

# Blackwater

*National Wildlife Refuge  
Wildlife Drive*

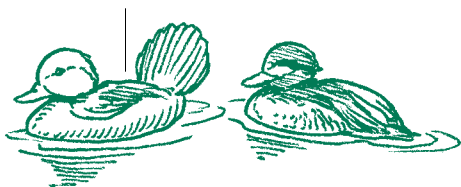


## Take a Drive on the Wild Side!

Blackwater National Wildlife Refuge welcomes you to tour our popular Wildlife Drive which can be accessed by automobile, bicycle or on foot. Walking and biking on the drive is permitted; however, visitors must remain on the paved road. While on the Refuge, please obey all signs, and do not feed or harass the wildlife.

This guide points out some of Blackwater's wildlife management programs. It is keyed to observation points along the drive.

National Wildlife Refuges provide protection, food and cover for wildlife through specific land and water management programs. Although the Refuge is managed primarily for migratory birds and endangered species, many other types of wildlife share the wide diversity of habitats. The careful observer will see a variety of plants and animals along the drive.



### 1. Moist Soil Vegetation

Freshwater habitat is scarce on Blackwater Refuge because of the predominantly brackish (mixture of salt and fresh water) conditions in the vicinity. The freshwater impoundment to your right (you are riding on the dike) was constructed to add to the diversity of habitat for wildlife. The small islands provide cover and nesting habitat for waterfowl.

Scan the shallow edges for dabbling ducks, such as mallards and Northern pintails; wading birds such as great blue herons and great

egrets; and shorebirds like yellowlegs and dunlins. In the summer the impoundments are drained to encourage the germination of natural moist soil vegetation, such as wild millet, smartweed, and redroot cyperus which provide food for waterfowl. The drained mudflats also provide good feeding areas for shorebirds and other marsh and water birds.

In the late summer, the water control structures are closed to allow rainfall to fill them, making the seeds and tubers of these plants and a variety of invertebrates, such as snails, worms, and larvae, available to the migratory waterfowl.

The water to your left is part of the Little Blackwater River. The river is named Blackwater because of the dark color from tannic acids picked up as it drains through peat soil in the marshes.

At this point, if you would like to visit the Observation Point and the Marsh Edge Trail, you may take the road to the left. To then rejoin the wildlife drive, double back and continue from here. A self-guiding leaflet for interpreting the Marsh Edge Trail is available at the trail head.

## **2. Bluebird Box**

On your left is a bluebird nest box. These boxes have been erected to help improve bluebird reproduction. Bluebird nesting sites have decreased due to the lack of natural nesting cavities. Nesting boxes are being installed in suitable habitat to allow the species to nest. Other birds such as tree swallows, chickadees, titmice, and wrens may also use the boxes. Bluebirds, as well as the other species, consume large quantities of insects, especially mosquitoes. As many as 140 bluebirds have been fledged in one year from the Refuge's boxes.

### 3. Wood Duck Box

A few duck species use hollow trees for nesting. Blackwater, the only cavity nesting duck is the wood duck. Timbering and land clearing for agriculture and development have eliminated many of the mature forests which historically provided an abundance of trees with natural cavities. These nesting boxes are used effectively to replace disappearing natural sites. When not occupied by wood ducks, the boxes may have flickers, sparrowhawks, and screech owls as tenants. The Refuge maintains about 200 wood duck boxes which fledge an average of 600 wood ducks a year.



Notice the cone shape structures below the boxes. This is called a “predator guard”, which helps keep out nest predators such as raccoons and snakes.

### 4. Prothonotary Warbler Box

Prothonotary warblers are one of the two cavity nesting warblers in the United States. Most warblers build their nests in small trees or shrubs, or on the ground. Prothonotary warblers prefer natural cavities (decaying snags) located over water in swampy lowland forest or river bottom woodlands. Humans have reduced and altered natural habitats making nesting sites increasingly more difficult to find. Since these warblers do not excavate their own holes so they compete with other cavity nesters like Downy woodpeckers, Carolina chickadees, and Carolina wrens for nest sites.

### 5. Delmarva Fox Squirrel

This woodland is managed to provide habitat for the endangered Delmarva fox squirrel which prefers a mature forest with little undergrowth. At one time these large squirrels, extended from southeastern Pennsylvania to Virginia, but natural populations are now found in only four counties on Maryland’s Eastern Shore. They



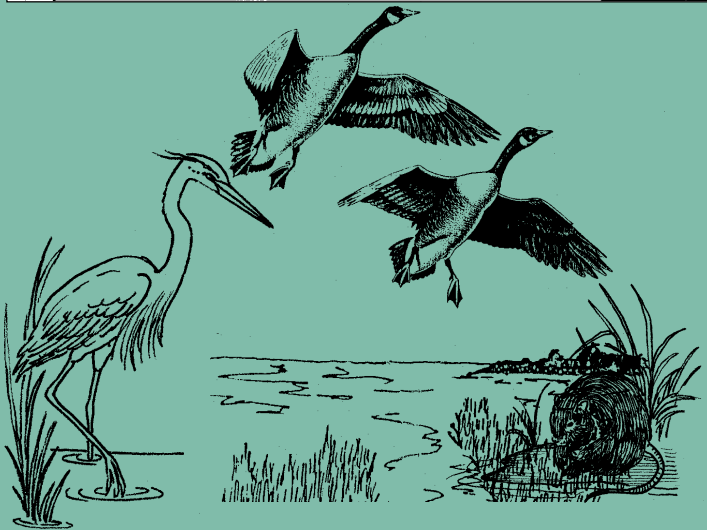
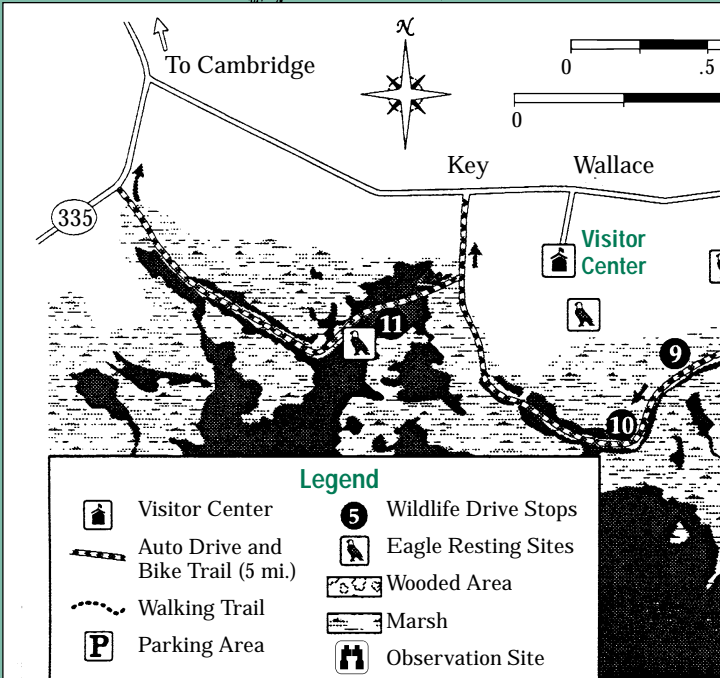
have become endangered, in part, due to the conversion of forests to agriculture and development for human use. Blackwater Refuge provides habitat and protection to the largest remaining natural population of Delmarva fox squirrels in the world. The Delmarva fox squirrel has a light, steel-gray coat and a large fluffy silvery tail with black edges. The gray squirrel, which also inhabits the Refuge, is smaller and has reddish or brown hair mixed in with the gray coat. The Delmarva fox squirrel feeds more on the ground than the gray squirrel and can be seen venturing further into fields to feed on agricultural products.

You will pass a parking area on your right for one of the Refuge's walking trails, the Woods Trail. In Spring, these wet woods are alive with the calls of mating tree frogs and toads and numerous songbirds. The Woods Trail allows you to trek through Delmarva fox squirrel habitat and hopefully observe this endangered species. If you choose to hike the one-half mile woodland trail, you may want to apply insect repellent, as biting insects are abundant from mid-April through late September.



## 6. Deer

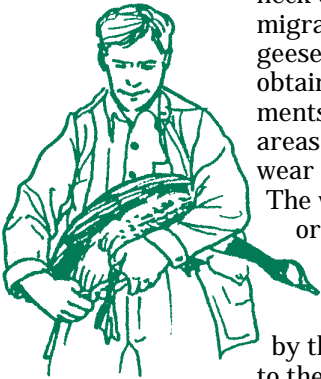
An important part of wildlife management at Blackwater is the diversity of the agricultural fields. More than 800 acres of croplands are planted with millet, sorghum (milo), corn, buckwheat, clover,





soybeans, or rye grass to provide high energy food and cover for many species of wintering waterfowl and other wildlife. White-tailed deer may be seen feeding in these fields, especially in the early morning or evening. They prefer the “edge” habitat where forests, meadows, and croplands come together. In addition to white-tailed deer, smaller, white-rumped sika (pronounced “see-kuh”) deer, which is an Asian species of elk introduced to James Island in 1916, can also be observed at Blackwater. Abundant in the marshy areas, sika deer are grazers that feed on the marsh grasses, while the white-tailed deer are primarily browsers that feed on the leaves, buds and twigs in forested areas. Both species, however, use agricultural crops.

## 7. Waterfowl

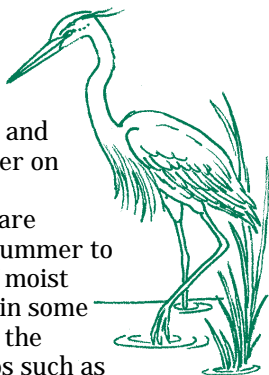


As you drive through the Refuge, you may notice that some of the Canada geese are wearing numbered neck collars. The collars (white on migratory geese, yellow on resident geese) were placed on the geese to obtain information on their movements and abundance in different areas. Many of the waterfowl also wear numbered aluminum leg bands. The waterfowl are captured in nets or wire traps, identified, banded and then released. Each bird's species, age, sex, and date and place of banding are recorded by the Refuge staff and forwarded to the Banding Laboratory in Laurel, Maryland. Recovered bands are turned in by hunters, or band numbers are reported by other banding stations when these birds are recaptured. Information on migration and other aspects of their life history are valuable for proper waterfowl management. Species of waterfowl using Blackwater include Canada and snow geese, tundra (whistling) swans, and more than 20 species of ducks.



## 8. Fresh and Brackish Water Marshes

From here you can see typical habitat used by waterfowl, marsh birds, and muskrats. The dike you are on separates the freshwater impoundments on your right from the tidal, brackish marsh and Blackwater River on your left. The impoundments are drained in the summer to allow growth of moist soil plants, and in some impoundments, the planting of crops such as japanese millet or milo. The impoundments are then flooded in the fall mainly through rainfall. By carefully controlling water levels in the impoundments, abundant high energy and protein foods, and resting sites are made readily available to the waterfowl and other migratory birds that depend on the Refuge from fall to spring.



In late winter prescribed burning is undertaken in the marsh to remove dead vegetation. This helps to promote new, vigorous spring growth of the Olney three-square (*Scirpus americanus*) and other marsh vegetation that is eaten by waterfowl, muskrats, and nutria. Burning also prevents the buildup of the dried vegetation that can cause extremely hazardous and volatile conditions that can fuel wildfires.

During the summer, egrets, herons, and other water birds feed on fish and crustaceans of the brackish marsh. They also eat frogs and snakes found in the fresh waters of the impoundments. Turtles are often seen sunning themselves on the logs. Approximately 45 species of reptiles and amphibians are found on the Refuge.

## 9. Muskrat and Nutria



Musk rats, sometimes observed swimming in the water, not only feed on the marsh vegetation, but also use it to build dome shaped homes called lodges. These can be readily seen after prescribed burning of the marsh, but are hard to find in the summer when the marsh vegetation grows higher than the lodges. The large rodents reproduce very rapidly. The young are considered adults in approximately two months. Trapping by permit is used to control the muskrat population, and prevent damage to the marsh vegetation from overgrazing.

The nutria, a much larger South American rodent, was introduced in this area in the 1940's for their fur. Nutria burrow into the marsh to feed on the roots of marsh plants. They reproduce more rapidly than the muskrat, do not have any natural predators, and there is little demand for their fur. As a result, the population is expanding and causing a great deal of damage to the marsh. Large mud flats where nutria have destroyed the marsh vegetation are visible at low tide.

## 10. Osprey



The nesting platform to your left helps to compensate for the scarcity of suitable tall trees near the water on which osprey would normally build their nests. The shallow water surrounding the structure provides excellent fishing habitat for this "fish hawk."

The osprey, is staging a comeback after its decline as a result of pesticide use and increased human activity. The pesticide, DDT, which caused the eggs that were laid by these birds to be too thin and too soft to hatch, was banned in the United States in 1972. This legislation and various management techniques has helped raise the

population of the osprey as well as other raptors such as the bald eagle and the peregrine falcon.

## 11. Bald Eagle

The dead tree “snags” to your left are a favorite resting spot for the threatened bald eagle as well as for hawks, vultures, herons, and egrets. Bald eagles prefer the tall loblolly pines isolated near the water for nesting and roosting. Areas on Blackwater Refuge where eagles nest are protected from human disturbance to prevent nest abandonment. There are approximately 60 eagles on the Refuge year round, with winter populations often exceeding 150. Another endangered species, the peregrine falcon, migrates through the Refuge in the fall and spring.

## U.S. Fish and Wildlife Service

Blackwater is one of more than 510 refuges in the National Wildlife Refuge System administered by the U.S. Fish and Wildlife Service. The National Wildlife Refuge System is a network of lands and waters managed specifically for the protection of wildlife and wildlife habitat and represents the most comprehensive wildlife management program in the world. Units of the system stretch across the United States from northern Alaska to the Florida Keys and include small islands in the Caribbean and South Pacific. The character of refuges is as diverse as the nation itself. The Service also manages National Fish Hatcheries, and provides Federal leadership in habitat protection, fish and wildlife research, technical assistance and the conservation and protection of migratory birds, certain marine mammals, and threatened and endangered species.

Blackwater National Wildlife Refuge  
2145 Key Wallace Drive  
Cambridge, Maryland 21613-9535  
410/228 2677  
fax 410 228 3261  
email [RSRW\\_BWNWR@mail.fws.gov](mailto:RSRW_BWNWR@mail.fws.gov)

Hearing impaired visitors may call the  
Maryland Relay Service at TDD/800 735 2258 voice

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

January 1999

