

U.S. Fish & Wildlife Service

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April 2017



Great Meadows

*National Wildlife
Refuge*

*Weir Hill Trail
Red Maple Trail*



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Welcome



This goose, designed by J.N. Ding Darling, has become the symbol of the National Wildlife Refuge System.

Welcome to the Great Meadows National Wildlife Refuge. The refuge spans 12 miles of the Sudbury and Concord Rivers, with a total of more than 3,800 acres within the Sudbury and Concord units. The trails at Weir Hill take visitors on a mile-long walk around marshes, upland trails, woodlands, fields, pond, and river.

Please visit us at the refuge headquarters with any questions you may have about the refuge.

Weir Hill Trail

Buttonbush and Purple Loosestrife - From the Deck

A good place to start your walk is from the observation deck at the main building. From here, you have an excellent view of the Sudbury River and its floodplain ‘meadow’ covered in buttonbush, a native shrub which is a valuable part of the wetland / floodplain ecosystem. The submerged part of these plants provides habitat for many small invertebrates. These in turn are a food source for fish, frogs, and birds. The seeds of the buttonbush are also eaten by birds, and the bush itself is used for nesting by many bird species.

Wetlands make up 90 percent of Great Meadows. These wetlands serve many functions, from providing crucial nesting and feeding habitat to countless species, to playing a critical role as sponges which reduce erosion and flooding. These wetlands also recharge the groundwater supply – the water we drink – and filter out harmful substances.

This floodplain (and many other local wetlands) has been overgrown by purple loosestrife (*Lythrum salicaria*). This invasive plant from Europe has tall spikes of purple flowers, and was introduced to North America

Purple loosestrife



in the early 1800’s as an ornamental flower. In native wetlands, purple loosestrife grows aggressively and this depletes necessary resources for native plants.

Here at Great Meadows, two methods for biological control of purple loosestrife, the release of the galerucella beetle (*Galerucella pusilla*) and of the hylobius weevil (*Hylobius transversovittatus*) have been used with good success. Both insects feed exclusively on purple loosestrife, and are thereby able to keep the purple loosestrife in control without having any adverse effects on the rest of environment.

Weir Hill History

Continuing along the trail, you are now walking along the edge of Weir Hill. Researchers who have studied the area have found evidence of human occupation going back 11,000 years. Remnants of the Wampanoag and Susquehanna tribes have been recovered in the region. They used the area for transportation, hunting, and fishing. Tools made from local quartzite, rhyolite, and wood have been found.

The name “Weir Hill” comes from the fishing weirs (which resemble underwater fences) used by the Native Americans who lived in the area. The Native Americans named the Concord River “Musketahquid”, meaning “grassy banks”. When the settlers arrived, they named it “Great River Meadows”.



Kettle Hole

As you climb the stairs and come to the top of the hill, notice the large deep depression. This is a kettle hole left by the last glacier to cover the region. An ice sheet a mile high covered the spot on which you're now standing 15,000 years ago. When it retreated, it left behind huge amounts of rocky debris. With the debris, some massive ice blocks also remained. When one such block finally melted, the kettle hole was left in its place.

Hemlock and the Woolly Adelgid

In this area, you may notice a slope of evergreen hemlock trees. These trees have suffered from an infestation of woolly adelgid, a sap-feeding insect introduced from Asia which now feeds on hemlock throughout North America. The insects' egg sacks look like the tips of cotton swabs on the underside of the hemlock's needles. In order to control the insects, many of the hemlocks were treated with chemicals to deter the pests and save our hemlock grove. While some hemlocks have died, we are hopeful that many more will continue to live.



Great horned owl

Nuts

As you approach your descent down Weir Hill, you will see that two kinds of oak trees dominate this wooded area: red and white oak. Red oaks have pointed leaves, while white oaks' leaves are rounded. Wildlife, as did the Native Americans, tends to prefer the white acorns to the red, as they are sweeter. Those from the red oak are bitter due to the tannins in the tree. If there appear to be more red than white oaks, it is probable that the



Red oak



Woodcock in flight

squirrels eat the white acorns first, leaving fewer to grow into trees.

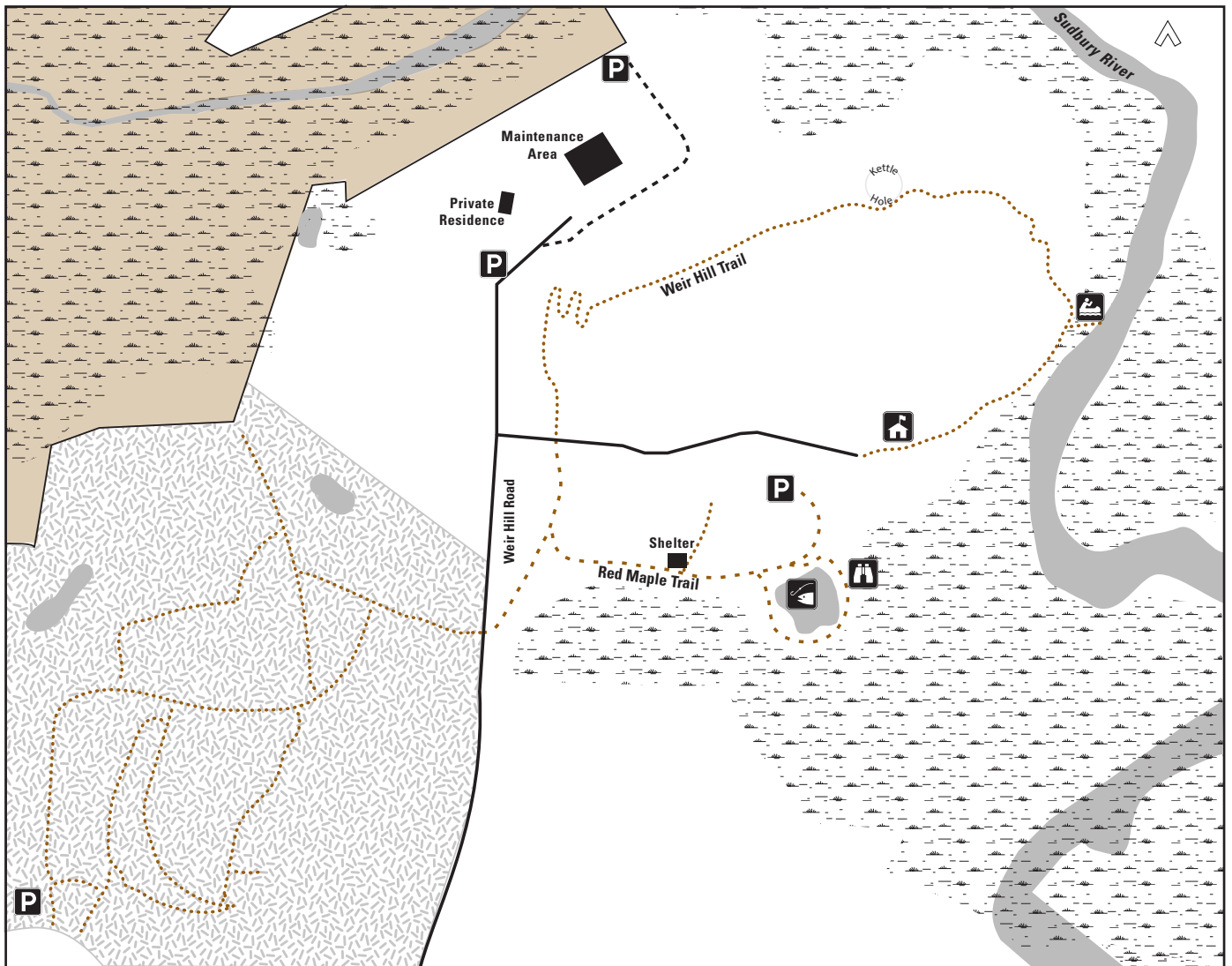
Meadow and Woodcock

Once you loop back to Weir Hill Road, you will notice a field along the roadside. Every spring, American Woodcock can be seen and heard in this field at dusk engaging in their spectacular courtship display in which the male birds give a "peent" call and fly up from the ground in a spiral. These little birds are forest-dwelling shorebirds with a long flexible bill used to probe soft ground for earthworms and insects.

Come and watch by the fence some spring evening at dusk, and you might very well see and hear the courtship display of this otherwise secretive little bird.
















Woodcock in nest



Great Meadows

National Wildlife Refuge

Legend			
	Trail		Fishing
	Accessible Trail		Observation Platform
	Roads		Marsh
	Seasonal Road		Water
	Refuge Headquarters		Pantry Brook Wildlife Management Area
	Parking		Sudbury Valley Trustees Round Hill, public and dogs welcome on SVT trails
	Canoe Landing		

Red Maple Trail

Bugs and Birds



In 2017, a universal access boardwalk and stonedust trail were constructed to improve access to this section of the refuge trail system. Parts of this trail are often wet, as you are walking through a Red Maple swamp. In springtime, the Sudbury River overflows its banks and covers the floodplain. This floodplain is not only an ideal habitat for those species we enjoy, but also to those that “bug” us.

Dragonfly



Although they may be pests to us, many insects play an integral role in a habitat’s health. They serve as food for many species of birds; they break down dead leaves, branches, and other plant matter, speeding up the return of nutrients to the soil. While some insects, like grubs, damage plants, others like butterflies, ants, beetles, wasps, and bees are indispensable as pollinators.

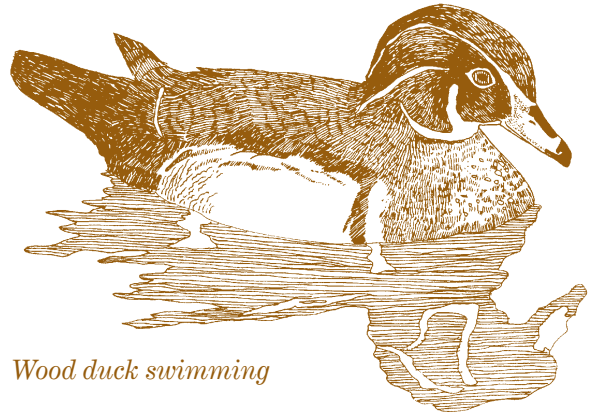


Swallowtail

Red-winged blackbird



Red-winged blackbirds are some of the most often seen and heard residents of wetlands. They are also very easy to identify by their glossy black plumage and unmistakable scarlet and yellow shoulder patches. Red-winged blackbirds establish territories early in the year, and so are harbingers of spring.

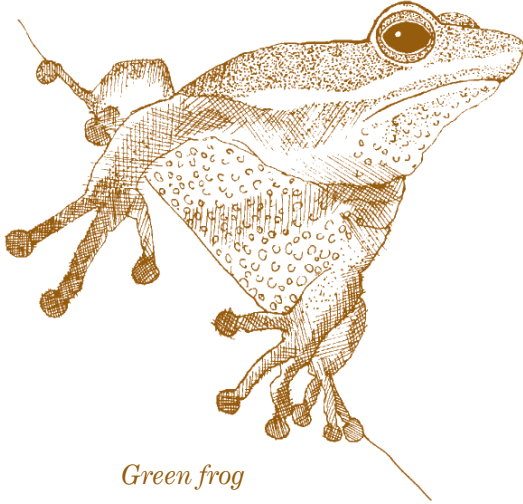


Wood duck swimming

Wood ducks are shy, beautiful birds that nest in tree cavities (holes) near water. Look for trees with cavities in them. You may not see a duck itself, but this is their ideal habitat. When the ducklings are ready to come out into the open, they jump down from their nest hole – which can be quite high off the ground – to the water or soft ground below.

Once a Swimming Hole

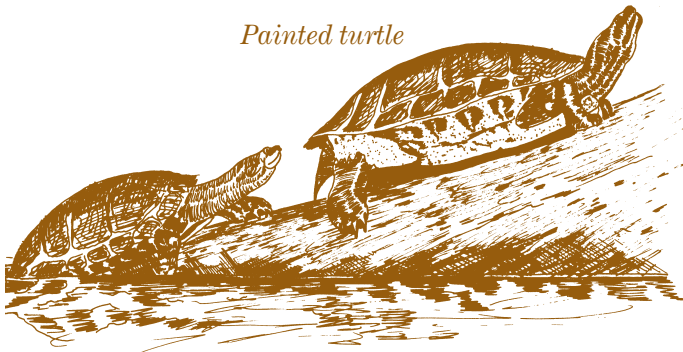
The Red Maple trail loops around a pond which was originally created as a swimming hole. Visitors may fish in the pond and it is the site of our annual fishing event. Native plants are allowed to grow freely around the pond, while birds, frogs, fish, and turtles use it for food and cover.



Green frog

Take a careful look at the shrubs and trees surrounding this pond. Can you tell the difference between native black alder and invasive glossy buckthorn? The two are remarkably similar in appearance. While both have slender stems with smooth speckled bark and medium sized oval leaves, the two can be distinguished in part by the serrated edges of alder leaves (and the presence of catkins) in contrast with the smooth-edged leaves of the buckthorn.

Painted turtle



The battle against buckthorn is ongoing. In this area, refuge staff have pulled young buckthorn plants and killed others through targeted herbicide application. Control of buckthorn is a long-term effort which will need constant vigilance to keep the buckthorn from becoming the dominant plant in this forest community.



For a better view of the river, floodplain, and wildlife, make your way to the Red Maple Trail observation deck. A healthy floodplain habitat is teeming with life during warmer months, and from the deck's vantage point you can observe the changing nature this habitat through seasonal advancement and recession of the water's edge.

We hope you have enjoyed the Weir Hill and Red Maple Trails. Please come again soon!

For further information, contact:

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