

Bombay Hook
National Wildlife Refuge
2591 Whitehall Neck Road
Smyrna, DE 19977
302/653 9345 Office
302/653 6872 Visitor Center
302/653 0684 Fax
Email: R5RW_BHNWR@mail.fws.gov
www.fws.gov/northeast/bombayhook
 <http://www.facebook.com/bombayhookwildliferefuge>

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

U.S. Fish & Wildlife Service
1 800/344 WILD

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U.S. Fish & Wildlife Service

Bombay Hook

National Wildlife Refuge



Great blue heron
Tim Williams

*Bombay Hook
National Wildlife
Refuge protects
one of the largest
remaining expanses
of tidal salt marsh
in the mid-Atlantic
region. The refuge,
located along the
coast of Delaware, is
mostly marsh, but also
includes freshwater
impoundments and
upland habitats that
are managed for
migratory birds and
other wildlife.*

Introduction



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

Bombay Hook was established in 1937 as a link in the chain of refuges extending from Canada to the Gulf of Mexico. It is primarily a refuge and breeding ground for migrating birds and other wildlife. The value and importance of Bombay Hook for migratory bird protection and conservation has increased through the years, due to the management of the refuge and the loss of high quality habitat along the Atlantic Flyway. Today the refuge encompasses 16,251 acres.



History

The recorded history of Bombay Hook begins in 1679 with the sale of marshland by Mechacksett, Chief of the Kahansink Indians, to Peter Bayard of New York. Known to the Native Americans as Canaressse, meaning “shaggy bushes” or “thicket,” the name Bombay Hook evolved from the Dutch name “Bompies Hoeck” meaning “little-tree point.” Dutch settlers cut salt hay from the marsh, trapped muskrats and hunted waterfowl. The tidal streams that interlace the marsh provided fish, crabs and oysters.

From 1938 until 1942, an African-American company of the Civilian Conservation Corps (CCC) completed construction projects to establish a refuge for migratory waterfowl at Bombay Hook. They built a dike and water control structures creating Raymond Pool, enclosed Shearness Pool and built a causeway at Finis Pool. They cleared timber and undergrowth

Salt marsh

Tim Williams

from Shearness and Finis swamps. The CCC built a headquarters building, two houses, a boathouse, and a 90-foot observation tower. They also built and maintained roads, planted more than fifty thousand seedling trees, and assisted in a mosquito control research project.

CCC removing tree stumps





The Allee House

With the onset of World War II, the Army Air Corps, based at Dover, used parts of the refuge for training with air-to-ground rockets.

Allee House

The Allee House at Bombay Hook stands today, just as it did in the eighteenth century, overlooking expansive fields and marshes. The restoration of the Allee House was completed in 1966, and, in 1971, it was placed on the National Register of Historic Places as an important example of the brick plantation houses of eighteenth century Delaware.

Diamondback terrapin

The Allee House is again in need of restoration. Over time, the house's



Pintail
Earl West

walls and support beams have become damaged and weakened by water. The house is not open to the public at this time.

Refuge Management and Objectives

Delaware Bay is the second largest staging area for spring migratory shorebirds in North America. Refuge management programs are primarily aimed at developing and protecting habitat for migratory birds. The refuge is a focal point for waterfowl migrating between their northern breeding grounds and southern wintering areas. Large numbers of ducks and geese arrive each fall to spend the winter or to stop over as they head south.



Great egret
Tim Williams

Water levels in refuge impoundments are manipulated to produce desirable emergent and underwater plants for waterfowl. When pools are drawn down, large populations of shore and wading birds feed on the mudflats. Upland fields and forests provide habitat for a variety of migratory birds and other wildlife.

Tidal salt marsh is some of the most valuable wildlife habitat in Delaware. The 13,000 acre marsh, with its intersecting tidal streams and rivers, provides excellent natural habitat for birds and mammals and serves as a nursery for marine organisms. Refuge

staff partner with area universities and conservation agencies for important salt marsh and migratory bird issues. They work together on research projects to monitor habitat health and to identify management and restoration opportunities.

Wildlife Calendar

Wildlife can be seen year round at Bombay Hook.

Mammals can be seen year round, particularly in the early morning and evening hours. These include white-tailed deer; beaver; muskrat, red fox, river otter; woodchuck and opossum.



Tim Williams

Yellow warbler

Fall and spring offer the best opportunity for observing peak concentrations of migratory birds. November and December are typically the most interesting since waterfowl populations are at their peak. More than 150,000 ducks and geese use the refuge at this time.

Spring is a great season to visit the refuge. March has another peak for waterfowl populations as they travel to their northern breeding grounds. April brings early shorebird migrants from South America and the emergence of reptiles and amphibians from winter hibernation.

Red fox
Tim Williams





Heading North on Route 13 from Dover, take Route 42 East to Route 9, Leipsic. Proceed North on Route 9 for 2 miles and take a right on Whitehall Neck Road, which ends at the refuge entrance.

Heading South on Route 13 from Smyrna, take Road 12 East (Smyrna-Leipsic Rd.) until it merges with Route 9 (5 miles), and take a left on Whitehall Neck Road after 1/4 mile.

Heading North or South on toll road Route 1 take exit 114 (Smyrna-South exit). At the end of the ramp turn right at traffic light onto Route 13 North. Turn right at next light onto Road 12 East (Smyrna-Leipsic Road). This road merges with Route 9 South (5 miles). Turn left onto Whitehall Neck Road which ends at refuge entrance.



Sunset on the refuge
Tim Williams

Shorebirds are at their highest concentration during May and there are excellent viewing opportunities along the driving route. They come to Delaware Bay primarily due to the arrival of horseshoe crabs that are laying eggs along the shore. These eggs provide the shorebirds with energy needed to complete their northward migration. Shorebirds also feed on invertebrates in the tidal marshes and exposed mudflats, providing opportunities for visitors to view thousands of shorebirds. May is also the peak time for warblers, with five nature trails offering great birding opportunities.

*Northern
harrier*



Tim Williams

Wading birds, such as herons, egrets and glossy ibis, reach their peak numbers during the summer months.

Public Use

In 1997, the National Wildlife Refuge System Improvement Act was passed, establishing wildlife conservation as the fundamental mission of the refuge system. The Act also recognizes public wildlife recreation opportunities as priority uses of the refuge system, including



Jack-in-the-pulpit

wildlife observation and photography, environmental education and interpretation, hunting, and fishing. At Bombay Hook, fishing is the only one of these uses that is prohibited and there is no public boat access. As this is a National Wildlife Refuge, collecting, disturbing, feeding, injuring or damaging animals and plants is prohibited.

The visitor center is open Monday-Friday from 8:00 a.m. to 4:00 p.m. and open on spring and fall weekends from 9:00 a.m. to 5:00 p.m. The visitor center as well as Boardwalk and Bear Swamp trails are accessible to visitors with disabilities.



Bird watching
Mark Dever

A 12-mile round-trip wildlife drive and five nature trails (ranging from $\frac{1}{4}$ to 1 mile in length) provide opportunities to observe and photograph wildlife. Three trails have 30-foot observation towers.

Public hunting, primarily for deer and waterfowl, is permitted under special regulations on portions of the refuge during Delaware state seasons.

Blue grosbeak
Tim Williams





Aerial view
Bill Buchanan

Environmental education and interpretive programs are available on the refuge. Volunteer, teacher, and leader workshops are offered in the spring and fall. The diverse group of habitats — freshwater, brackish, salt marsh, bay, grassland, and forest — provide excellent opportunities to study and compare habitats.

General public programs are offered throughout the year and are listed on Bombay Hook's website www.fws.gov/northeast/bombayhook.

Volunteers staff the visitor center, manage the refuge store, conduct environmental education programs, lead activities during special events, assist with wildlife surveys, and provide landscaping and trail maintenance.

Contact the refuge office or check the website for more information on recreational opportunities, refuge closures, regulations, and volunteer opportunities.

Entrance Fee Options

To help purchase more wildlife habitat and to sustain refuge operations, Congress passed the Emergency Wetlands Resources Act in 1986. The law authorized the Fish and Wildlife Service to charge entrance fees at Bombay Hook.

Black-necked stilt on nest
Earl West



Visitors may pay the daily fee or purchase one of several annual passes—the Federal Duck Stamp, Bombay Hook Pass or Interagency Annual Pass. A free Interagency Annual Pass can be issued to active duty military personnel and their dependents with proper identification. Anyone 62 years or older may purchase the lifetime Interagency Senior Pass for \$10. Blind and permanently disabled persons are eligible for a free lifetime Interagency Access Pass.

All passes will admit a carload of 4 adults. Children under 16 are admitted free. Educational and scientific groups may enter free with prior notice. Refuge staff will be happy to issue a pass and answer any questions.

**The National
Wildlife Refuge
System**

Bombay Hook National Wildlife Refuge is one of more than 560 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, fish and wildlife research, technical assistance and the conservation and protection of migratory birds, certain marine mammals and threatened and endangered species.

Snow geese
Jaime Richie

