same site, indicated by the remnants of their kills beneath the tree. When feeding young, these



"butcher trees" are used so the nest site will not be revealed.

## 9. The Life of a Dead Tree

Whether upright or lying on the forest floor, the trunk of a dead tree is home for a variety of life forms.



The decaying process may be summarized in four stages.

Stage 1. The tree is dead. Bark loosens and begins to fall. Insect larvae, millipedes have found refuge under the bark while fungi of various species grow on the damp wood.

Stage 2. The tree falls. Most of the bark is gone allowing more fungi to enter. Fungi-eating beetles are present and moss and mushrooms appear in increasing quantity. Salamanders and "pill" bugs are among the animals that find shelter in the log. Rain and melting snows enter the insect holes, speeding decay.

Stage 3. The log starts to break up. The outer wood has rotted and fallen off, leaving a slowly decaying cylinder of wood. This is still the home of many insects and small vertebrates. Mosses and ferns are more common and some herbaceous plants and young trees find root holds on the old log.

Stage 4. The tree has returned to the soil. The action of decay and weather has broken down the fibers leaving a moss covered mound. Tree roots that had started on the log, straddle the mound. A few insects and spiders remain but most are gone.

Located on both sides of the trail in this area, you can find trees in each of the stages of decay.

#### 10. Glacial Boulder

The last glacial period that formed Long Island ended only about 11,000 years ago but evidence of its activity can readily be seen today. The steep north bank of Long Island Sound marks the farthest advance of the

last great continental ice sheet in this area. As the glacier melted and receded, rocks that had been picked up and carried from New England, were deposited. This unstratified glacial till (a mixture of different sizes and types of rocks), forms the substrata of Long Island. Large blocks of ice, broken from the mile high glacial front, were carried by the melt waters of the glacier. These large blocks later melted leaving depressions in the deposited till. Silver Lake in Greenport and Lake Maratooka in Mattituck are good examples of these kettle hole lakes. As the wave action and forces of erosion wore away the bank on the Sound side, many of these large glacially transported boulders were left exposed and can be easily seen today. The southern portion of Long Island is much lower in elevation and the particle size of its sediments are much smaller. This is part of the outwash plane and was formed from only the smallest particles that were carried the farthest distance by the melt waters of the terminal moraine. This is one reason we only find glacial boulders on the north side of the North Fork.

#### 11. Bridge Site

This bridge was built in the fall of 1971 by the Greenport High School Ecology class and marks the junction of the three nature trails. Approximately 50 feet in length, it consists of 12 poles imbedded 4 feet into compacted Gardiner's Island clay which made digging very difficult. We used approximately 700 board feet of lumber, donated by the Village of Greenport, for the beams,

braces, railing and cross treads.

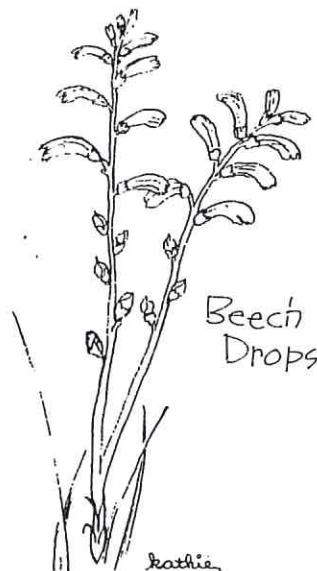
The impervious Gardiner's Island clay, which underlies this part of the woods, refuses to allow water to pass through it, causing wet, swampy areas. Indications of this slippery, yellow clay can be seen along the banks of the drainage ditch below.

In years past, this clay was used for making bricks in the Greenport area. An indication of these numerous brick factories can be seen today, by the presence of many tall smoke stacks along the shoreline of Peconic Bay.

Located on the west side of the bridge is a large red oak tree. Increment borings have determined it to be about 140 years old.

#### 12. A Parasitic Plant

Parasites are organisms which obtain their food directly from the living bodies of other organisms. An example of a parasitic plant can be seen growing under the beech trees



found in this area. Pale brown, multi branched small plants with many inconspicuous brown flowers, they are called beech-drops (*Epifagus virginiana*). They draw their sustenance from the roots of the beech tree (*Fagus grandifolia*) and flower from August to October. A few of the upper open flowers are cross pollinated by bees while the lower closed flowers are self-fertilized.

#### 13. Black Birch (*Betula lenta*)

Watch your step. I bleed very easily! This stump that you're about to climb through, is a living black birch tree. The bark is similar to that of the cherry tree and its wood is highly prized in the manufacture of furniture.

Oil of wintergreen is distilled from the wood. This strong aromatic flavor can be readily detected by chewing on a twig. Try it, you'll like it! Birch beer can also be made by fermenting the sap.

#### 14. Ferns

Ferns are one of the most ancient types of vegetation, relating back to the prehistoric ages. In this time ferns grew as tall as trees. When they died and decomposed, they formed peat bogs, which have eventually become our present day source of coal.

On Long Island, most of our ferns are of the acid-loving species, and about 35 species may be found. The following are some of those commonly found along these trails. To aid in their identification it is helpful to understand the following terms: Pinnate - The frond (leaf) has one



main stem with the leaflets coming off of it.

**Bipinnate** - The frond has one main stem with smaller stems branching off of it, from which grow the leaflets.

**Tripinnate** - The same as bipinnate, except that the leaflets are lobed or cut.

Fern leaves vary in size and shape according to species. The fertile leaves bear the spores for reproduction on their undersides, or sometimes on separate stems or leaves. Often the fertile leaves differ in appearance from the sterile leaves of the same plant.

**Lady Fern** (*Athyrium Filix-femina*) - The fronds are tripinnate or lacy-cut, growing to a height of 1-3 feet. They uncurl in May in moist woods and along roadsides. They grow in circular clusters and have smooth stalks with a few pale scales.

**Bracken** (*Pteridium aquilinum*) - This fern is 1-2 feet tall and is our commonest fern. It grows in a variety of habitats, favoring dry, sunny areas. The fronds are coarse, three-branched and bipinnate.

**New York Fern** (*Thelypteris novaboracensis*) - The pale green color of this fern helps to identify it. The fronds are bipinnate and the leaflets are alternate, with narrow lobes not cut to the midrib. A New Englander said that New Yorkers were very active and therefore "burned the candle at both ends". Since the fern is tapered at both ends, he compared it to the candle and gave it its name.

**Royal Fern** (*Osmunda regalis*) - This is a large fern which grows to a

height of 6 feet or more. The leaves are bipinnate, with oblong, stemmed leaflets, opposite and widely spaced. The fertile fronds bear light brown, spore-bearing leaflets at the tips.

**Cinnamon Fern** (*Osmunda cinnamomea*) - These are large ferns, reaching 5 feet or more, and grow in wet places. They grow in clusters with the sterile fronds surrounding the fertile leaves. The stems are covered with rusty, wool-like material which humming birds use for their nests.

**Spinulose Woodfern** (*Dryopteris spinulosa*) - Two or more varieties of this species are found here, but they are variable and difficult to separate. They are tripinnate, or lacy-cut, usually evergreen, with prominent brown scales on the leaf stalks. They are one of our most beautiful ferns.

**Sensitive Fern** (*Onoclea sensibilis*) - One of our most common species, the Sensitive fern grows in damp or wet places, in sun or shade. The leaves are pinnate, have long stalks with coarsely lobed, leathery leaflets. The fertile fronds are separate, bearing numerous, small bead-like leaflets which become dark brown when mature. The sterile leaves wither at the first touch of frost, but the fertile fronds persist all winter.

**Netted Chain Fern** (*Woodwardia areolata*) - The fronds are deeply pinnatifid, with the taller fertile fronds surrounded by the sterile leaves. The sterile leaflets are sharp pointed, with wavy fine-toothed margins, winged at the main stem.

#### 15. Forest Succession

In this area you can see the

remains of a stand of gray-birch (*Betula populifolia*). These are the common native "white" birch of Long Island and are small trees with dull grayish-white bark with bright orange inner bark. The gray birch is one of the first trees to invade open areas and requires full sun. Seedlings require a great amount of sunlight and are thus unable to grow in the shade of their parents. They will be quickly replaced by more shade tolerant species, such as maple and tulip. Final climax conditions will be achieved only by species which can reproduce their kind in environmental conditions which they themselves create. The governing factor here is tolerance of shade. Beech and oak represent the climax species in this area.

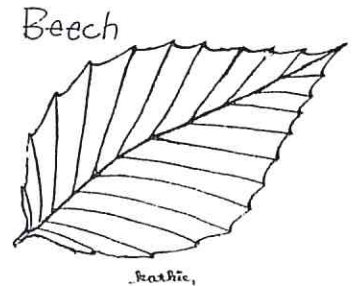
#### 16. Effect of Logging and Drainage

Numerous trees along this trail seem to have more than one trunk, some having as many as seven, separating at about a foot above the ground. A suspected reason for this is that stumps remaining after the past logging operations in Moore's Woods may sprout more than one trunk.

Some of the present day trees have partially exposed roots. Before Moore's Woods was drained in the 1870's, these roots were covered with loose, swampy, soil. Drainage caused the soil to dry and settle to its present level, exposing the roots' structure.

#### 17. Beech Tree

Behind you on the west side of the trail, stands a real "ole timer." Beech trees (*Fagus grandifolia*),



are one of the climax trees of this area. This particular one has been aged to be 150 years old and represents the oldest tree in Moore's Woods. Of relatively slow growth, it may attain ages of 300 to 400 years, but is subject to several injurious insects and fungi. The thin bark makes it an easy victim to ground fires and wood carvers. Its wood is light red in color, heavy, hard, strong and difficult to split; and is used for chairs, furniture, flooring, railroad ties, handles and because of its clean odor, for food barrels and boxes.

#### 18. A Mature Forest

Compare the scarcity of understorey and large trunk diameter of the trees in this part of the woods with those observed at the beginning of the trail. These trees have been aged to be about 50 years older than the former. Their mature branches create a dense canopy which limits the amount of sunlight reaching the forest floor. This is typical of a climax condition. Shade tolerant species can produce progeny in their own shade, and can therefore perpetuate themselves indefinitely as a stable plant community. Beech, oak and mountain laurel would represent climax conditions for this area.

#### 19. Mountain Laurel

Along this section of the trail you



will notice a change in the character of the understory. The stout shrubs with shiny broad evergreen leaves are mountain laurel. A member of the Heath family (*kalmia latifolia*), it thrives in the peaty, acid soil common in this part of the woods. The soil acidity, is maintained by the decay of oak, laurel and other leaves of this acid loving plant community.

In June the laurel's pale pink flowers are borne in large dome shaped clusters, similar to those of their cousin the rhododendron. The individual flower has a unique mechanism for insuring its reproduction. The pollen bearing heads of the stamen are tucked into pouches in the petal walls. The filaments (stems), held under tension, snap inward at the touch of a bee or moth, throwing pollen in all directions. Some of this material clings to the insects' body and is thus carried to the next flower insuring cross pollination. When the laurel is in bloom, a light touch of your finger against the petals of the flower will reveal this process.

## 20. Catbriers

These straggling green vines with thorny stems and round shiny leaves are indicative of disturbed conditions on the forest edge. Catbriers are another pioneer "sun loving" species and represent a transitional zone between the woods and the open fields. The density of catbrier here is not as great as that to be found on the east side of Moore's Lane because here the village has arrested the encroachment of this sun loving plant by seasonally maintaining fire trails.

The young tender shoots of the catbrier are edible and can be chopped up in salad or used as a cooked vegetable. The catbrier produces dark blue berries which provide a winter food for wildlife and the dense tangle offers good protection for many different bird species. Catbirds often build their nests here.

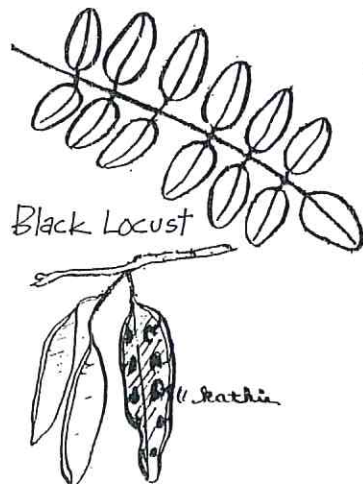
## 21. Junk Truck

Moore's Woods had been used for years as an open dumping area. This old truck is a typical example of what these trails looked like before they were cleaned up. The students involved with the project removed about 25 truck loads of junk from this nature study area.

## 22. Black Locust

The Black Locust (*Robinia pseudoacacia*), belongs to the pea or legume family, and has the ability to add nitrogen to the soil. It is not native to this country but has been successfully planted in every state. It grows well along streams, in mountain coves or on the borders of forests.

Trees may attain a height of 40 to 80 feet with trunk diameters of 2 to 4



feet, but seldom live over 100 years. Black locust is supreme for use as insulator pins on telephone poles. During pioneering days locust was used for the hubs of wagon wheels, to pin ship timbers together. Today it is used for fence posts, mine timbers, poles and tool handles.

Oddly enough, - and this is one of nature's contrasts - trees with the most delicate and lacy foliage, like the locust and willow, have the coarsest barks.

## 23. Water Testing Station

At this location, and at two other spots on the main stream, the water was tested for the presence of coliform bacteria. This organism (*e. coli*) indicates the presence of sewage and this stream was chosen because it is an outlet of the treatment plant about 150 yards east of this location. Surprisingly enough, the water coming from the plant was cleaner than the water in the main stream. The highest pollution levels were found at the bridge site and slowly dispersed as the stream continued to its outlet at Pipes Neck Cove.

The dark brown color of the stream water is not necessarily an indication of pollution. The color is caused by the tannic acid produced by the decay of oak leaves, and will simply taste like a weak tea if consumed. (Please don't).

You will notice an increased algae growth about 200 yards downstream from the bridge. Algae indicates a high oxygen content of the water and is related to a high phosphate and nitrate content. Since phosphate detergents have now been banned from the market, perhaps we might

see a decrease in this green slimy growth.

Recross bridge to stop 24.

## 24. Tree-on-a-tree

This uprooted beech tree was toppled by the hurricane of 1938. This has been ascertained by increment borings made on the upright shoots from the original tree. The tree continued to support this sucker growth because its roots were not completely severed. The borings indicated that these shoots were 35 years old. The injured sections on the old tree trunk have since healed and collect rain, making them natural bird baths and watering troughs.

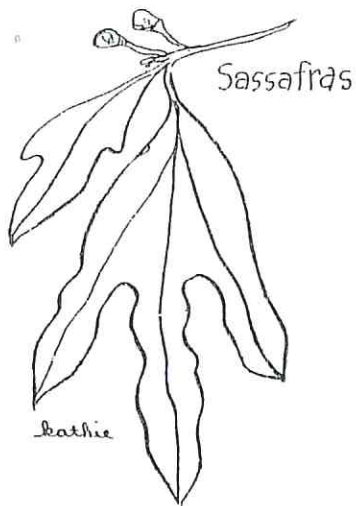
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The sassafras tree is easily recognized by its three distinctly different leaf shapes..and its heavily ridged and cross-cut bark.

Aromatic leaves, bark, twigs and roots yield oils used to scent soaps and liniments. Sassafras tea, a "spring Tonic", of bygone years is made by boiling roots or bark. The crushed leaves yield a pleasant spicy fragrance. Try working a leaf between your fingers and smelling





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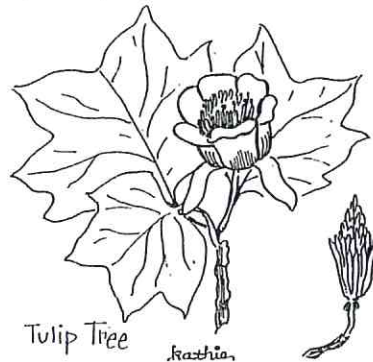
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and throat during the fall migrations.

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A tall, straight forest tree with gray-brown, ridged and furrowed bark, the tulip tree has long been used as a source of lumber for interior finishings. About 55 million years ago (at the close of the Cretaceous Period) the tulip tree was among the first plants to develop an enclosed seed, giving rise to today's modern plant form; the angiosperm.

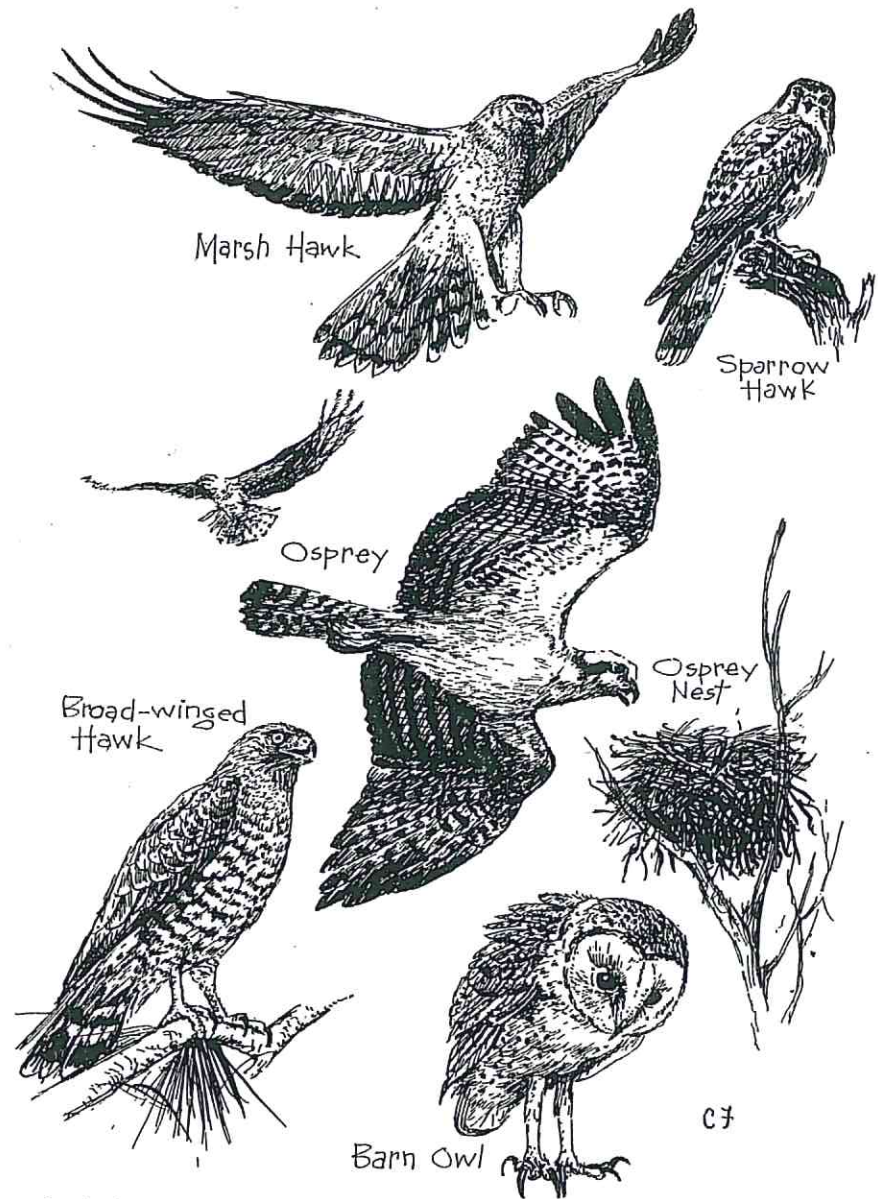
It bears tulip-shaped yellowish green flowers. The fruit is a cone-like collection of winged seeds which provide winter food for birds, squirrels, and other small rodents.



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## 28. Hawks and Owls

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ecological importance, local government is no longer paying bounties for these birds. Hawks and owls are one of nature's ways of keeping mice, rats, moles, shrews, and other vermin in check. It is only when vermin populations are at a minimum, that these birds resort to killing other small birds and animals.

Owls are basically a nocturnal animal, rarely seen in the daytime unless frightened away from their roost. The best way to locate an owl's tree is to examine the ground looking for pellets. These are the bones, skull, and fur, undigestible remains of the owl's prey, which are ejected from the mouth after feeding.



A hollow tree is a good place to find the screech owl (*Otus asio*). This owl is probably the most common in Moore's Woods and stands only about 8 inches tall, with a wing span of approximately 22 inches. Its color may be rusty brown or gray. The best time for owl sightings is usually just before sundown or just before sun rise.

If you wander through the pine forest, located at the northeast corner of the sanctuary there is a possibility of finding two more owls. The Long-Eared Owl (*Asio otus wilsonianus*) and Barn Owl (*Tyto alba*) may be found roosting among the trees during the winter. These owls may be seen leaving the coniferous stand at dusk to feed in the open fields across the road. The Great Horned (*Bubo virginianus*) and Saw-Whet (*Aegolius acadica acadica*) are occasional visitors to the sanctuary.

Most hawks are hunters of open country and fallow fields. The species seen locally will vary throughout the seasons of the year. Rough-Legged Hawks (*Buteo lagopus s. johannis*) may be seen in the winter. Red-Tailed (*Buteo jamaicensis*), Marsh (*Circus cyaneus hudsonius*) and sparrow (*Falco sparverius*) hawks may be seen throughout the year. The Broad-Winged (*Buteo platypterus*) and the Osprey (*Pandion halioetus*) are summer residents.

The Osprey and Broad-winged hawks are known nesters in these woods. Northeast of Pell's Garage on the main road, an osprey (fish hawk) nest is quite easily seen. A broad-winged hawk's nest may be

found in the Queen Street area where you are presently located.

This is one of the few remaining active nests on Long Island. Man's unrestricted use of pesticides and insecticides has induced sterility within the males and created a weakened shell condition of the eggs thus greatly reducing the reproduction capability of the species.

### 29. Historic Site

The stone bridge you have just crossed, was built during the 1860's when the drainage ditch was constructed. Even though this bridge is over one-hundred years old it is almost perfectly preserved. The bricks were made locally as indicated by the label "Sage" and represent an important industry of by-gone days in the Greenport area.

Centuries ago, Queen's Lane, the road over the bridge, was the major north, south artery of traffic. The lane joined with the north road, which was then called King's Highway, which traveled east along its present course, turned into Greenport around the traffic circle, south to the Presbyterian Church, east to Sterling Harbor, (then called Winter Harbor) and terminated at the Booth House. Queen's Lane was one of the earliest roads on the east end and has been continually used since the 1600's.

### 30. Saprophytic Plants

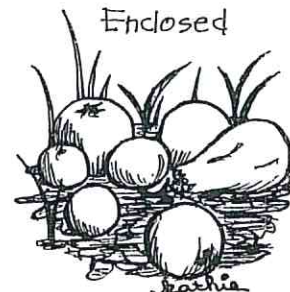
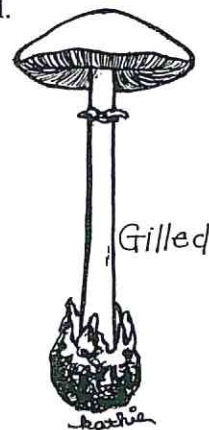
Saprophytes are those plants that break down the complex products of dead green plants. They obtain their food from the dead bodies or waste products of living organisms, or from other non-living organic materials.

Mushrooms are the most typical saprophytic plant found in Moore's Woods. They are non-flowering plants that reproduce by spores instead of seeds and are included in a large group of plants classified as fungi. Three of the common types to be found are 1. those which produce spores from pores 2. those whose spore bearing surface is gilled and 3. those whose spores are totally enclosed within the tissues of the plant.

A good example of a pore fungus is to be found on this dead log behind



this trail marker. This is a bracket or shelf fungus called turkey tail (*Polystictus versicolor*). On the under surface of this fungus one may observe the typical spore-producing pores. Mushrooms are among the most important agents in the process of reducing dead organic material to soil.



There are many species of gilled mushrooms to be found throughout the seasons of the year. Those which grow from a cup and have some remnants of a veil are probably of the *Amanita* family, most deadly poisonous of all.

There are a number of edible species of gilled mushrooms, however great caution must be exercised in certain identification of the species before eating them.

On the underside of this log may be seen a number of small white spheres called Puffballs. They range in size from that of a cherry to a half bushel basket and some are even larger. When the mushroom is ripe, it becomes dry and upon contact, releases clouds of dust which are the reproductive bodies called spores. Puffballs are the safest of all fungi for the beginner to eat since none of them are poisonous. If they are white and firm inside, they are fit to be eaten.

### 31. Birds of Moore's Woods

The birdlife of Moore's Woods is abundant and diverse. Reference to a number of species has already been made throughout this guide.

During the Spring and Fall, large numbers of migratory birds stop here for food and shelter on their way to and from their breeding grounds. Perhaps the most colorful



are the Wood Warblers, a family of small, active, insect-eating birds, with persistent songs, which aid in their identification. Among the thirty or so species which might be encountered during the Spring passage, a few remain to nest. Through May and June, Moore's Woods rings with the song of the Ovenbird, which is more often heard than seen because of its secretive habits. It nests on the ground in the deeper parts of the woods. The Yellow Warbler, often mistaken for a canary, can be found nesting along the more open edges of the woods, or in willows near the marsh. Look also for the Yellowthroat, with its yellow breast and black mask. Listen for its song, a rapid "Witchity, witchity, witch." It nests in dense thickets and tangles, never far off the ground.

Our most brilliant songbird, the Scarlet Tanager, is a summer resident here. It prefers the canopy of the taller trees, and its song has been described as sounding like a Robin with a sore throat.

One can seldom walk through the woods without hearing the loud call of the Bobwhite; and sometimes in the more swampy areas a Woodcock may be flushed.

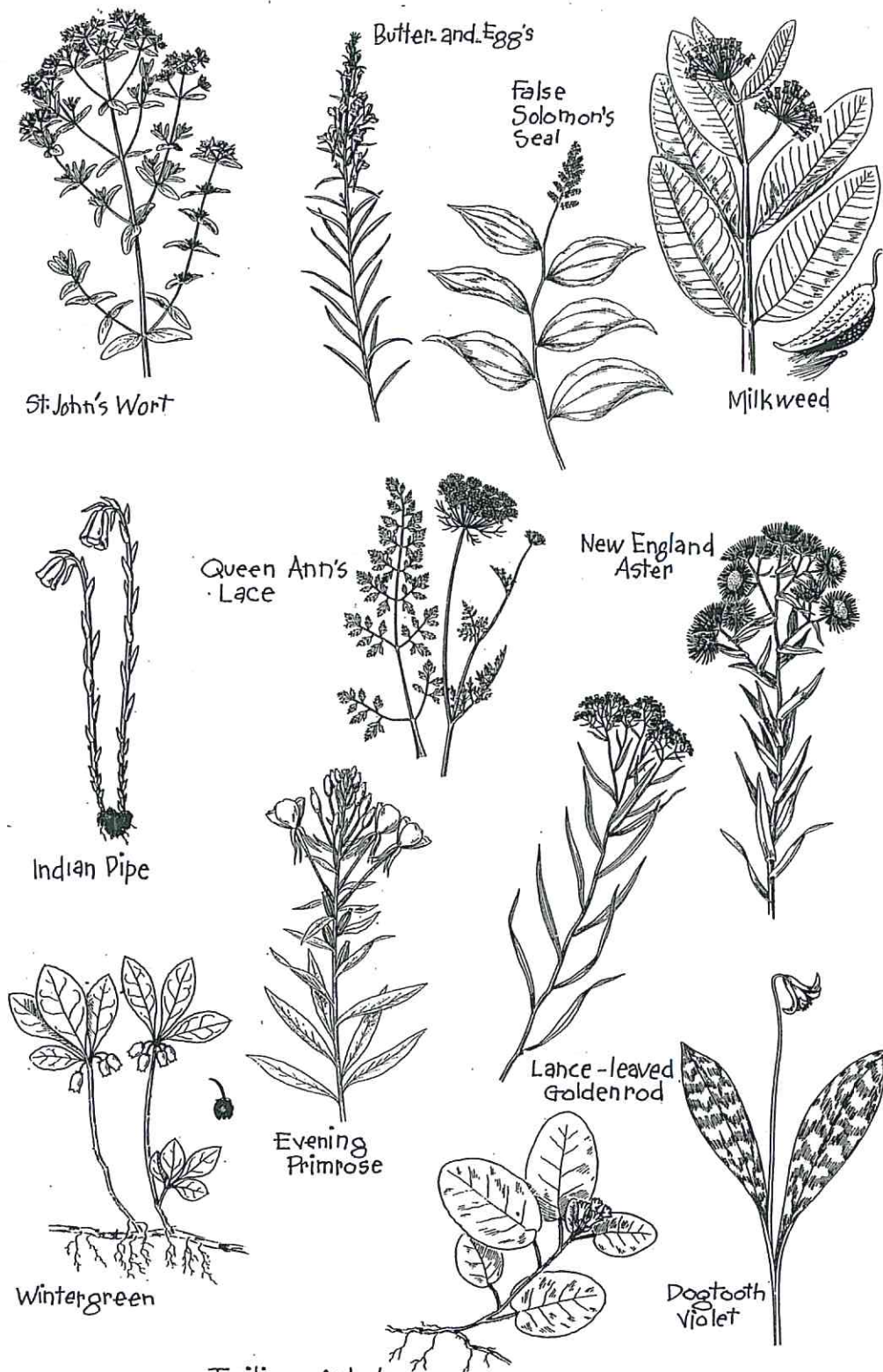
A quiet walk along the trails on an early evening in June is the best time to hear the beautiful flute-like song of the Wood thrush. It nests in the understory, usually no more than twelve feet from the ground.

These are a few of the many birds likely to be encountered along these trails. During the peak of the May migration, a day's observation by a competent observer could total 60 to 80 different species.

### 32. Wildflowers

Wildflowers are one of the most beautiful aspects of the natural world. They are a continuous source of pleasure to not only the out-of-door lover, but to anyone who enjoys art and grace. Wildflowers are a very complex, delicate form of life and should be treated as such. See how many of the following varieties you can find, but please do not pick them so others coming after you may also enjoy the pleasure you have found in their discovery.

- Cranesbill
- Jewelweed
- St. John's Wort
- Bouncing Bet
- Indian Pipe
- Trailing Arbutus
- Wintergreen
- Milkweed
- Wild Morning Glory
- Mullein
- Butter and Eggs
- Blue Vervain
- Heal-all
- Evening Primrose
- Spring Beauty
- Queen Anne's Lace
- Wood Anemone
- Joe-Pye-Weed
- Boneset
- Lance-leaved Goldenrod
- New England Aster
- Daisy Fleabane
- Yarrow
- Chicory
- Jack-in-the-Pulpit
- Skunk Cabbage
- Day Lily
- Dogtooth Violet
- False Solomon's Seal
- Solomon's Seal
- Stemless Lady's Slipper (rare)



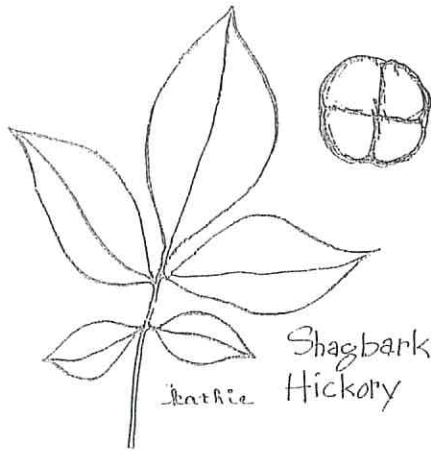


### 33 Shagbark Hickory

On the south side of the trail may be seen a number of tall, slender trees with shaggy bark. They are one of the several species of hickories which grow in this area.

Bark grows and expands with a tree, providing a living shield for its lifetime. The moist lining on the underside of the bark, only 1/100 of an inch thick, is a tree's sole food transport system. The character of the bark is distinctive for each kind of tree and is an important feature of its identity. The long, tough strips of bark which break loose at the bottom while hanging on at the top tell us instantly that these are Shagbark Hickories.

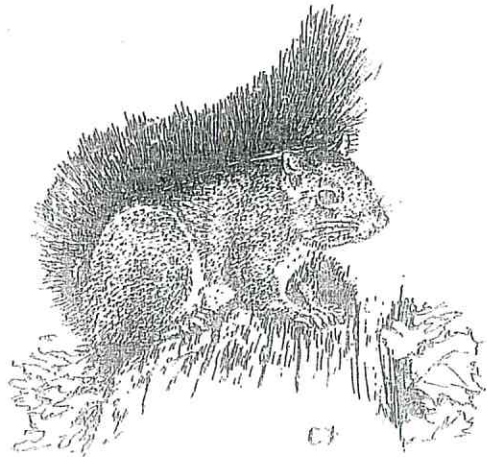
The Shagbark is prized for its sweet, edible nuts. Try some this Fall, if you can get there ahead of the squirrels!



### 34 Squirrel Nests

Squirrel nests are distinguished from other nests, in that they are composed mostly of leaves. The only type of squirrel that inhabits these Moore's Woods nests is gray squirrel (*sciurus carolinensis*).

The gray squirrel, full grown, weighs a pound and a half, occasionally a little more. Little mates may be black or gray. The mating season is in late January, and the young are born about 6 weeks later. The older females produce another litter in August. At the time of birth, the young are blind and hairless and it will be two months before they venture from the nest. The gray squirrel is active all year round and can be best observed in the early morning or late afternoon hours.



• • •

### Screech Owl



The artist Mr. Charles Frace, a resident of Mattituck, has been featured by American Heritage, Audubon, McGraw Hill, Wedgewood China, Readers Digest, and the National Wildlife Federation. Talent, knowledge and a love for all wild things make Mr. Frace one of America's leading wildlife artists.

The tree identification drawings are by Kathie O'Brien a student in the ecology class at Greenport High School.

The flower drawings on page 19 are courtesy of N.Y. State College of Agriculture of the State University at Cornell University and the artist Elfriede Abbe.

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main stem with the leaflets coming off of it.

**Bipinnate** - The frond has one main stem with smaller stems branching off of it, from which grow the leaflets.

**Tripinnate** - The same as bipinnate, except that the leaflets are lobed or cut.

Fern leaves vary in size and shape according to species. The fertile leaves bear the spores for reproduction on their undersides, or sometimes on separate stems or leaves. Often the fertile leaves differ in appearance from the sterile leaves of the same plant.

**Lady Fern** (*Athyrium Filix-femina*) - The fronds are tripinnate or lacy-cut, growing to a height of 1-3 feet. They uncurl in May in moist woods and along roadsides. They grow in circular clusters and have smooth stalks with a few pale scales.

**Bracken** (*Pteridium aquilinum*) - This fern is 1-2 feet tall and is our commonest fern. It grows in a variety of habitats, favoring dry, sunny areas. The fronds are coarse, three-branched and bipinnate.

**New York Fern** (*Thelypteris novaboracensis*) - The pale green color of this fern helps to identify it. The fronds are bipinnate and the leaflets are alternate, with narrow lobes not cut to the midrib. A New Englander said that New Yorkers were very active and therefore "burned the candle at both ends". Since the fern is tapered at both ends, he compared it to the candle and gave it its name.

**Royal Fern** (*Osmunda regalis*) - This is a large fern which grows to a

height of 6 feet or more. The leaves are bipinnate, with oblong, stemmed leaflets, opposite and widely spaced. The fertile fronds bear light brown, spore-bearing leaflets at the tips.

**Cinnamon Fern** (*Osmunda cinnamomea*) - These are large ferns, reaching 5 feet or more, and grow in wet places. They grow in clusters with the sterile fronds surrounding the fertile leaves. The stems are covered with rusty, wool-like material which humming birds use for their nests.

**Spinulose Woodfern** (*Dryopteris spinulosa*) - Two or more varieties of this species are found here, but they are variable and difficult to separate. They are tripinnate, or lacy-cut, usually evergreen, with prominent brown scales on the leaf stalks. They are one of our most beautiful ferns.

**Sensitive Fern** (*Onclea sensibilis*) - One of our most common species, the Sensitive fern grows in damp or wet places, in sun or shade. The leaves are pinnate, have long stalks with coarsely lobed, leathery leaflets. The fertile fronds are separate, bearing numerous, small bead-like leaflets which become dark brown when mature. The sterile leaves wither at the first touch of frost, but the fertile fronds persist all winter.

**Netted Chain Fern** (*Woodwardia areolata*) - The fronds are deeply pinnatifid, with the taller fertile fronds surrounded by the sterile leaves. The sterile leaflets are sharp pointed, with wavy fine-toothed margins, winged at the main stem.

#### 15. Forest Succession

In this area you can see the

remains of a stand of gray-birch (*Betula populifolia*). These are the common native "white" birch of Long Island and are small trees with dull grayish-white bark with bright orange inner bark. The gray birch is one of the first trees to invade open areas and requires full sun. Seedlings require a great amount of sunlight and are thus unable to grow in the shade of their parents. They will be quickly replaced by more shade tolerant species, such as maple and tulip. Final climax conditions will be achieved only by species which can reproduce their kind in environmental conditions which they themselves create. The governing factor here is tolerance of shade. Beech and oak represent the climax species in this area.

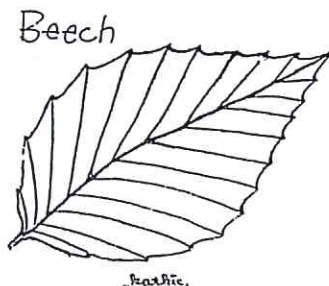
#### 16. Effect of Logging and Drainage

Numerous trees along this trail seem to have more than one trunk, some having as many as seven, separating at about a foot above the ground. A suspected reason for this is that stumps remaining after the past logging operations in Moore's Woods may resprout more than one trunk.

Some of the present day trees have partially exposed roots. Before Moore's Woods was drained in the 1870's, these roots were covered with loose, swampy, soil. Drainage caused the soil to dry and settle to its present level, exposing the roots' structure.

#### 17. Beech Tree

Behind you on the west side of the trail, stands a real "ole timer." Beech trees (*Fagus grandifolia*),



are one of the climax trees of this area. This particular one has been aged to be 150 years old and represents the oldest tree in Moore's Woods. Of relatively slow growth, it may attain ages of 300 to 400 years, but is subject to several injurious insects and fungi. The thin bark makes it an easy victim to ground fires and wood carvers. Its wood is light red in color, heavy, hard, strong and difficult to split; and is used for chairs, furniture, flooring, railroad ties, handles and because of its clean odor, for food barrels and boxes.

#### 18. A Mature Forest

Compare the scarcity of understory and large trunk diameter of the trees in this part of the woods with those observed at the beginning of the trail. These trees have been aged to be about 50 years older than the former. Their mature branches create a dense canopy which limits the amount of sunlight reaching the forest floor. This is typical of a climax condition. Shade tolerant species can produce progeny in their own shade, and can therefore perpetuate themselves indefinitely as a stable plant community. Beech, oak and mountain laurel would represent climax conditions for this area.

#### 19. Mountain Laurel

Along this section of the trail you



will notice a change in the character of the understory. The stout shrubs with shiny broad evergreen leaves are mountain laurel. A member of the Heath family (*Kalmia latifolia*), it thrives in the peaty, acid soil common in this part of the woods. The soil acidity, is maintained by the decay of oak, laurel and other leaves of this acid loving plant community. In June the laurel's pale pink flowers are borne in large dome shaped clusters, similar to those of their cousin the rhododendron. The individual flower has a unique mechanism for insuring its reproduction. The pollen bearing heads of the stamen are tucked into pouches in the petal walls. The filaments (stems), held under tension, snap inward at the touch of a bee or moth, throwing pollen in all directions. Some of this material clings to the insects' body and is thus carried to the next flower insuring cross pollination. When the laurel is in bloom, a light touch of your finger against the petals of the flower will reveal this process.

## 20. Catbriers

These straggling green vines with thorny stems and round shiny leaves are indicative of disturbed conditions on the forest edge. Catbriers are another pioneer "sun loving" species and represent a transitional zone between the woods and the open fields. The density of catbrier here is not as great as that to be found on the east side of Moore's Lane because here the village has arrested the encroachment of this sun loving plant by seasonally maintaining fire trails.

The young tender shoots of the catbrier are edible and can be chopped up in salad or used as a cooked vegetable. The catbrier produces dark blue berries which provide a winter food for wildlife and the dense tangle offers good protection for many different bird species. Catbirds often build their nests here.

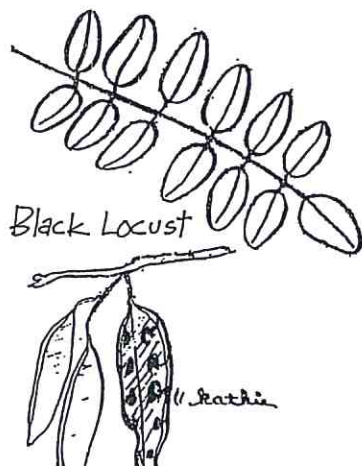
## 21. Junk Truck

Moore's Woods had been used for years as an open dumping area. This old truck is a typical example of what these trails looked like before they were cleaned up. The students involved with the project removed about 25 truck loads of junk from this nature study area.

## 22. Black Locust

The Black Locust (*Robinia pseudoacacia*), belongs to the pea or legume family, and has the ability to add nitrogen to the soil. It is not native to this country but has been successfully planted in every state. It grows well along streams, in mountain coves or on the borders of forests.

Trees may attain a height of 40 to 80 feet with trunk diameters of 2 to 4



feet, but seldom live over 100 years. Black locust is supreme for use as insulator pins on telephone poles. During pioneering days locust was used for the hubs of wagon wheels, to pin ship timbers together. Today it is used for fence posts, mine timbers, poles and tool handles.

Oddly enough, - and this is one of nature's contrasts - trees with the most delicate and lacy foliage, like the locust and willow, have the coarsest barks.

## 23. Water Testing Station

At this location, and at two other spots on the main stream, the water was tested for the presence of coliform bacteria. This organism (*e. coli*) indicates the presence of sewage and this stream was chosen because it is an outlet of the treatment plant about 150 yards east of this location. Surprisingly enough, the water coming from the plant was cleaner than the water in the main stream. The highest pollution levels were found at the bridge site and slowly dispersed as the stream continued to its outlet at Pipes Neck Cove.

The dark brown color of the stream water is not necessarily an indication of pollution. The color is caused by the tannic acid produced by the decay of oak leaves, and will simply taste like a weak tea if consumed. (Please don't).

You will notice an increased algae growth about 200 yards downstream from the bridge. Algae indicates a high oxygen content of the water and is related to a high phosphate and nitrate content. Since phosphate detergents have now been banned from the market, perhaps we might

see a decrease in this green slimy growth.

Recross bridge to stop 24.

## 24. Tree-on-a-tree

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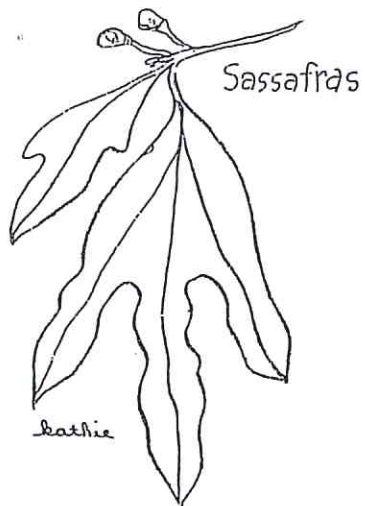
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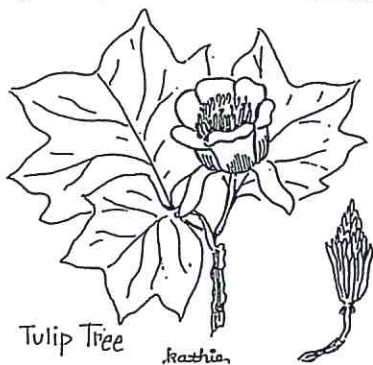




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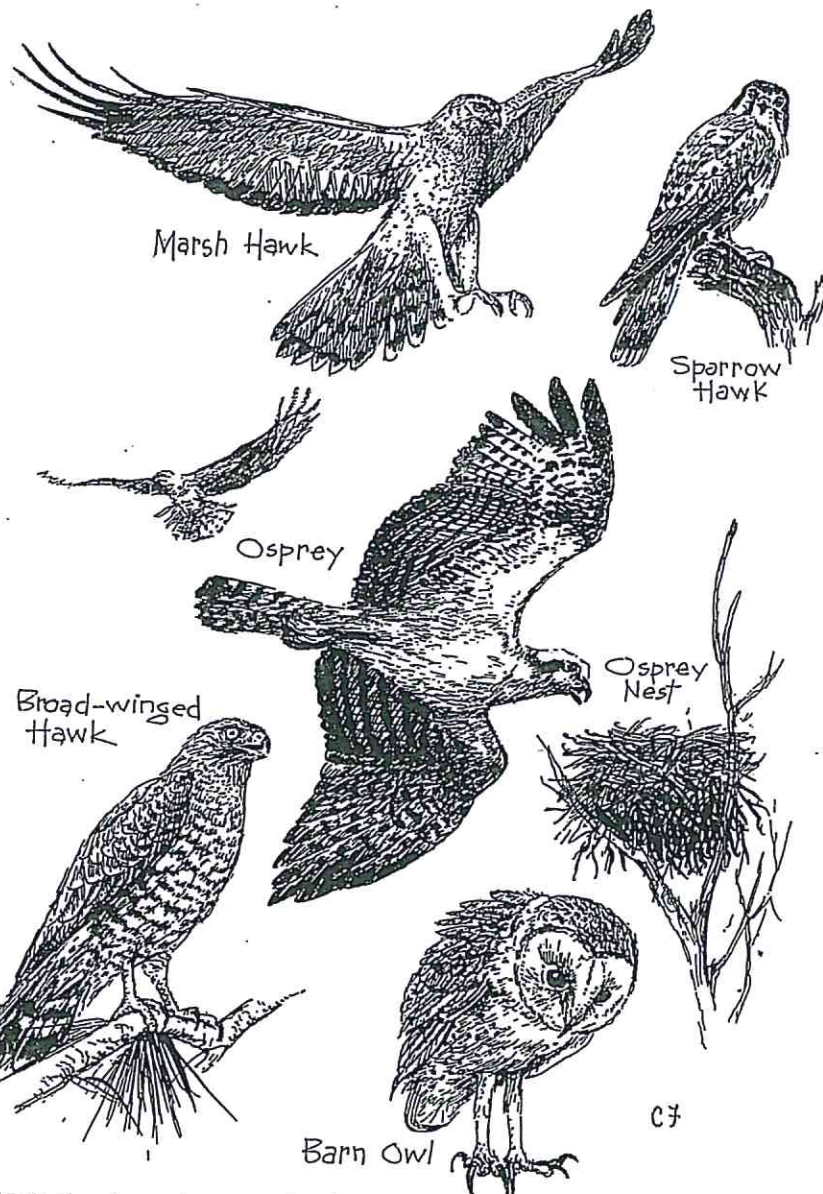
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