

# The Great Meadows Tour Guide



*Adapted from*

GUIDE TO GREAT MEADOWS: A WALKING TOUR

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## THE GREAT MEADOWS TOUR GUIDE

The purpose of this tour guide is to provide an introduction to the varied natural history of this important parcel of local open space. The Great Meadows is currently open for limited public use during the daylight hours.

### INTRODUCTION

Hidden just off the busy thoroughfare of Massachusetts Avenue in the town of Lexington is a natural area of over 185 acres in size. The heart of this area, which is called the Great Meadows, is an expanse of open marsh and wet meadows. This is surrounded by a ring of dry upland knolls and swamp forest. The Great Meadows is owned by the Town of Arlington which originally acquired it for use as a water supply. It has been given no permanent protection as open space, even though it clearly has significant value for flood control, for wildlife habitat, and recreational land for the surrounding communities.

### HISTORY OF THE GREAT MEADOWS

The area's colonial name of "Alewife Meadows" indicates that at one time the small alewife herring found its way from the Atlantic Ocean to spawn in the water here. In the 17th century, European settlers came here to live in "Cambridge Farms" and harvest oak, pine, and maple for Medford shipyards. Because the soft peat soil was unable to support the weight of buildings the colonists left the marsh open and used the Great Meadows mostly for grazing livestock. The Winship family operated a dairy farm here until the 1860's. The Winships also built a mill on Munroe Brook near Fottler Avenue. Glacial boulders mixed with gravel provided foundations for such buildings. Oxcart roads, still visible in

the landscape today, carried milk, hay, and peat to market. From 1865-67, the American Peat Company cut peat from the meadows. After drying, this peat was burned as fuel in homes and churches.

In 1871, Arlington purchased the Great Meadows and flooded it for use as a water supply area. Families used the resulting lake for boating and recreation. The famous American naturalist William Brewster frequented the Great Meadows reservoir during this era. Brewster recorded numbers of shorebirds and waterbirds such as Snipe, Rails, Herons, Bitterns, Coots, Gallinules, Grebes, and various ducks including Common Merganser, Wigeon, Shoveler, and Ruddy Duck. In 1899, Arlington joined the Metropolitan District Commission and the Great Meadows was no longer needed as a water supply. The reservoir was drained in 1902, leaving the wet meadow you see today.

## THE VALUE OF THE GREAT MEADOWS TODAY

The Great Meadows continues to provide clean water for the Arlington Reservoir. In the future, it may again be important as a town water supply (The Massachusetts Water Resources Authority has identified the Great Meadows as a possible supplemental water source). The deep peat soils of the wetlands play an important role in flood control. They act as a sponge, absorbing heavy rainfall and releasing it slowly, preventing downstream flooding of the Fottler and Mill Brooks. The Great Meadows Hydrology and Land Use Study prepared by the engineering firm of Camp, Dresser and McKee concluded that if the Great Meadows were developed and its flood retardation ability destroyed a 10-year rain storm would cause as much flooding as a 100-year storm.

As you see during your walk, the Great Meadows contains important wildlife habitat, and offers excellent opportunities for nature study by birdwatchers, naturalists, and school groups. It is used by many residents of Arlington, Lexington, and surrounding towns for hiking, cross-country skiing, and photography. Its value as open space in an increasingly congested metropolitan area provides an additional incentive for its continued protection.

## HOW TO USE THE TOUR GUIDE

The walking tour begins at the Waldorf School, 739 Massachusetts Avenue in Lexington. From the school parking lot walk down the unpaved road to the small pond across from the basketball court. This is your starting point (which we will call STATION 1). All stations are shown on the map (there are no station markers in the field). Species that can be found in the illustrations are indicated in **bold type**. The complete walking tour should take about 2 hours. Waterproof footwear is desirable. Except in the drier periods, the trail segment between stations 6 and 7 requires either walking on stepping stones or through muddy marshland. You may enjoy having binoculars and field guides along. Insect repellent might be useful in the warmer months of the year.

In the Great Meadows, nature is constantly repainting the landscape. What you see depends very much on the season of your visit. You must be quiet, observant, and sometimes lucky if you are to get a close view of the birds and animals. Be prepared to use all of your senses as you discover the Great Meadows, and take time to think about the history that lies behind this landscape.

# Walking Tour of the Great Meadows

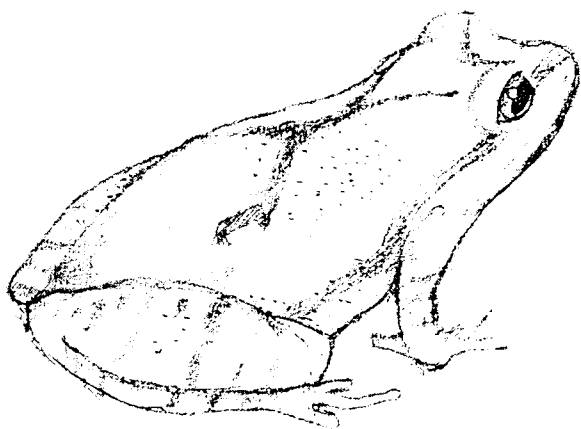
## Station 1

### PEEPER'S POND

Turn right at the back of the parking lot and walk downhill to the shore of the small pond across from the basketball court.

In the early spring it is filled with a deafening chorus of the awakened voices of the **spring peepers**. There is also a large population of birds including Green Heron, American Wigeon, as well as a foraging Barn Swallows and Chimney Swifts. On the far bank you may see tunnels that muskrats have dug into the bank. Later in the spring, green frogs, bullfrogs, and painted turtles can be found.

**Spring Peeper**



## Station 2

### BIKEWAY ENTRANCE

Past the tennis courts there is a small path leading to the Minuteman Bikeway. At this spot there is a bench held up by two rocks that are often marked by the **red fox**. If you smell a musky skunky smell at the base of these rocks, you will know that he has recently been by.

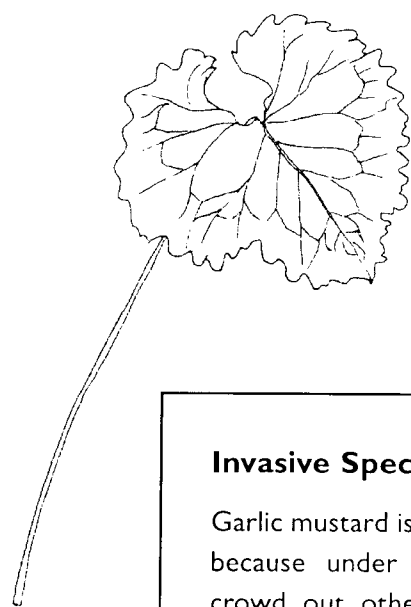


**Red Fox**

Turn left on to the bike path and continue along about 200 yards, take the path on the right leading away from the bike path. These weedy hillsides are home to many non-native wild

flowers such as butter-and-eggs and tansy. These herbs were used by the colonists for medicinal and culinary uses. **Garlic mustard**, an early spring arrival with a taste true to its name, is a common plant bordering the playing field and the bikepath.

As you continue your walk up the rough path, you may also notice goldenrod, **asters**, **wild roses**, and the milkweed flowers which often have a chocolate smell when in bloom. There are also a few raspberry patches growing along side the path.



**Garlic Mustard**

#### **Invasive Species**

Garlic mustard is considered an invasive species because under the right conditions, it will crowd out other plants. Multiflora rose and purple loosestrife, both common in Great Meadows, are also invasive species. Like garlic mustard, they will crowd out native vegetation without management.

**New England Aster**



**Multiflora Rose (fruit and leaves)**

*Station 3*  
**GLACIER KNOLL**

Walk past the circle of boulders on you right until you come to a bare hilltop overlooking the marsh. This is a Glacier Knoll, the large boulders scattered throughout this area were dropped by the passing glacier 12,000 years ago. These are a clue to the history and formation of Great Meadow. During the last ice age, a large block of ice was left by a receding glacier and sat in the depression that is now the main marsh. Streams fed by the melting glacier deposited sediment terraces around the edges of what is now the marsh and formed the knoll on which you are standing.

Looking towards the east, notice all the varied tapestry of colors and textures in the landscape before you. As summer changes to fall, the meadows will go from green and purple (Loosestrife) to yellow (goldenrod) to red (the Red Maple), bronze, and orange. The patterns of vegetation are often due to differences in the wetness of the soil. Shrubs such as sumac edge the dry borders above the marsh. Low wet areas are dominated by phragmites, purple loosestrife, Joe-Pye weed, cattails and sedges.

Glacier Knoll is a good spot to begin noting the birds of the Great Meadows. In the summer, you should find Chimney Swifts, Barn Swallows or Tree Swallows chasing insects over the meadows. Birds of prey which find good hunting over the marsh include the Red-tailed Hawk, Northern Harrier, Sharp-shinned Hawk, and Cooper's Hawk.

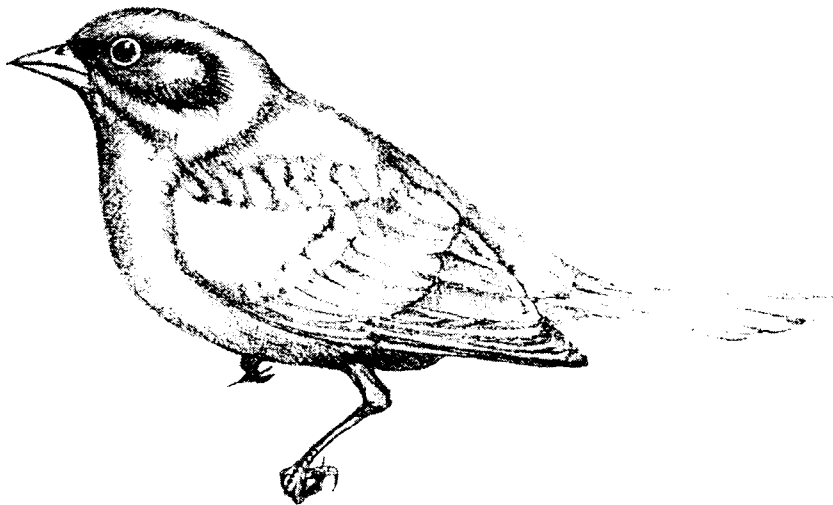
**Joe Pye Weed**



Listen for squawks of one of the Ring-necked Pheasants which live here. In the spring listen for the varied song of the Mockingbird. A song which is similar to the Mockingbird but contains distinct couplets of twice-sung notes reveals the presence of the cinnamon-colored Brown Thrasher.

As you scan the marsh in the spring, you may see dozen of conspicuous **Red-winged Blackbirds** calling “kikereeee” as they defend their chosen territories from their cattail perches (see box on following page). Clear, piping calls from small yellow birds flashing through the sky means you have found an American Goldfinch. Small yellow birds actively foraging in trees will probably be Yellow Warblers. Movement lower down in bushes may betray a Common Yellowthroat.

**Red-winged Blackbird**



Because it is an “island” of natural habitat in a heavily developed part of the state, the Great Meadows provides a much needed resting place for weary migrant songbirds. Over 100 bird species have been recorded in Great Meadows in recent years and more than 50 of these have been found nesting here. Some of these species are seldom encountered this far east in the Greater Boston metropolitan area. A few of the more unusual species that can be found regularly at the Great Meadows are Common Snipe, American Woodcock, Orchard Oriole, Prairie Warbler, Northern Harrier (“Marsh Hawk”), Cooper’s Hawk, and Willow Flycatcher.

### **Why Does the Red-winged Blackbird Work So Hard to Defend Its Territory?**

Male Red-winged Blackbirds spend much time chasing intruders out of their chosen territories and flashing their red warning “epaulets”. Watch this activity for a while and see if you can locate the invisible lines that separate territories. Possession of a good territory is the key to successful breeding. Territory provides a secure food supply and ensures a more uniform distribution of the population over the landscape, so that predators cannot find all of a species’ nests clustered in one spot. Female blackbirds will pair only with males who have established title to a suitable territory.



*Station 4*  
**FINGER MARSH**

Follow the main trail that continues to the left in a northward direction, this trail will continue slightly downhill until it leads into a low wet area known as the finger march.

The shrubs with reddish stems growing alongside the trail are dogwood. The plant is characterized by its reddish trunk and the leaves are recognized by the elastic veins which run parallel to its edges.

You will come across a small brook that runs into the meadow. Tracks of mice, raccoon, skunk and pheasant are noticeable in the mud. The path is lined with Jerusalem Artichoke, a tall perennial wildflower with thick, rough leaves and sunflower like blossom. The roots can be eaten raw like carrots or boiled.

*Station 5*  
**BIRD THICKET**

Proceed past the stream until the path leads to drier ground. Notice the sumac, a tree-like shrub with red seed heads at the tips of its branches. Sumac berries can be gathered, mashed and mixed with water to make a pink “sumacade” (Indians used this as a remedy for sore throat). The bark of sumac is used by rabbits as a winter survival food (look for evidence in the form of stripped bark on the sumac trunks).

The area to the left (running toward the bike path) is Bird Thicket, a productive seed area edged by a small brook which provides songbirds with food, water, nesting material, and cover. Large flocks of House Finches, Mourning Doves, and sparrows can be found here in the colder months.

In summer, look for birds such as Yellow Warblers, Common Yellow-throat, and Northern Oriole.

*Station 6*  
**MELTWATER RIDGE**

Turn right and follow the main trail up the ridge to the north, paralleling the edge of the marsh. Watch for Brown Thrashers on the ground or listen for them as they sing couplets in the trees. In summer, you can listen for the buzzy songs of Blue winged and Prairie Warblers. As you walk the ridge, look out over the marsh. Again you will notice the territorial behavior of **Red-winged Blackbirds**. Note the difference in the wildlife cover provided by the dry upland forest on your left and the open marsh off to your right.

*Station 7*  
**THE PEAT MEADOW**

At the end of the ridge, go straight downhill and bear right into the open wetland. Walk toward the white birches visible across the open meadow. *[Note: This section of trail is often wet. If your footwear isn't suitable for walking in mud, you may want to go back to Meltwater Ridge and follow the alternate trail (see map) around the edge of the marsh to station 8. This alternate route allows you to stay dry by using stepping stones that cross the wet area.]*

Walk out into the marsh until the ground becomes wet and spongy. You are standing on a layer of peat that is over 20 feet thick. Try jumping up and down and then pausing. Did you feel the ground tremble? Attempts to build on peat soil usually fail (the building foundations just sink into the ground!).

The peat wetland in the Great Meadows behaves like a huge sponge. During rainstorms, the “sponge”, absorbs rainfall, preventing downstream flooding. In dry periods, water slowly seeps out, keeping brooks from drying up.

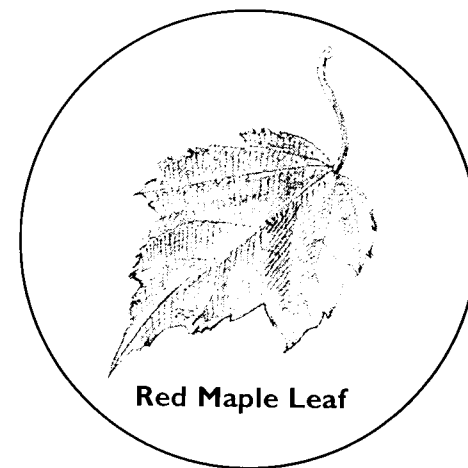
### Peat Mining at Great Meadow

Peat forms from the accumulation of dead marsh plants that decay in wet, acidic conditions with low concentrations of dissolved oxygen. The acidity (which can be 10,000 times more acidic than neutral soil) hinders the decomposition of dead vegetable matter. An inch of peat can take 100 years to form. Peat looks like black mud, but if dried in the sun, it will burn slowly with a pungent, odorous flame. A century ago, peat was cut from the Great Meadows, dried on platforms, and sold as fuel for foot-warmers and stoves. The remains of commercial peat drying platforms can still be found in the meadows. We still use peat in gardens to retain water and enrich garden soil.

Swamp sparrows nest in the grasses of the wet meadows. Deer, bounding through the meadow grasses, have surprised walkers here. Listen for the chorus of **spring peepers**, which sing from the wettest depressions.

The cattails, which grow here, provide nest sites for **Red-winged Blackbirds** and Marsh Wrens. All parts of the cattail are beneficial. Muskrats eat cattail roots. The Indians ate seedheads and roots and wove the leaves into mats. Colonial mothers used shredded seedheads as absorbent material in diapers.

The wooded swamp which occupies the low ground to the north of the open meadows hosts a plant community that is strikingly different from that of the open wetlands you have been traversing. **Red maple** is the dominant forest tree in the swamp.



*Station 8*

### BECKONING OAK

Climb the knoll to the large oak tree here and note the fine view across the marsh. Look for the patterns in the vegetative cover. In wet areas underlain by sand or gravel the acid-loving sphagnum moss is replaced by a shrub swamp, inhabited by leatherleaf, sheep laurel, shadbush, dogwood, viburnum, azalea, and highbush blueberry. Where the ground is more acidic, you will see dense sweet gale, alder-willow, buttonbush, swamp azalea, sassafras, sweet pepperbush, sweet fern or myrtle and the closely related bayberry (useable like its Mediterranean namesake for seasoning soups and stews).

## THE BORROW PIT

From the Beckoning Oak, continue straight across on the main path for 100 yards or so until you reach a steep-sided depression on the left of the trail. Is this natural, or is it a sign of former human activity in this area? The steepness of the sides and the lack of topsoil on the slopes may indicate that this is a "borrow pit" where gravel was obtained for constructing the cart roads into Great Meadows.

### *Station 10* SANDY SLOPE

As you enter the open area, bear right and take the trail that leads across the center of the open space. Stop at the stonewall that runs away from the marsh through the center of the field. Enjoy the serene view across the meadows. Find the brick Waldorf School building directly across Great Meadows. Near it you can see the spire of Follen Church, (where the Christmas tree was introduced to the northeast U.S.).

Note how sandy the soil appears to be on this side of Great Meadows. This soil is largely sediment deposited by streams associated with the melting glacier. This area is easily damaged by trail bikes which quickly destroy the vegetation and scar the yielding earth. Rains then wash soil down the trail, filling in adjacent wetlands, and the loosened gravel that remains makes walking on the trails difficult. This is one reason that motorized bikes are prohibited in the Great Meadows.

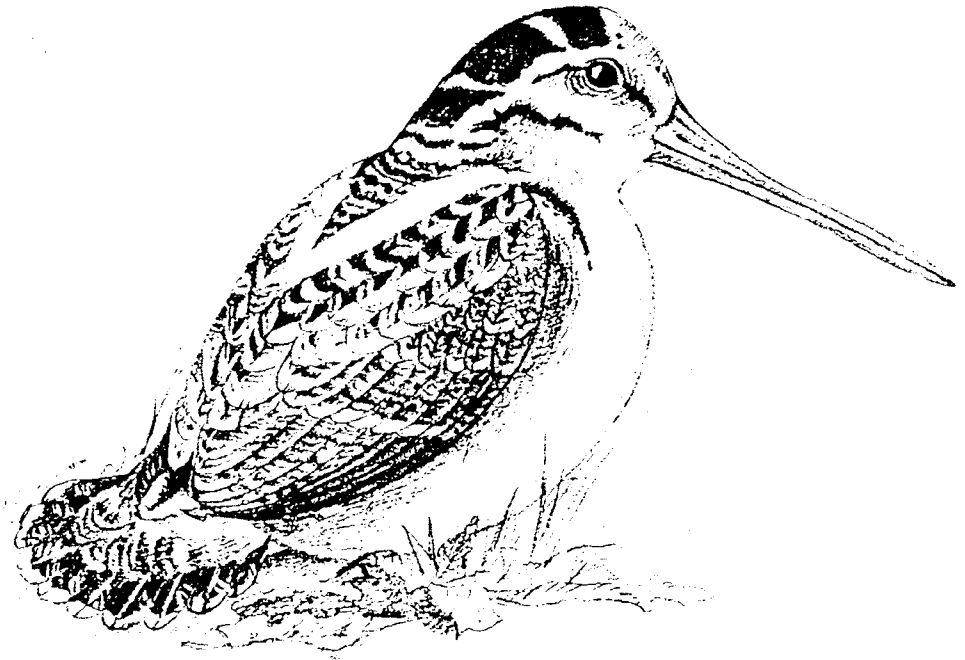
Look for signs of red fox (tracks or scat) along the trail in this area. Many mammals of the Great Meadows are secretive, moving about mostly at dusk or dawn. Mammal signs are

much easier to find than the mammals themselves. Look for signs of woodchucks, deer, moles, mice, rabbits, squirrels, raccoons, chipmunks and muskrat.

### *Station 11* WOODCOCK DISPLAY GROUNDS

Note the extensive open areas sloping from the treeline to the marsh. These are the spring display grounds of the American Woodcock. If you come at dusk in April and May you will be

#### American Woodcock



you will be able to hear the nasal “peent” call of the Woodcock. This will soon be followed by the twittering sound made by its wings as the male bird spirals upward in its courtship dance, then hurtles down to its launching pad. The female Woodcock is supposedly much impressed by this show. The Woodcock uses its long bill to probe soft earth for earthworms. This bird likes to roost in burned areas of the marsh. At least 6-8 pairs of Woodcock are thought to nest in the shrubby young forests in this area. At this time you might also hear the eerie “winnowing” cry of the Common Snipe coming from the marsh

#### *Station 12*

### **REGENERATING FOREST**

Walk ahead to the first pine tree that stands at the far side of the open area. The pines here are pitch pines, (identified by their needles which come in groups of three). They are a clue to why this part of the Great Meadow is so open. Pitch pine seeds sprout only after fires. The small gray birches and quaking aspen around you are also trees that like to re-forest burned areas.

Periodic fires have been important in keeping the Great Meadows open. Burned-over areas often regenerate with blueberries and provide good habitat for many animals. The wetness of the peat areas usually prevents the peat from catching fire. But in the very dry year of 1883, the peat soil of the Great Meadows caught fire and smoldered for years.

#### *Station 13*

### **FOREST TRAIL**

Continue straight ahead on the trail, leaving the open area and entering a forest. In early spring, sometimes even before the snows have melted, the Mourning Cloak butterfly makes its appearance along this trail. Also look here for the tiny, blue Spring Azure butterflies. **Chicory**, a plant whose roasted roots are sometimes used as a substitute for coffee, blooms throughout much of the summer and fall.



**Chicory**

*Station 14*  
**INFINITY POND**

Continue into the woods as you look for a low wet area (about an acre in size) located to the left of the trail. This area is a “vernal pool” known as Infinity Pond. A vernal pool has water in spring, but dries up in the summer. Such pools are important to the survival of certain aquatic animals because they have no fish that would threaten eggs and young. Some of the animals found in the vernal pools are **fairy shrimp**, spotted salamander, and **wood frog**. Due to land development, vernal pools like this are rapidly disappearing in Massachusetts. After passing state certification vernal pools receive special protection against filling or storm runoff. Infinity Pond is certified as Vernal Pool Number 184.

When visiting Infinity Pond in late March or April, it is possible to hear a quacking chorus of **wood frogs** which will hush as you come near.

**Wood Frog**



**Fairy Shrimp**



*Station 15*  
**MUNROE BROOK OVERLOOK**

As you make your way down the trail you will come to the playing fields of the Lexington Christian Academy to the left of the path. The course of the Munroe Brook, which drains from The Great Meadows into the Arlington Reservoir, can be seen on the far side of the playing field

Look beside the trail for bracken fern, a flat-headed fern with three leaflets. It commonly grows in the dry open woods and in the burned over areas. Its young fiddleheads, covered with silvery gray hair, can be cooked and eaten.

*Station 16*  
**FOTTLER BROOK**

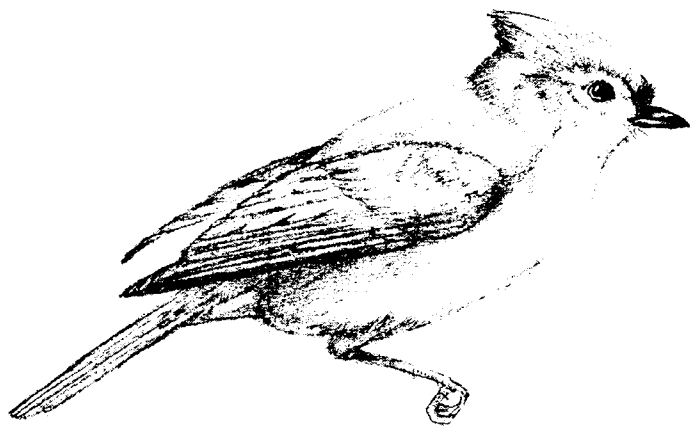
After the playing fields, bear right and the trail will quickly come to a residential street, Sheila Road. Exit onto Sheila Road and turn **RIGHT** down Circle Road. At the next corner,

**Black Capped Chickadee**



turn RIGHT onto Hillcrest Avenue. Turn RIGHT at the following intersection onto Fottler Avenue. Immediately after crossing over a brook, turn RIGHT onto a path that parallels the brook and leads into the woods.

### **Tufted Titmouse**



This is Fottler Brook. You can look here for small flocks of woodland birds (such as **Black-capped Chickadee**, **Tufted Titmouse**, **Yellow-rumped Warbler**, and **White-throated Sparrow**) They are often seen foraging in this area. Winship's mill once stood along this brook.

Beside the trail, look for the yellow-lipped flowers of spotted **jewelweed**. You can squeeze one of its "exploding" seedpods to find out why this plant is also called Touch-me-not. The juice of this plant can be rubbed on the skin as an antidote to poison ivy.

### *Station 17* **MARSH VIEW**

Follow the trail along the brook, passing near some houses on your left. Eventually, the trail emerges from the woods and provides a fine view to the west over the marsh. This is a good spot to look for hawks, or to just admire the expanse of sky. Note the dense stands of sumac in this area.

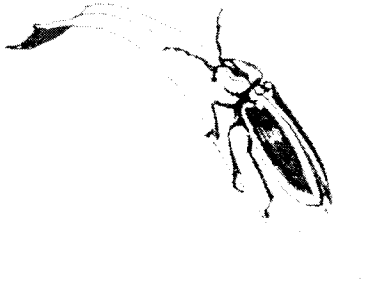


**Jewelweed**

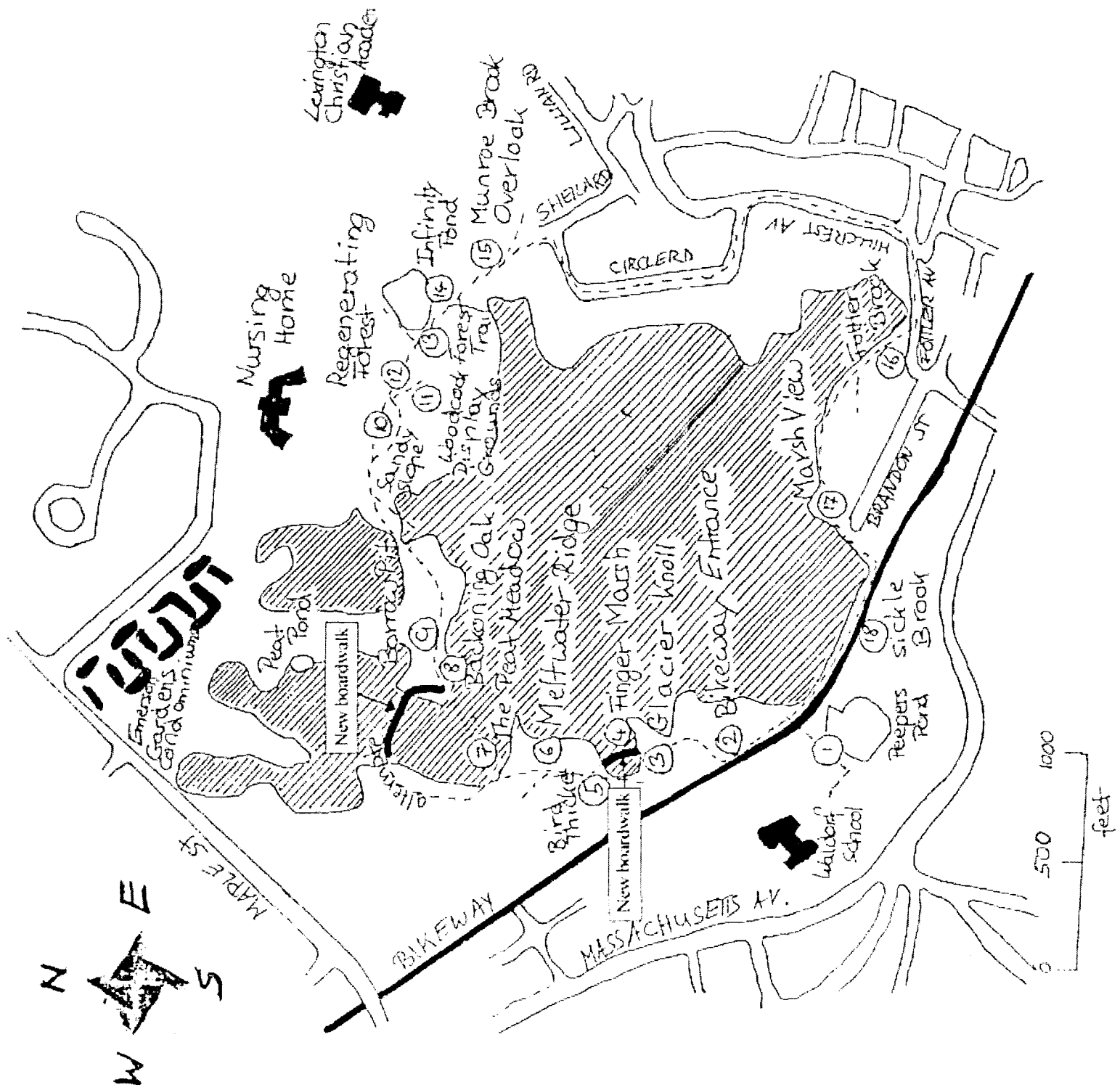
*Station 18*

**SICKLE BROOK**


Continue along the edge of the marsh until you reach the Minuteman Bikeway. Turn **RIGHT** on the bikeway to return to your starting point at the Waldorf School. You will pass over Sickle Brook as you make your way back to the school. As you walk, look for Song Sparrows and the Northern Cardinals in the shrubs along the way. If you come here on summer evenings you may be rewarded with a wonderful firefly show just north of the bikeway.




**Firefly**



Great Meadows, Lexington

 wet area

 --- main trail