

Oxbow National Wildlife Refuge  
Physical Address:  
Still River Depot Road  
Harvard, MA 01451

Mailing Address:  
73 Weir Hill Road  
Sudbury, MA 01776  
978/443 4661  
978/443 2898 Fax  
<http://www.fws.gov/refuge/oxbow/>

Federal Relay Service  
for the deaf and hard-of-hearing  
1 800/877 8339

U.S. Fish & Wildlife Service  
1 800/344 WILD  
<http://www.fws.gov/>

September 2015

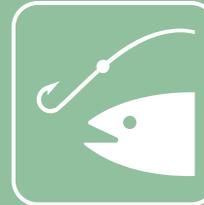


U.S. Fish & Wildlife Service

# Oxbow

## *National Wildlife Refuge*

### *Recreation and Trail Guide*



printed on recycled paper with vegetable based inks

## Welcome



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

The Oxbow National Wildlife Refuge (NWR) is one of more than 560 refuges in the National Wildlife Refuge System administered by the U.S. Fish and Wildlife Service. The system is the only network of lands and waters in the world specifically managed for the protection of wildlife and habitat.

Oxbow NWR is one of eight refuges within the Eastern Massachusetts NWR Complex, which is headquartered out of Great Meadows NWR and located at 73 Weir Hill Road, Sudbury, Massachusetts, 01776. For more information about Oxbow NWR, visit the Weir Hill office weekdays from 8:00 am to 4:00 pm, contact the Refuge Manager at 978/443 4661, go on-line to <http://www.fws.gov/refuge/oxbow>, or visit the Friends of Oxbow NWR at [www.friendsoftheoxbownwr.org](http://www.friendsoftheoxbownwr.org).

There is also an Eastern MA NWR Complex visitor center located at 680 Hudson Road, Sudbury, MA and is open Friday-Sunday 10:00 am to 4:00 pm.

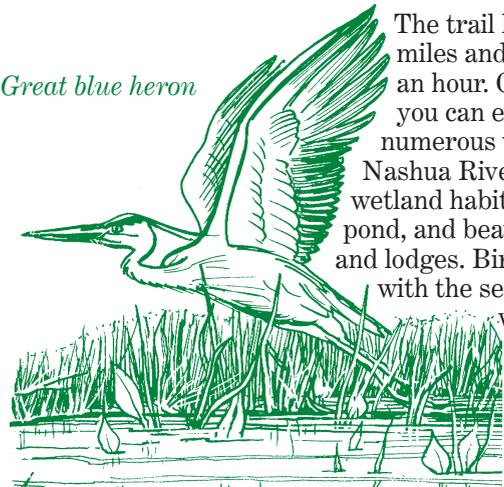
The refuge is open from sunrise to sunset. Wildlife-dependent recreation opportunities, including wildlife observation, photography, interpretation, and environmental education, are permitted on designated trails shown on this map. Fishing and hunting are allowed subject to refuge regulations, State and Federal laws and permit restrictions. The most intense hunt period is during the shotgun deer season in the fall. Most other times, hunt pressure is generally light. Please refer to the kiosk or the refuge website for more information about hunt seasons. Fishing is allowed on the Nashua River. Kayak and canoe access is allowed at the canoe launch on the entrance road just before the refuge parking area.

Refuge lands are closed to bicycles and motorized vehicles. Dogs and horses are not allowed. There are no picnic areas or campsites on the refuge.

Oxbow National Wildlife Refuge provides habitat for many mammals, birds, reptiles, and amphibians. Resident mammals include predators such as river otter, bobcat, red fox, and fisher, as well as deer, squirrels and rabbits. Because predators are secretive, they are seldom seen, even by regular visitors. Fortunately for human wildlife observers, birds are more visible. One mammal, the beaver, makes its presence obvious through large stick lodges and stumps of gnawed-down trees.

The home for all these creatures is created by the Nashua River and adjacent wetlands, and furnished by the vegetation of the swamp and forest. You are welcome to walk the refuge trail, but remember that here human beings are visitors in the home of other creatures. Both flowers and animals must be left where they are found. Please follow the posted regulations and, through your consideration, help care for this precious place.

*Great blue heron*



©June Henshaw

The trail loop covers 1.9 miles and takes about an hour. On this walk you can expect to see numerous views of the Nashua River, forest and wetland habitats, a beaver pond, and beaver stumps and lodges. Bird life varies with the seasons, as do wildflowers.



*Red fox*



*Buttonbush*

The terrain is flat except for one short section. Shoes, socks, and long pants will help protect you from insects and poison ivy found on the trail in late spring and throughout the summer. In these seasons insects can be plentiful and precautions will make your walk more enjoyable. Although this trail is not accessible to wheelchairs, nearby refuges have trails that are.

This guide follows the Riverside Trail, Turnpike Trail and parts of Tank Road, beginning at the information kiosk beside Tank Road.

About 30 yards from the gate, the trail turns left onto Riverside Trail and proceeds along the right bank of the river for 0.8 miles. Stay near the river and pass by the short connectors leading back to Tank Road. Turning away from the river, the trail follows a causeway called Turnpike Trail (a raised roadbed that crosses wetlands) for 0.7 miles. It then climbs back to Tank Road and returns to its starting point after another 0.4 miles. During wet periods the trail is temporarily flooded.

The Nashua River is a 56 mile long tributary of the Merrimack River, which it joins at Nashua, New Hampshire. At one time the Nashua River was seriously polluted, but thanks to the efforts of communities, industries along the river, the Massachusetts Department of Environmental Protection, and leadership of the Nashua River Watershed Association, water quality has improved.

You stand between a field and the riverbank. What forces have shaped what you see? The river has played a role and the effects of human management are also visible. The old

apple tree in front of you indicates past agriculture on this site. The field has received periodic mowing, which otherwise would return to forest. The community of plants and animals that live in the field increases the variety of wildlife at Oxbow NWR and adds to the biodiversity of eastern Massachusetts.

### Natural Levee

3

From this high bank you see the Nashua River flowing toward you on its way north to the Merrimack River, which carries its waters to the Atlantic Ocean.

You might notice that the land immediately adjacent to the river is higher at many points than the land a few feet farther from the water. When the Nashua River floods, water spills beyond the banks and is slowed by friction with the ground. Because slow-moving water cannot carry as much soil as fast-moving water, particles settle out. When the flood subsides, it leaves the river's natural levee a bit higher than it was before.

### Riparian Forest

4

The riverside woods, or riparian habitat, receive an ample supply of water with nutritious silt, offering an excellent situation for plants that are adapted to periodic flooding. Shagbark hickory is one of the trees most easily recognized by its shaggy bark. A yellow dye is made from the inner bark of this tree. Its nuts contribute to the forest food supply.

There are often signs of beaver activity along the trail. Beavers do not always build stick lodges. In rivers and lakes they may live in tunnels dug into the bank.



*Shagbark hickory*



*American woodcock*

### Nashua River

1

### Reading the Landscape

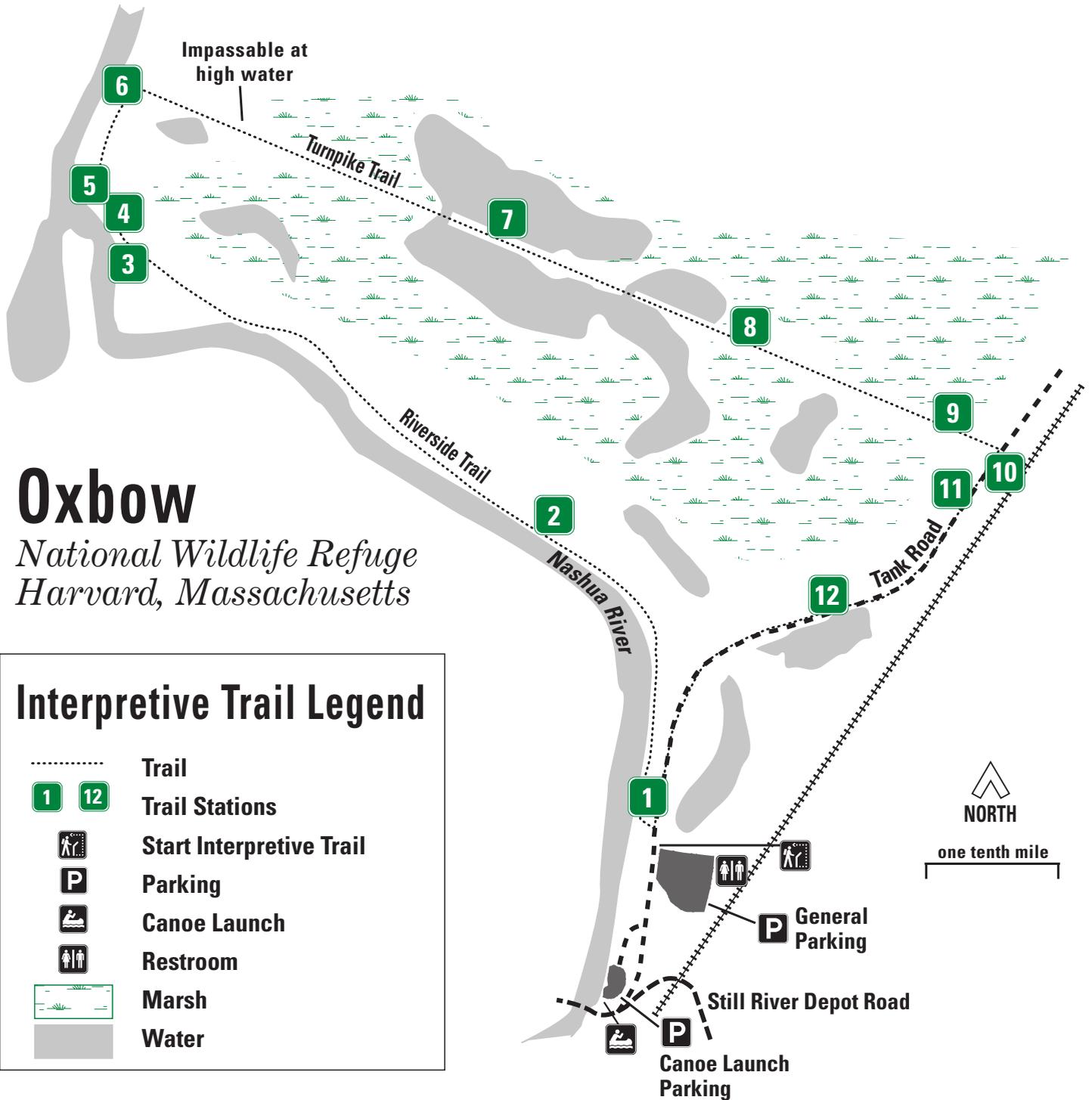
2

# Oxbow

*National Wildlife Refuge  
Harvard, Massachusetts*

## Interpretive Trail Legend

-----	Trail
1 12	Trail Stations
	Start Interpretive Trail
	Parking
	Canoe Launch
	Restroom
	Marsh
	Water



## Slough

5

The bay across the river is called a slough (pronounced slew). It is the footprint of an earlier course of the river. Over the centuries the Nashua River has twisted and turned in its valley. Like all streams and rivers, it scours the outside of bends while the slower-moving water leaves deposits on the inner curves. This activity creates the loops called oxbows that give their name to the refuge. Eventually the current cuts across the oxbow's neck and the abandoned channel becomes an eyebrow-shaped pond.

## Bridge Abutment

6

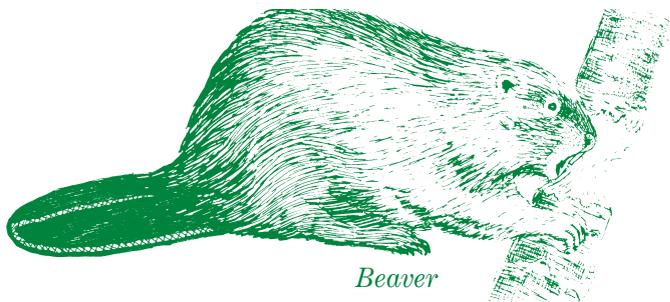
On both sides of the river's edge you can see mounded earth that is all that is left of the abutments of a wooden bridge that crossed the Nashua River. These are remnants of the Union Turnpike built in 1805 that ran from Harvard to Leominster. The Turnpike Trail is part of this historic turnpike.

## Beaver Lodge

7

Among the many animals that spend time at Oxbow NWR, beavers are the best at advertising their presence. The stumps of trees they cut down, their dams, and their large stick lodges indicate the power beavers have to modify habitat. Beaver ponds create openings in the forest that increase the variety of plants and animals.

In the summer beavers eat aquatic vegetation. The rest of the year they eat the bark of trees. An adult beaver cuts an average of one tree every two days.



*Beaver*

## Turnpike Trail

8



*Elderberry*

## Glacial Terrace

9

When this part of Massachusetts was first settled by the colonists, river meadows had critical importance. The thin-soiled, forested hillsides had little agricultural value in comparison with fertile, well-watered meadows. Farmers depended on hay as much as we do on petroleum. Causeways like this one were built by farmers to carry hay out of the low-lying wet meadows. The roadbed was improved over the years.

To the side of the road cut you see steep banks of sandy soil that fringe the marsh at many points. These banks formed in the final phase of the most recent ice age, as the glacier gradually melted. Sand and pebbles trapped in the glacier accumulated in steep banks where melt-water flowed alongside the huge tongue of ice occupying the bottom of the valley. Many New England river valleys have such formations which are termed kame terraces. As the trail climbs it affords a view of the marsh and swamp that make the Oxbow NWR unique wildlife habitat.

## Tank Road

10

The refuge itself was part of Fort Devens until 1974, when it was turned over to the U.S. Fish and Wildlife Service. The U.S. Army still maintains an active presence on their adjacent property. You may hear target practice while visiting Oxbow NWR.



*Belted Kingfisher*

## Beaver Management 12

Do you see the lodge in the middle of this pond? As a result of deforestation and unregulated hunting and trapping from the 1700's through the early 1900's, beaver numbers and their habitat were significantly reduced in eastern Massachusetts and were absent or rare until the last half of the twentieth century. Abandoned farms and reforestation during the 1900's led to the re-establishment of beaver populations. Although they reproduce rather slowly compared to other rodents, their population has steadily increased and the beaver is now a common mammal in Massachusetts.

Sometimes the beaver's industrious ways bring it into conflict with human plans. The sound of flowing water relaxes us, but it makes beavers want to build a dam. Here they plugged the culvert that keeps the stream from washing over the road. To save the road without harming the beavers, a "beaver deceiver" was installed, allowing water to drain from the pond without making much noise. Hopefully, the beaver's natural tendency to stop flowing water will be averted.



*Beaver lodge*

Thank you for visiting the Oxbow refuge today. We hope you enjoyed all the wonders of the natural world here and come back soon!

This trail guide was primarily written by Rona Balco and Ron McAdow of the Friends of Oxbow NWR. Funding to print the brochure was also provided by the Friends of the Oxbow NWR.



*White pine*

©Cindie Brunner

## Turnpike Trail

11

Here at the highest point of the trail you pass through a stand of white pine trees. When left to its natural cycles, the New England forest produces enormous white pines. At 200 years of age, white pines are far taller than any of our other trees, reaching 150 feet. White pines felled by the colonists were sometimes over 400 years old and 200 feet tall. Prized for the masts of sailing ships and other naval uses, the great pines were taken before less magnificent trees.



*Dragonfly*