

Guide to The Great Meadows: A Walking Tour

Text by Norma Floyd and John Andrews, Illustrations by Nancy Childs



This self-guided tour of the Great Meadows area in Lexington provides 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 daylight hours. Before you start, read the introductory section that follows. Carry the walking tour and map with you as you walk the land and look for the features associated with each numbered station.

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 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 as yet been given no permanent protection as open space, even though it clearly has significant value for flood

control, for wildlife habitat, and as 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 did not 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.

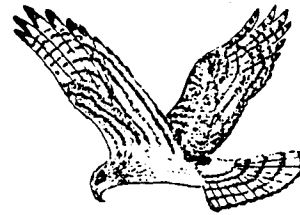
In 1871, Arlington purchased the Great Meadows and flooded it for use as a water supply storage area. Families used the resulting lake for boating and recreation. The famous American naturalist William Brewster frequented the Great Meadows reservoir during this era. Brewster recorded numbers of shorebirds and waterbirds such as Snipe, Sandpipers, 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, which prevents 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 a 10-year rain storm (expected every 10 years) would cause as much flooding as a 100-year storm if the Great Meadows were developed and its flood retardation ability were destroyed.

As we will see during our 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.



*Northern Harrier
(Marsh Hawk)*

HOW TO USE THE TOUR GUIDE

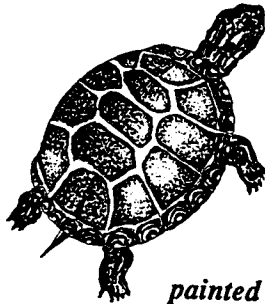
The walking tour begins at the Waldorf School, 479 Massachusetts Avenue in Lexington. From the school parking lot walk down the unpaved road to the small pond across from the basketball court. This is our starting point (which we will call **STATION 1**). All stations are shown on the map on page 10 (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 1/2 hours. If you don't have that much time, then plan to cover only part of the route and finish it on another day. Be prepared: Waterproof footwear and long pants and sleeves are desirable. Except in the drier periods, the trail segment between stations 6 and 7 requires either walking on stepping stones or walking through muddy marshland. You will enjoy having binoculars and field guides along. Insect repellent may 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 courts. In the early spring a deafening dusk chorus of **spring peepers** sings from the weedy edges. This pond attracts Green Heron and American Wigeon as well as 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.



painted turtle

STATION 2 BIKEWAY ENTRANCE

Proceed past the pond to the Minuteman Bikeway and turn left. Walk about 200 yards and take a broad path on your right leading away from the bikeway. The vegetation here is typical of dry, weedy hillsides. Here you can find many non-native wildflowers such as tansy and **butter-and-eggs**. These herbs were used by



milkweed



*New
England
aster*



goldenrod



butter-and-eggs

colonists for their pharmacy and kitchen uses. As you pass through this dry upland, you will also notice wildflowers such as **asters**, **milkweed**, **goldenrod**, wild roses, and raspberries.

STATION 3 GLACIER KNOLL

Walk straight ahead past the circle of boulders on your right until you come to a bare knoll overlooking the marsh. This is Glacier Knoll. The large boulders you just passed were dropped by a glacier 12,000 years ago, and are a clue to how the Great Meadows came to be. During this last glaciation, a massive block of ice left by a receding glacier, sat in the depression that is now the main marsh. Streams fed by the melting glacier deposited sediment terraces around its edges, producing the knoll on which you are standing. As the climate warmed, the ice disappeared, leaving behind a basin which evolved from a lake to a marsh.

Looking 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 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**.



*purple
loosestrife*



Joe-Pye-weed

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**.

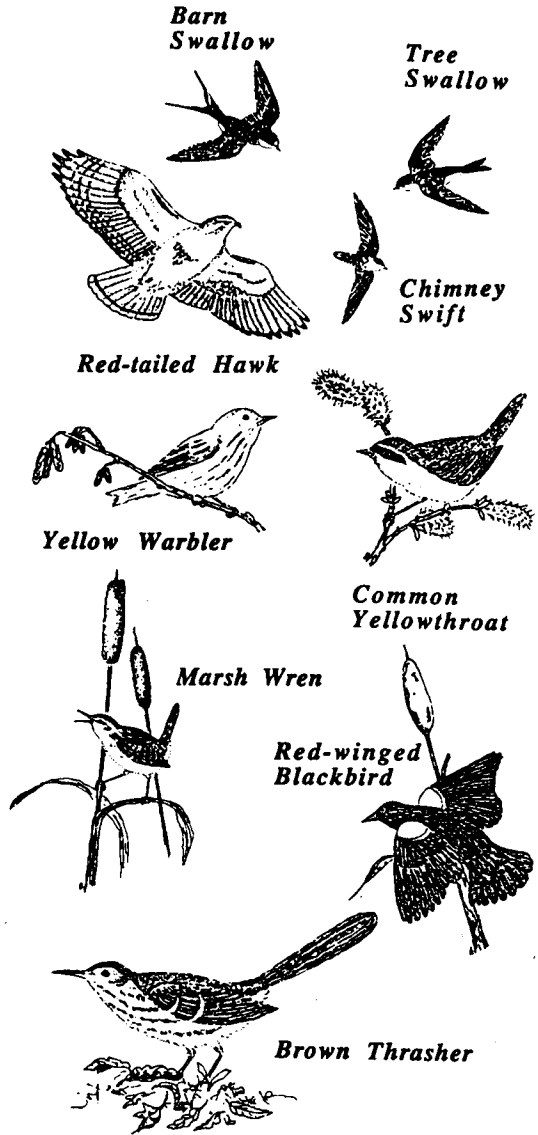
Listen for the squawks of one of the Ring-necked Pheasants which live here. In the spring listen for the varied song of the Mockingbird. A song which is similar to the Mockingbird but contains distinct couplets of twice-sung notes reveals the presence of the cinnamon-colored **Brown Thrasher**.

As you scan the marsh in the spring, you may see dozens of conspicuous **Red-winged Blackbirds** calling "kikereeee" as they defend their chosen territories from their cattail perches (see box). 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**.

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.

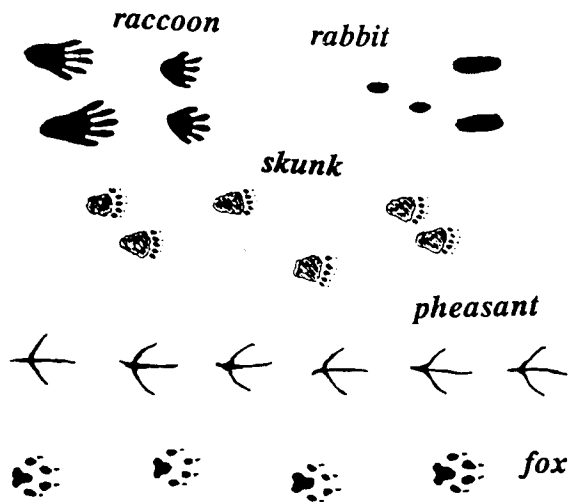


**STATION 4
FINGER MARSH**

Follow the main trail that continues northward down the hill until you come to a low wet area known as Finger Marsh.

Note the shrubs with reddish stems just off the trail. These are **dogwood**. The leaf is characterized by the elastic veins which run parallel to its edges.

Here you will cross a small brook which runs into the meadows. Look for tracks in the mud: raccoons, mice, skunks, pheasant (as well as dogs, and cats).



In the marshy area, look for **Jerusalem artichoke**, a 6-10 foot tall perennial wildflower with thick, rough leaves and sunflower-like blossoms. It blooms impressively near the end of summer. The roots can be eaten like carrots or potatoes, raw or boiled.



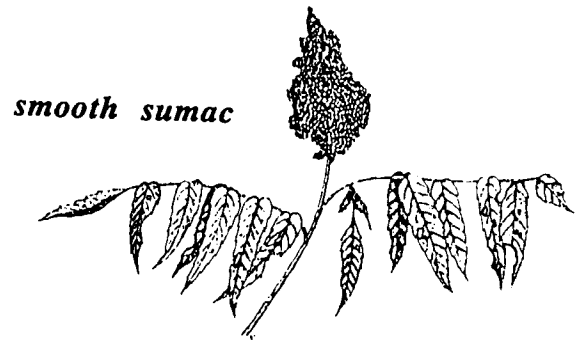
Keep an eye out for **elderberry**, a shrub with large compound leaves with 5-7 coarse-toothed leaflets. Flowers are white in flat-topped clusters. The flowers, berries, leaves, bark, and root are medicinal. Juice from the dried purple-black berries is used to induce sweat against colds and fevers.



elderberry

STATION 5 BIRD THICKET

Proceed past the stream until the trail rises slightly onto drier ground. On both sides of the trail you will see **smooth sumac**, a tree-like shrub with red seed head 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

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, 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.

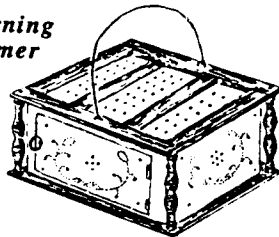
STATION 7 THE PEAT MEADOW

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.

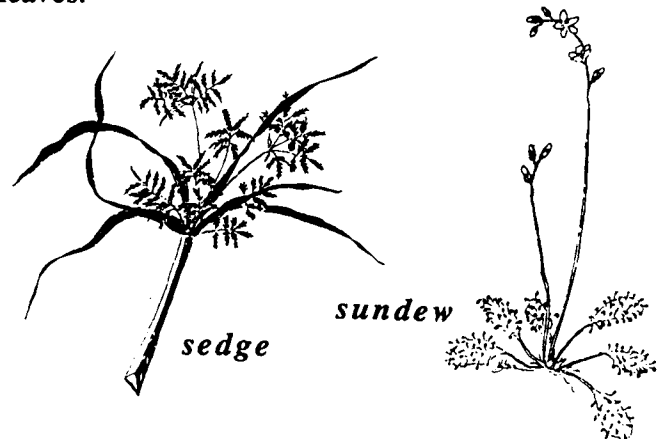
Peat Mining at Great Meadows

*peat-burning
footwarmer*



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 10000 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.

Look for **sedges** in this area. Sedges are closely related to grasses. Feel the triangular stem (A general rule: "sedges have edges"). Contrast it with grass which has joints. A search in this area may reveal sphagnum moss and carnivorous **sundews**, two plants typical of bogs. The sundew receives most of its nutrients from the decomposed bodies of insects that become trapped on the sticky hairs of its leaves.



Swamp sparrows nest in the grasses of the wet meadows. Deer, bounding through the meadow grasses, have surprised walkers here. Listen in spring 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 (usable like its Mediterranean namesake for seasoning soups and stews).



sheep laurel



leatherleaf

**STATION 9
THE BORROW PIT**

From Beckoning Oak, continue 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
THE OLD FOUNDATION**

Continue on the trail for several hundred yards until it crosses over a small brook with an open marsh to the left. You can catch a glimpse of Emerson Gardens Condominiums through the trees. Just after the trail rises to the edge of an open area. Look to the left of the trail to find the remains of an old cellar hole with its foundation made of glacial till.

**STATION 11
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 stone wall 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 trails 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.



red fox

**STATION 12
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. Come at dusk in April and May and listen for 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



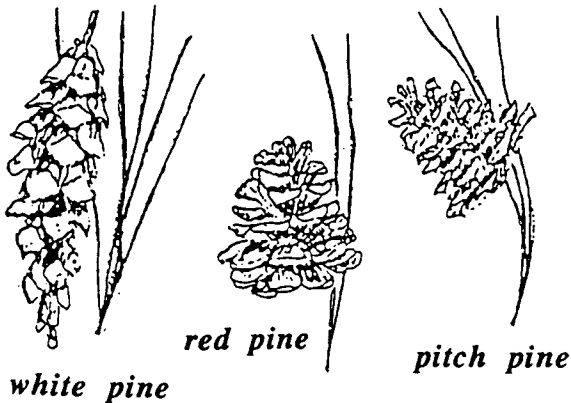
American Woodcock

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.

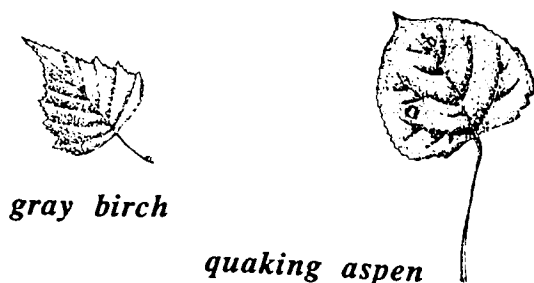
While listening for the Woodcock in April, you might also hear the eerie "winnowing" cry of the Common Snipe coming from the marsh.

**STATION 13
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 days.

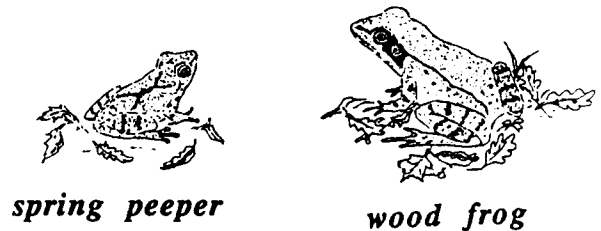


**STATION 14
FOREST TRAIL**

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.

**STATION 15
INFINITY POND**

Continue into the woods and look for a low wet area (of about 1/2 acre in size) to the left of the trail. This is Infinity Pond, a "vernal pool". 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 which would attack eggs and young. Some of the special animals found in vernal pools are fairy shrimp, spotted salamander and **wood frog**. Due to land development, vernal pools like this are rapidly disappearing in Massachusetts. Vernal pools which have been through a state certification process receive special protection against filling or storm runoff. Infinity Pond is certified as Vernal Pool Number 184.



A Special Resident . . .

*Mystic
Valley
Amphipod*



The Mystic Valley amphipod is a very special resident in the Great Meadows. It is a small shrimp-like animal, which lives in shallow, slow-moving bodies of water and feeds on decaying vegetation. It is a state-listed "Species of Special Concern" because it is found in only a few locations, mostly in eastern Massachusetts. Its presence here is an indicator of a relatively unpolluted and healthy wetland.

When visiting Infinity Pond in late March or April, you may hear a quacking chorus of amorous **wood frogs** which will hush as you disturb their orgy.

**STATION 16
MUNROE BROOK OVERLOOK**

Continue on the main trail until you come to the playing fields of the Lexington Christian Academy on your left. The course of the Munroe Brook, which drains from 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 is common 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 17
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, 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.

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

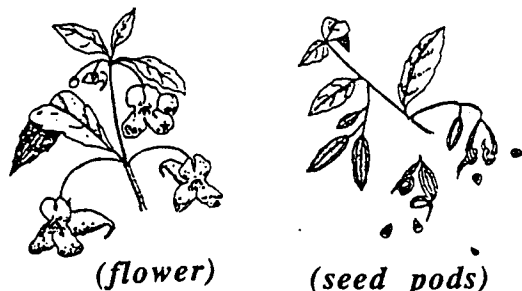
Beside the trail here, look for the yellow-lipped flowers of **spotted jewelweed**. Squeeze one of its "exploding" seedpods to find out why this plant is also called Touch-me-not. The juice of this plant can be rubbed on the skin as an antidote to poison ivy.

**STATION 18
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 just to admire the expanse of sky. Note the dense stands of **sumac** in this area.

jewelweed



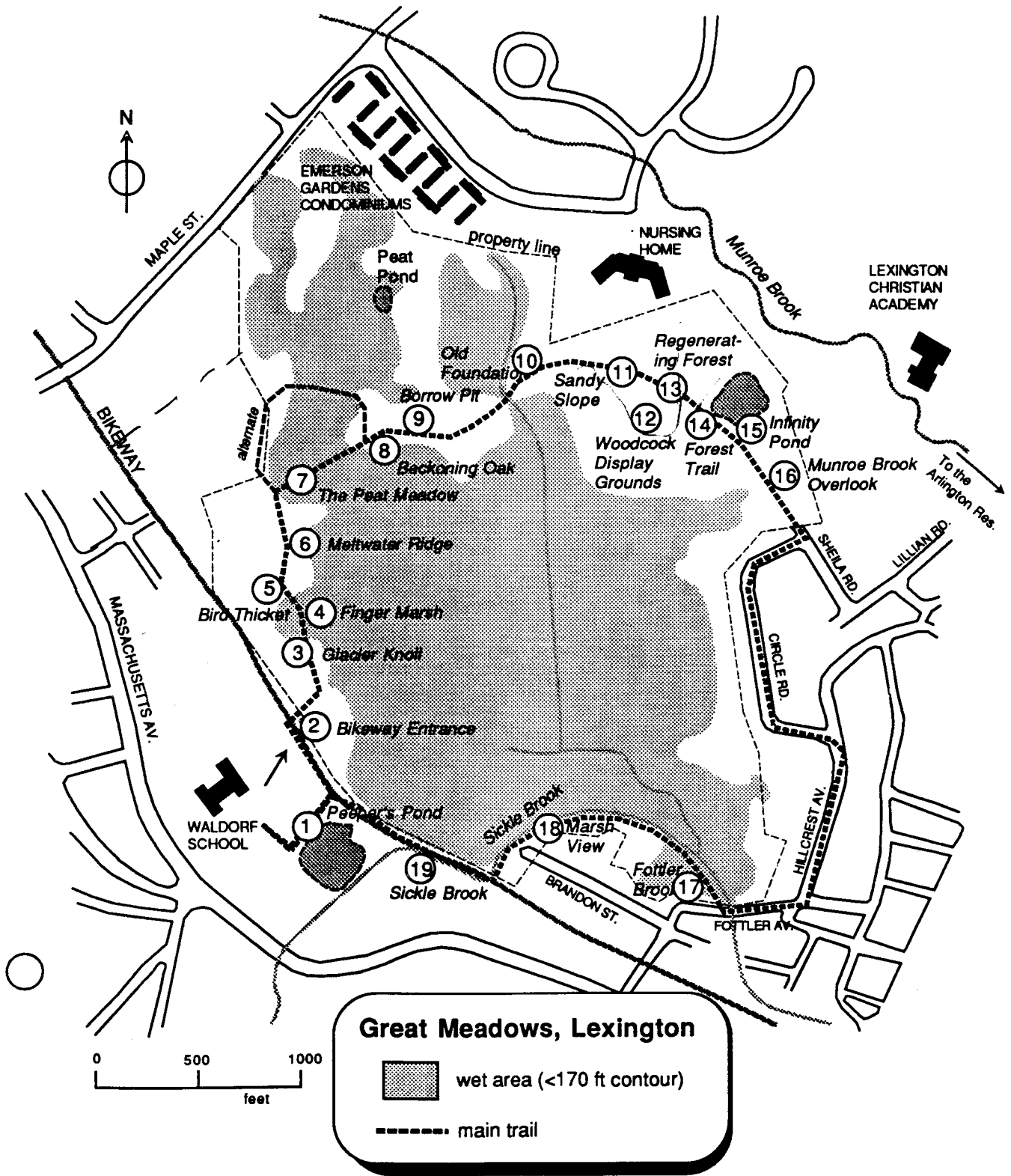
**STATION 19
SICKLE BROOK**

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

**STATION 20
PEEPER'S POND AGAIN**

When you come to the two large boulders beside the bikeway, turn left and you will find yourself back at Peeper's Pond where our walk began. We hope you have enjoyed the beauty and variety of the Great Meadows. The scene changes with the seasons, so plan to come back soon.





FOR FURTHER INFORMATION: Additional copies of this guide as well as a complete Great Meadows birdlist are available from Citizens for Lexington Conservation, Inc., P.O. Box 292, Lexington, Massachusetts 02173.

For general information on Great Meadows, contact the Town of Arlington Conservation

Commission, Town Hall, 730 Massachusetts Ave., Arlington, MA 02174. For natural history information, contact the Mystic River Watershed Association c/o John Andrews, 22 Kendall Rd., Lexington, MA 02173, Tel. (617) 862-6498.