

U.S. Fish & Wildlife Service

# Bombay Hook

*National Wildlife Refuge  
Auto Tour*





Welcome to Bombay Hook National Wildlife Refuge, haven for wildlife and nature lovers seeking to study, photograph, and simply enjoy the environment at its scenic and protected best. This refuge is managed primarily for migrating and wintering ducks, geese, shorebirds, and other migratory birds, including the southern bald eagle and peregrine falcon. It is also managed to provide a diverse group of habitats: freshwater, brackish and salt marsh, bay, grassland, cropland and forest which encourages plant and animal diversity.

## **History**

### *Tour Stop 1*

*This brochure corresponds with the numbered signs along the auto tour route.*

Recorded history of the area began in 1679 when the Indian Machacksett, Chief Sachem of Kahansink, sold to Dutch settlers some marshland called "Boompies Hoock" (which means tree thicket or point of trees in German) for a price of...one gun, fower hands full of powder; three Mats coats, one anckor of Liquors and one Kittle..." The Great Storm of 1878 took out many of the trees in the marsh. At low tide one can still see the stumps.

The settlers that followed cut salt hay, trapped muskrats and terrapins, hunted waterfowl, and plied the tidal streams for fish, crabs, and oysters.



Bombay Hook Refuge, comprising 15,978 acres, was established March 16, 1937. Soon afterward, Civilian Conservation Corps members (part of a program set up by President Roosevelt to help unemployed men during the Great Depression Era) began constructing pools for wildlife habitat as well as buildings to administer the area.

Waterfowl habitat management is very active here, and is done in conjunction with the North American Waterfowl Plan's Atlantic Coast Joint Venture. The North American Plan is an agreement by several federal agencies, states, Canada, Mexico, and the private sector to conserve, restore and enhance wetland habitat.

### **Cooperative Farming** *Tour Stop 2*

A major refuge wildlife objective is to support migrating geese and ducks. Much food for these birds is supplied by the aquatic environment. However, crops are planted by local farmers on a cooperative basis on about 1,100 acres of the refuge to provide additional food. Corn and soybeans are the primary crops harvested by the farmers for market, while other crops (winter wheat, buckwheat, grass/clover pasture) are left for wildlife. Farmers supply some corn for the refuge to use in conjunction with waterfowl banding.

The gray-green tower on your left is a lookout used when geese are captured for banding. Corn is spread on the field in front of the carefully-spread net. Several cannons with black powder charges are attached to the net. When enough birds have been attracted by the corn, the cannons are fired. This casts the net over the geese without harming them. All birds are released after numbered bands have been placed on their legs.



### **Freshwater Impoundments** *Tour Stop 3*

The ability to manipulate water levels in these pools is the key to creating necessary habitats. Pool levels are maintained by the use of water control structures with stoplogs. In the spring, excess water in the pool is released to the salt marsh to create mudflats which provide a food source for wading birds and shorebirds.

During the summer, emergent plants like wild millet, three-square bulrush, cattail, pond weed, wigeon grass, and wild rice thrive and produce seed in the shallow waters and exposed pool margins. Low pool levels that favor the growth of waterfowl foods also favor invertebrate species that are a food source for shorebirds.

Fall rains permit pool water levels to shallowly flood the seed-bearing plants. This flooding provides suitable conditions for waterfowl to feed on the plants, maximizing their food supply.

### **Sheariness Pool** *Tour Stop 4*

Sheariness Pool, on your left, is the largest of the four freshwater impoundments. It is the most likely area on the refuge to see southern bald eagles, which may be perched in trees, or feeding on fish, crippled ducks, or geese. Bald eagles nest on the refuge.



**Tidal Saltmarsh**  
*Tour Stop 5*

The trap beyond the Shearness Pool parking lot is used to capture ducks for banding. The trap, which is baited with corn, allows ducks to enter, but does not allow them to escape. Portable duck traps are also used around the refuge and placed wherever the ducks are concentrating.

Tidal saltmarsh supplies organic materials for the food chain, circulates nutrients, provides nesting habitat for waterfowl and serves as a nursery area for fish.

A variety of waterfowl nest in the marsh, including black ducks, mallards, gadwalls, and blue-winged teal.

Bombay Hook Refuge hosts more than 100,000 migrating greater snow geese every year. Large numbers of geese can “eat out” salt marsh vegetation when they feed on the roots of wetland plants. To lessen this damage, managed snow goose hunts are used on the refuge to disperse the flocks. In the spring and through the fall, shorebirds can be seen feeding on these flats at mid to low tide, feasting on invertebrates. Along the bay shoreline, shorebirds feast on the eggs of horseshoe crabs.



The mud and reed mounds scattered across the tidal salt marsh are muskrat houses. Because a large population of muskrats can damage marsh vegetation, trapping by permit is used to control muskrat numbers.

**Wildlife Food Plot**  
*Tour Stop 6*

To your left is a wildlife food plot, planted with bicolor lespedeza. Other food plots on the refuge may consist of buckwheat, millet, or autumn olive. These food plots attract a variety of wildlife, and supplement natural food sources. Food plots also provide habitat for ground-nesting birds and breeding areas for small mammals.

Food plots are sometimes prepared and planted by neighboring farmers as part of their cooperative farming agreements with the refuge.

**Loafing Area**  
*Tour Stop 7*



The islands to your left in the Bear Swamp Pool are loafing (or resting) areas for wading birds. Throughout the summer, these islands are used by snowy egrets, great egrets, great blue herons, and black-crowned night herons. During the fall hunting season, you may see grass-covered water blinds, used by Young Waterfowlers. Under this program, youths aged 12 to 18 are taught hunting safety, ethics, regulations, and waterfowl identification before participating in a refuge hunt.

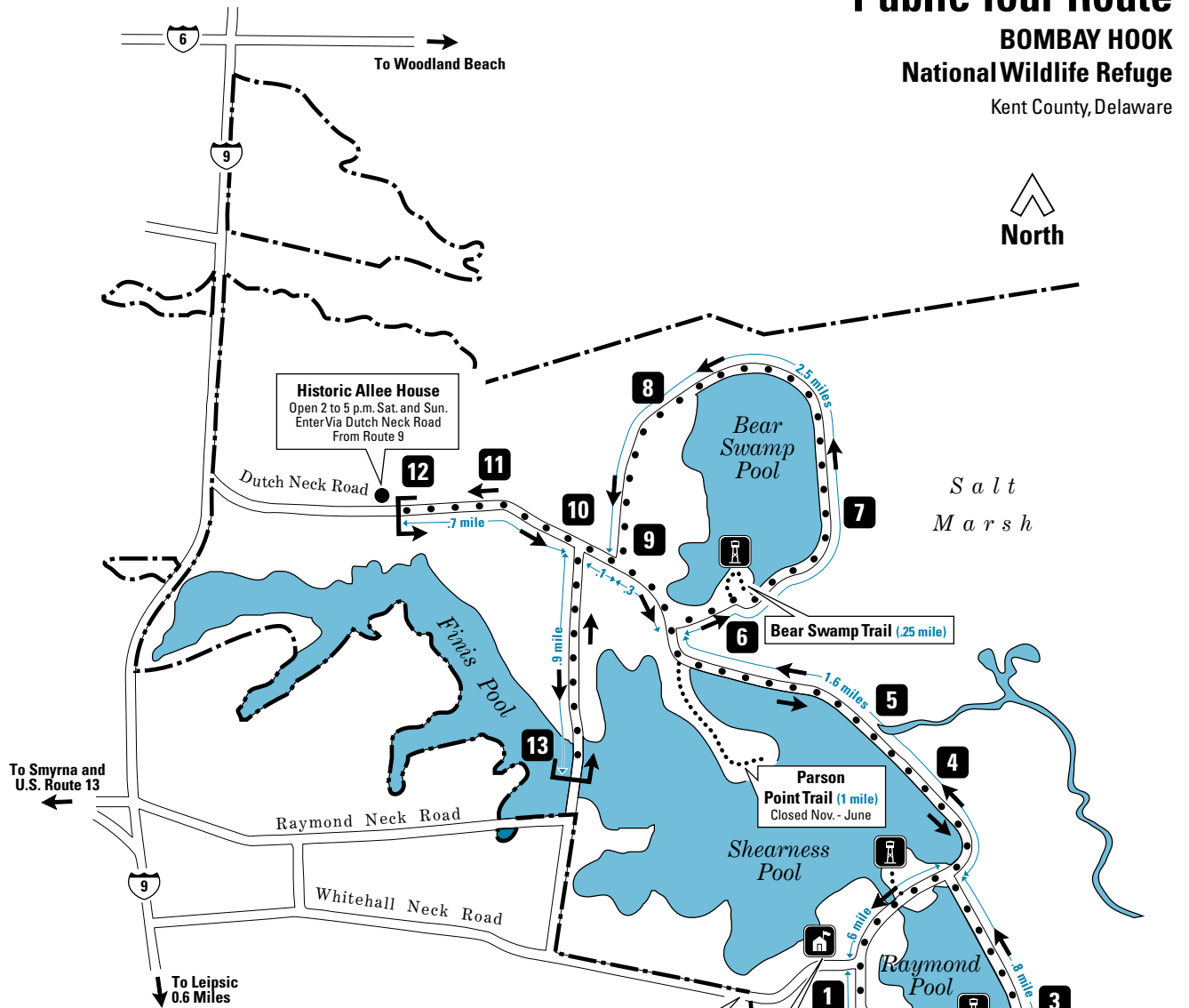


# Public Tour Route

BOMBAY HOOK

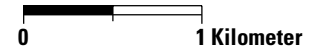
National Wildlife Refuge

Kent County, Delaware



## Legend

- Tour Route
- Refuge Headquarters
- Refuge Boundary
- Observation Tower
- Foot Trails
- Traffic Flow





### **Bird Banding** *Tour Stop 8*

The bin to your left can store corn used during waterfowl banding. When banding takes place, the age and sex of captured birds are recorded and matched with the numbers on the band. Information on the birds is sent to the Migratory Bird Banding Laboratory in Laurel, Maryland. If you recover a banded bird, the band, along with information about where the bird was found, should be sent to the Bird Banding Laboratory. Through bird band returns, much valuable information is gained about bird populations and migration patterns. The bird house to the left of the corn bin is for bluebirds to nest in. Bluebirds sometime compete with the tree swallows and house wrens for these boxes, which are placed in meadow areas around the refuge. The 50 boxes around the refuge fledge about 80-90 bluebirds per year. The concrete slab beneath the corn bin is all that remains of the Civilian Conservation Corps (CCC) dining hall from the depression years.

### **Old Field** *Tour Stop 9*

On a regular basis some fields are rotated from agricultural production and planted to the grass/lespedeza mixture. Areas like this throughout the upland portions of the refuge provide ideal nesting or breeding cover for a wide variety of birds and mammals, including ducks, quail,



rabbits, pheasants and white-tailed deer. The old fields are mowed and/or burned every two to three years to prevent the growth of woody vegetation.

### **Woodland** *Tour Stop 10*

Beyond the water to your left is a 410 acre woodland. It is managed to provide habitat for many species of plants and animals. Sweet gum, white oak and black tupelo are the larger trees in these woods. American holly, jack-in-the-pulpit, bloodroot, ground pine, and ground cedar also grow here.

Animal species that use these woods for food and cover include white-tailed deer, opossums, skunks, raccoons and foxes. Each spring the woodland is alive with the sounds of warblers and other songbirds.



**Moist Soil  
Management**  
*Tour Stop 11*

The small land depression to the left is one of a series of units being created throughout the refuge to provide wetland habitat diversity. The small levee in the ditch to your right accommodates a water control structure which allows us to hold up to several inches of water. Varying water levels throughout the growing season in turn encourage desirable wetland plants to grow. Many species of birds, mammals, reptiles, amphibians and invertebrates utilize moist soil management areas.

**Allee House**  
*Tour Stop 12*

This small country-style farm house of the Queen Anne period preserves a bit of history on the refuge. Built about 1753, it is on the National Register of Historic Places. Tours of the house are provided on Saturdays and Sundays from 2-5 p.m. during the spring and fall. The house is restored, complete with period furniture.

During the fall, you may notice goose blinds and elevated deer stands (platforms) in field and woodlands along the road near the Allee House. On specified days, this area is open to waterfowl and deer hunting on a permit basis.



**Finis Pool**  
*Tour Stop 13*

Finis Pool contains the freshest water of any impoundment on the refuge. Beyond the pool is Finis Branch, the primary fresh water source for all impoundments. Beaver and muskrat can be spotted in this area as well as an occasional river otter. Barred owls, green backed and little blue herons have also thrilled the patient observer.

Wood ducks, which need cavities for nesting, use the wooden boxes you see around the refuge. The cone skirts prevent raccoons and snakes from getting into the nest and destroying the eggs or ducklings. Most boxes have now been moved just inside the woods of these swamps to reduce the visibility from one box to another. Boxes in more visible locations tend to be used by more than one female, which may reduce hatch success.







The refuge staff hopes you have enjoyed your tour. Please let us know about your wildlife encounters. To do this, either stop at the Visitor Center or record your sightings on the observation list kept in the brochure rack near the restrooms.

**U.S. Fish and  
Wildlife Service**

Bombay Hook is one of over 500 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 the refuges is as diverse as the nation itself.

The Service also manages National Fish Hatcheries, and provides Federal leadership in habitat protection, technical assistance, and the conservation and protection of migratory birds, certain marine mammals and threatened and endangered species.

*All photos by  
USFWS unless  
otherwise noted.*



Photo by Shireen Gonzaga



**Bombay Hook National Wildlife Refuge  
2591 Whitehall Neck Road  
Smyrna, DE 19977-9764**

**Office: 302/653 9345  
Visitor Center: 302/653 6872  
Email: [r5rw\\_bhnwr@fws.gov](mailto:r5rw_bhnwr@fws.gov)**

**Hearing impaired visitors may call the  
Delaware Relay Center at 800/232 5460  
TDD at 800/232 5470 voice.**

**U.S. Department of Interior  
U.S. Fish and Wildlife Service**

**January 2000**



**Photo by Bryan Feyock**