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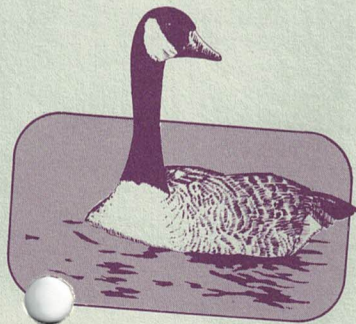
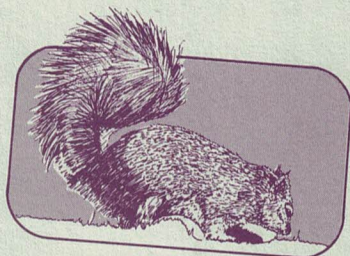
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# BLACKWATER

NATIONAL  
WILDLIFE  
REFUGE



MARYLAND

## WELCOME

Blackwater National Wildlife Refuge, located 12 miles south of Cambridge, Maryland, was established in 1932 as a refuge for migratory waterfowl. Most of its 14,263 acres is composed of rich, tidal marsh characterized by fluctuating water levels and variable salinity. Other habitat types include freshwater ponds, mixed woodlands, and a small amount of cropland.

Although originally established for ducks, Blackwater has become one of the chief wintering areas for Canada geese using the Atlantic Flyway. Geese number approximately 60,000 and ducks exceed 35,000 at the peak of fall migration, usually in November.

Blackwater is also haven for three of our nation's endangered species, and possibly a fourth. The resident bald eagle and Delmarva fox squirrel are regularly seen on the refuge as is the migrant peregrine falcon during certain periods of the year. It is possible that the red-cockaded woodpecker also occurs here though regular sightings have not been confirmed in recent years.

## HISTORY

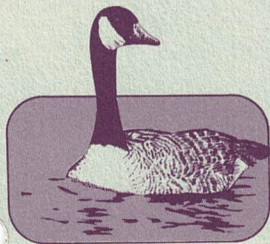
Before its designation as a refuge, most of the marshland along the lower Blackwater River was managed as a fur farm. At that time, muskrats were the primary species trapped. Most of the wooded lands, including the islands, have been cut over for timber. Drainage ditches and old furrows criss-cross in some existing woods indicating past agricultural use.

## WILDLIFE

The varied habitats of Blackwater — from open water to dense woodlands — produce a diversity of wildlife in a panorama that changes by numbers and species with the seasons.

### Birds

The best time for viewing waterfowl is between mid-October and mid-March. Wintering species include whistling swans, Canada and snow geese, and ov



## MANAGEMENT

### Waterfowl

Refuge programs specifically designed for waterfowl include: management of the brackish marsh to produce succulent natural foods, limited planting of crops to encourage waterfowl to use areas where they may be observed by visitors, and management of impoundments to provide fresh water habitat. Although waterfowl hunting is not permitted on the refuge, hunting is extensive on surrounding areas. A winter trapping program, regulated by the refuge and accomplished by trappers under special permit, provides protection for fragile marsh vegetation by lessening the impact of foraging furbearers. All management programs are carefully monitored to ensure the best interests of wildlife resources.

## WILDLIFE CALENDAR

Events may vary by one or two weeks weather conditions.

### JANUARY

Geese, swans, and ducks remain in the marsh with hawks, great blue herons, and a few shorebirds. Mid-winter observations are best during thaws. Eagles, both bald and golden, are sometimes conspicuous along the Wildlife Drive. Great horned owls are incubating eggs while bald eagles rebuild their nests high in loblolly pine trees.



### FEBRUARY

First northward-bound migrants appear — killdeer, robins, and bluebirds. Eagle late in the month.

### MARCH

Most migratory waterfowl departing for Masses of red-winged blackbirds pass to stay to set up territories.

### APRIL

Resident ducks and geese incubating. Migratory marsh birds return by mid-April and green-winged teal passing through are latest in spring and earliest in fall) reproducing. Eaglets hatching.

### MAY

Migratory songbirds peak in late April with warblers being most conspicuous White-tail fawns (usually twins) begin to

### JUNE

Ospreys hatching in early June. Muskrats (though seldom seen) repopulate the marsh with several litters a year. Eaglets fledge.

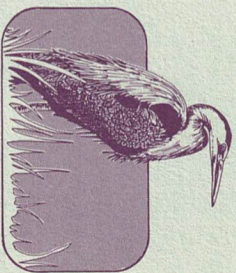


20 duck species. The most common ducks found here are mallards, black ducks, blue-winged teal, green-winged teal, wigeon, and pintails. Although most waterfowl migrate north in the spring, some remain through the summer, using the protected areas of the refuge to raise their young. These nesting waterfowl include Canada geese, mallards, black ducks, and blue-winged teal.

Other resident birds include the great blue heron and the bald eagle. Sightings of eagles are fairly common as Blackwater is the center of the greatest nesting density of bald eagles in the eastern United States north of Florida.

Numerous marsh and shore birds arrive in the spring, searching for food in the shallow waters. Ospreys, or "fish hawks," are common spring through fall and conspicuously use nesting platforms that have been placed throughout the marsh.

The refuge woodlands provide year-round homes for towhees, woodpeckers, brown-headed nuthatches bobwhite, and woodcock. The warmer months invite warblers, vireos, orioles, flycatchers, and many others to this same habitat. A complete list of the birds has been published.



## Mammals

In addition to its extensive list of birds, Blackwater harbors a variety of mammals, including raccoons, otters, opossums, skunks, and the elusive red fox. Muskrats are common in the marsh, as is the larger nutria, a South American rodent introduced to this country in the 1930's. The nutria population, on the refuge, greatly fluctuates due to occasional severe winters. White-tailed deer can sometimes be seen in wooded areas and in fields along the forest edge. Asian sika deer, introduced to nearby James Island in 1916, prefer the wet woodlands and marsh. They are more nocturnal and, therefore, are less visible than the white-tails. Both gray squirrels and Delmarva fox squirrels inhabit the wooded areas.



## Endangered Species

Endangered species (now protected by the 1973 Endangered Species Act) are a special responsibility at Blackwater. One of these species is the Delmarva fox squirrel which once ranged from southeastern Pennsylvania down through the Delmarva Peninsula. This large, light-gray squirrel now exists in only four counties along Maryland's Eastern Shore and at Chincoteague National Wildlife Refuge in Virginia. The loss of suitable woodlands (due primarily to the demands of a growing society) is a major factor in its decline. Forest management programs at Blackwater aim to simulate and restore the type of habitat required by this beleaguered squirrel.

Our national symbol, the bald eagle, is another endangered species found on the refuge. Like other birds of prey, the eagle's decline stems from causes endemic to our times — pesticides, pollution, irresponsible shooting, and human encroachment. The refuge offers constant protection for this diminished species.

Two other endangered species which might utilize the Blackwater area are the peregrine falcon which is occasionally seen during migration and the red-cockaded woodpecker which has been known to nest in the area.





## VISITOR ACTIVITIES

**Visitor Center** - Exhibits and films for daily viewing and an auditorium for special, prescheduled programs.

**Wildlife Drive** - Five miles of all-weather road along fresh water ponds, woods, fields, and marsh. By remaining in your vehicle, disturbance will be minimal and other visitors will have better opportunities for seeing wildlife.

**Observation Tower** - This tower overlooks the junction of the Big and Little Blackwater Rivers and their marshlands.

**Walking Trails** - (Pets not permitted on trails, only on leash in parking areas.)

**Marsh Edge Trail** - Loops through and along the edge of the marsh for 1/3-mile. An 80-foot boardwalk extends into the marsh. Located at parking turnoff before Observation Tower.

**Woods Trail** - Loops through pine and mixed hardwoods for 1/2-mile. Located along Wildlife Drive.

**Bike Route** - Biking (non-motorized bikes only) permitted on limited portion of Wildlife Drive. Directions and regulations available at Visitor Center and Office Headquarters.

**Fishing/Boating** - Usually is permitted April 15 - October 15. Map of designated fishing and boating areas and other restrictions available at Visitor Center and Office Headquarters. Fishing is poor and there are no boat launching areas on the refuge. No hunting allowed on the refuge.

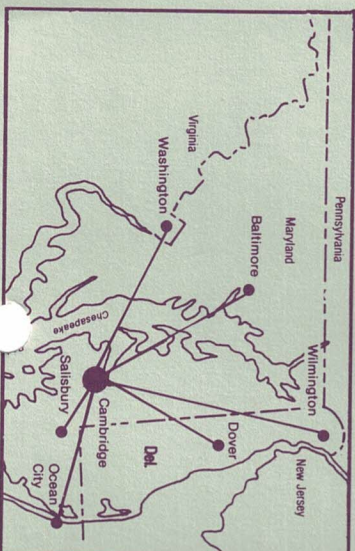
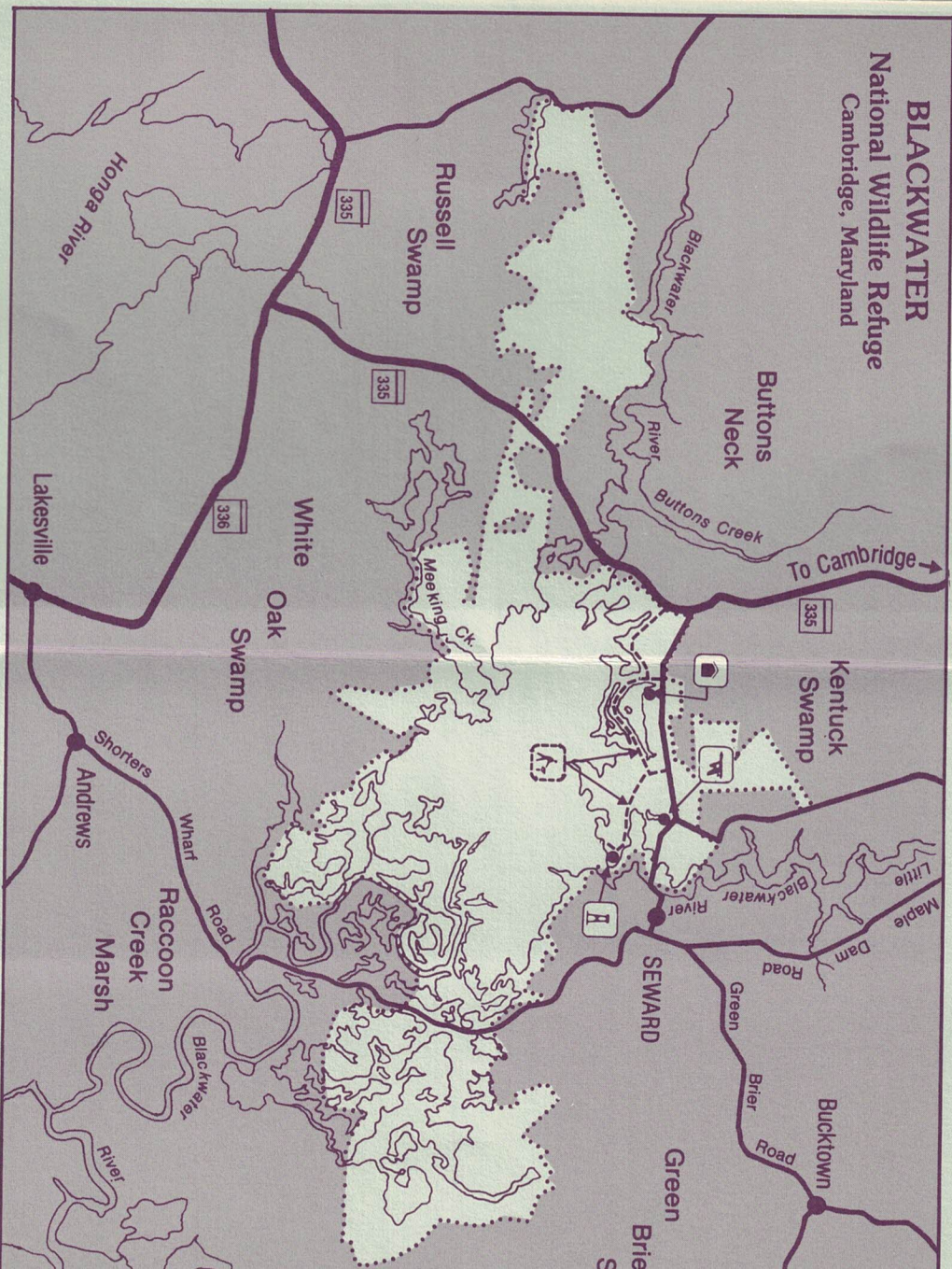
**Educational Opportunities** - Organized school, civic, and professional groups may reserve dates for slide talks, special movies, guided tours, and outdoor classroom activities. Write or call for additional information.

## HOURS

**Visitor Center** - Open 7:30 - 4:00, Daily. Closed Christmas Day, weekends during June, July and August, and Labor Day weekend.


**Wildlife Drive and outdoor facilities** - Open daily, dawn to dusk (year-round)


## BLACKWATER National Wildlife Refuge Cambridge, Maryland



### LEGEND

..... Refuge Boundary

 Refuge Headquarters

 Walking Trails

 Visitor Center

 Observation Tower

SCALE IN MILES



ENDANGERED  
SPECIES  
of  
BLACKWATER

National Wildlife Refuge

Maryland





# ENDANGERED SPECIES

of  
**BLACKWATER**  
National Wildlife Refuge

The Endangered Species Act of 1973, reflected a growing public concern for the multitude of plant and animal species with which we share earth, especially those in immediate danger of extinction. Through this act, measures are being taken to identify those species in need of protection and to provide habitat necessary for their survival Blackwater Refuge harbors an array of wildlife species including four which are endangered. These are the bald eagle (*Haliaeetus leucocephalus*), the Delmarva fox squirrel (*Sciurus niger cinereus*), the arctic peregrinus falcon (*Falco peregrinus tundrius*), and the red-cockaded woodpecker (*Picoides borealis*).

The bald eagle nests primarily in estuarine areas of the Atlantic, Pacific, and Gulf coasts and along large lakes and rivers. Approximately six to eight pairs of eagles nest in the Blackwater Refuge area. Nest construction or repair can begin in December or even earlier, though the one to three eggs are usually not laid until late February. When they hatch, usually in early April, the young eagles are covered with a smoky gray down. By the sixth week the darker juvenile plumage has developed and the young begin to move about the nest. The eaglets are fully fledged by early July, at about 12 weeks of age, though they generally remain in the nesting area for a few more weeks before going off on their own. Following the nesting season, some of the eagles may wander northward in summer as far as southeastern Canada.

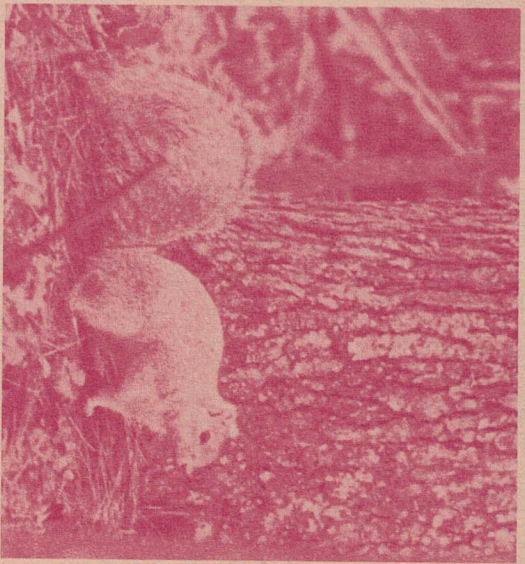
Bald eagles do not attain adult plumage with the characteristic white head and tail until about their fourth year. Subadults appear generally mottled with varying amounts of white especially among the darker feathers of the wing linings, head, and tail. In comparison, adult golden eagles are almost uniformly dark, the immatures are dark with white at the base of the tail and at the base of the flight feathers. Golden eagles are found on the refuge only during the winter and in very limited numbers.



Bald Eagle

The adult female bald eagle averages 42 inches in height with a wingspan of 8 feet; weight is between 10 and 14 pounds. As in most birds of prey, the adult male is slightly smaller than the female. Immature eagles may exceed the size of adults until fatty tissue changes into muscle. Sixty to ninety percent of the diet of the bald eagle is comprised of fish; they also feed on waterfowl, other birds, rodents, crabs, and carrion.

The decline of the bald eagle is attributed to human disturbance of nesting areas, illegal shooting, the loss of nest trees and habitat, and the decline in reproduction due to the ingestion of pesticides in their food. In the Blackwater area, bald eagle numbers and reproduction have shown an increase in recent years, perhaps, in response to greater protection and the ban on certain persistent pesticides. From an estimated peak of only 11 eagles and no young produced on the refuge in 1968, the local population has increased to a peak of 30 with 9 young produced in 1976. Both population and reproduction have stabilized near this level. Despite this local recovery, survival of the species is still uncertain. But with continued vigilance and protection, further research into eagle reproduction, and greater public support this magnificent wild bird may be saved from extinction.



Delmarva Fox Squirrel

The Delmarva fox squirrel was formerly common from southeastern Pennsylvania down through the Delmarva Peninsula to Northampton County, Virginia. Presently it is found only in four counties along Maryland's Eastern Shore and on Chincoteague National Wildlife Refuge in Virginia where it was recently introduced. Blackwater National Wildlife Refuge harbors one of the largest populations of the species.

One of the largest squirrels in North America, the Delmarva fox squirrel is usually light grizzled gray above with a steel blue cast; white marks the feet, belly, and face, and a faint black stripe edges the sides of the tail. Color may vary from a pale gray to almost black, though its pelage or fur color is generally lighter than the browner and smaller eastern gray squirrel. Besides size and color differences, the Delmarva fox squirrel can be further distinguished from the gray squirrel by its bushier tail and small ear tufts.

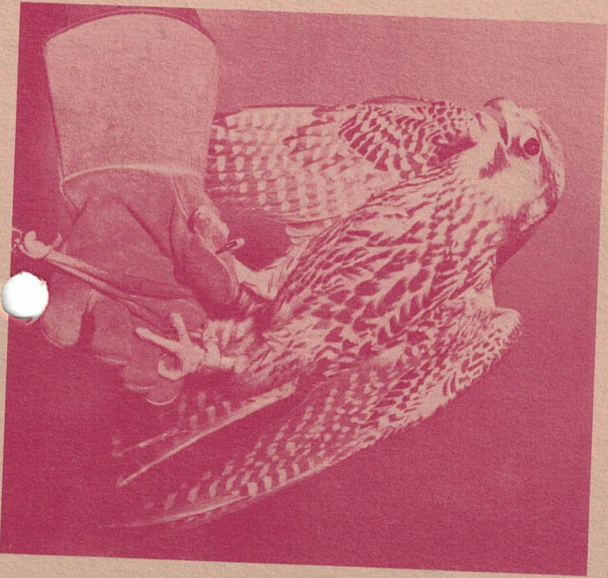
Though both squirrel species may be found together on the refuge, the Delmarva fox squirrel spends more time on the ground than the gray squirrel and prefers a more open forest with fewer shrubs and less ground cover. Its preference is for mature forests of mixed hardwoods and conifers where a full array of fruits and nuts can be found. This squirrel feeds heavily on the mast or nuts of such trees as oaks, hickories, and beech. The seeds of pine and maple trees and fleshy fruits such as paw paw are also eaten. When available, agricultural crops such as corn and soybeans may become an important part of their diet.

Mating may occur throughout the year, though the litters of from two to four young are usually born in April. After a gestation period of approximately 40 days the young squirrels are born naked and blind. They open their eyes at about five weeks and are weaned at the age of nine weeks. The mother prefers to raise the young in tree cavities, but where these are not available, she will construct leaf nests much like those of the gray squirrel.

The decline in the population of the Delmarva fox squirrel is due mainly to the destruction of mature woodlands. Continued habitat preservation, protection, research, and special forest management practices, such as the clearing of understory vegetation from tracts of mature mixed woodlands, are necessary to ensure the survival of this endangered species.

The arctic peregrine falcon is occasionally sighted on Blackwater Refuge during the spring and fall migration periods and rarely during the winter. This large, swift falcon nests in the tundra areas of arctic Canada, Alaska, and western Greenland and uses the Atlantic Flyway to reach its Central and South American wintering grounds. Waterfowl and other birds are the mainstay in its diet though it also feeds on small mammals and insects.

The cumulative effects of pesticides which either kill the birds outright or prevent reproduction have been a significant factor in the decline of this species. Habitat destruction and losses to falconers have also played a role in its decline. Only continued protection and research and an overriding sense of public concern and responsibility will save this free-spirited bird from extinction.



Peregrine Falcon



Red-cockaded Woodpecker

The red-cockaded woodpecker has been observed only a few times on Blackwater Refuge in recent years, however, with new management practices favoring the species, chances of new sightings may improve. This woodpecker is closely associated with the southern pine forest and observations in the Blackwater area represent some of the northernmost nesting records. The red-cockaded woodpecker has a strong habitat preference for open, mature pine forest and nests only in older, living pines infested with a fungal disease known as redheart. Clearing these forests for agriculture has been a factor in the decline of the species but the greatest contributing factor is the high yield, short rotation forestry practices prevalent in the southern pine forest. Pine forests are simply not allowed to develop to a stage favorable to these woodpeckers.

Survival and restoration of this species require continued protection and intensive research. Ultimately, however, survival depends upon the perpetuation of mature forests in tracts of sufficient size to meet needs of these woodpeckers. On Blackwater Refuge, timber stand improvement practices such as clearing of understory vegetation benefit the Delmarva fox squirrel, may also benefit the red-cockaded woodpecker and hasten its recovery on the refuge.

The plight of endangered species and indeed the welfare of all wildlife is clearly intertwined with the choices of human activity. If we are to continue to share the earth with the vast diversity of wildlife species, especially those unique and sensitive species in danger of extinction we need to develop a greater sense of stewardship and responsibility for wildlife and a sense of restraint in our actions. Perhaps then Blackwater will not become the "last refuge" of these four unique species.

*"Like winds and sunsets, wild things were taken for granted until progress began to do away with them. Now we face the question whether a still higher 'standard of living' is worth its cost in things natural, wild, and free."*

- Aldo Leopold

# **Birds of Blackwater**

**National Wildlife Refuge**



**Maryland**

THE BLACKWATER NATIONAL WILDLIFE REFUGE, established in 1932, is located on the Eastern Shore of the Chesapeake Bay in Dorchester County, Maryland, about 10 miles south of Cambridge. It serves as an important resting and feeding area for migrant and wintering waterfowl in the chain of waterfowl refuges along the Atlantic Flyway that extends from Canada to the Gulf of Mexico.

Species are listed in accordance with the fifth (1959) A.O.U. Check List as amended, except for shore-birds which have been reclassified.

This folder lists 240 species of birds identified by refuge personnel and qualified visitors.

Most birds are migratory, therefore their seasonal occurrence is coded as follows:

S — Spring  
 S — Summer  
 F — Fall  
 W — Winter  
 t = Nesting has occurred on the refuge

SEASON

RELATIVE ABUNDANCE

a — abundant a species which is very numerous.  
 c — common certain to be seen or heard in suitable habitat.  
 u — uncommon present, but not certain to be seen.  
 o — occasional seen only a few times during a season.  
 r — rare seen at intervals of 2 to 5 years.

LOONS - GREBES - CORMORANTS - HERONS - IBISES

	S	S	F	W
Common Loon.....	o	o	o	o
Horned Grebe.....	o	o	o	u
Pied-billed Grebe t.....	c	o	c	u
Double-crested Cormorant.....	o	r	o	
Great Blue Heron t.....	c	c	c	c
Green Heron t.....	c	c	c	c
Little Blue Heron.....	u	c	u	
Cattle Egret.....	u	c	c	
Great Egret.....	u	a	c	r
Snowy Egret.....	u	a	c	
Louisiana Heron.....	u	u	r	
Black-crowned Night Heron t.....	c	c	c	u
Least Bittern t.....	u	u	u	
American Bittern t.....	u	u	u	o
Glossy Ibis.....	o	o	o	

SWANS - GEESE and DUCKS

Whistling Swan.....	u	c	c	
Canada Goose t.....	a	u	a	a
Snow Goose.....	u	c	c	
Mallard t.....	a	c	a	a
Black Duck t.....	a	c	a	a
Gadwall.....	c	o	c	u
Pintail.....	c	r	c	c
Green-winged Teal.....	a	r	a	u
Blue-winged Teal t.....	c	c	c	r
Eurasian Wigeon.....				r
American Wigeon.....	a	r	a	c
Northern Shoveler.....	c	o	c	o
Wood Duck t.....	u	u	o	
Redhead.....	o	o	o	
Ring-necked Duck.....	u	c	o	
Canvasback.....	r	r	o	
Greater Scaup.....	r	r	o	
Lesser Scaup.....	o	o	u	
Common Goldeneye.....	u	u	u	

S S F W

Bufflehead.....	u	u	u	
Oldsquaw.....		o	u	
White-winged Scoter.....		r		
Ruddy Duck.....	u	u	u	
Hooded Merganser.....	u	r	u	u
Common Merganser.....	c	u	c	u
Red-breasted Merganser.....	o	o	o	o

VULTURES - HAWKS - QUAIL - RAILS and COOTS

Turkey Vulture t.....	c	c	c	c
Black Vulture.....	o	o	o	o
Goshawk.....				u
Sharp-shinned Hawk.....	u	u	u	u
Cooper's Hawk.....	u	u	u	u
Red-tailed Hawk t.....	u	u	c	c
Red-shouldered Hawk.....	o	o	u	
Broad-winged Hawk.....	o	o		
Rough-legged Hawk.....	o	u	c	
Golden Eagle.....				o
Bald Eagle t.....	c	c	c	c
Northern Harrier t.....	c	o	c	c
Osprey t.....	c	c	c	
Peregrine Falcon.....	o	o	r	
Merlin.....	o	u	r	
American Kestrel.....	c	u	c	c
Bobwhiter t.....	c	c	c	c
Turkey.....	r	r	r	r
King Rail t.....	c	c	c	r
Clapper Rail t.....	u	u	u	r
Virginia Rail t.....	c	u	c	r
Sora.....	u	u	u	u
Black Rail t.....	r	r	r	r
Common Gallinule.....	u	u	u	u
American Coot.....	u	o	u	u

PLOVERS, SNIPES and SANDPIPERS

Semipalmated Plover.....	c	u	c	
Killdeer t.....	c	c	c	u

s S F W

— American Golden Plover .....	r
— Black-bellied Plover.....	o o r
— Greater Yellowlegs .....	c c c o
— Lesser Yellowlegs .....	c c c o
— Solitary Sandpiper.....	c c c
— Willet†.....	r u r
— Spotted Sandpiper.....	c u c
— American Woodcock† .....	c u c o
— Common Snipe .....	c o c u
— Short-billed Dowitcher .....	u u u r
— Long-billed Dowitcher .....	r r
— Sanderling.....	o o r
— Semipalmated Sandpiper .....	a a a o
— Western Sandpiper .....	o o
— Least Sandpiper.....	a a a r
— White-rumped Sandpiper .....	o o
— Pectoral Sandpiper .....	u c c
— Dunlin .....	c o c o
— Stilt Sandpiper.....	r o o

**GULLS and TERNS - DOVES  
CUCKOOS - OWLS - NIGHTHAWKS**

— Great Black-backed Gull.....	o u u
— Herring Gull .....	u u u u
— Ring-billed Gull .....	u o u u
— Laughing Gull.....	u u u
— Bonaparte's Gull.....	u u o
— Forster's Tern.....	u u u
— Common Tern .....	u o o
— Little Tern .....	u u r
— Caspian Tern .....	u r o
— Black Tern.....	r u o
— Mourning Dove†.....	c c a c
— Yellow-billed Cuckoo†.....	c c c
— Black-billed Cuckoo.....	u o u
— Barn Owl† .....	c c c c
— Screech Owl† .....	c c c c
— Great Horned Owl†.....	c c c c
— Barred Owl†.....	u u u u

s S F W

— Long-eared Owl.....	r
— Short-eared Owl .....	o r o u
— Saw-whet Owl .....	r
— Chuck-will's-widow.....	o o
— Whip-poor-will .....	c c o
— Common Nighthawk†.....	u u u
— Chimney Swift .....	u u u

**HUMMINGBIRDS - KINGFISHERS -  
WOODPECKERS - FLYCATCHERS  
LARKS - SWALLOWS**

— Ruby-throated Hummingbird†.....	c c c
— Belted Kingfisher†.....	c u c u
— Common Flicker†.....	c c c c
— Pileated Woodpecker† .....	u u u u
— Red-bellied Woodpecker† .....	c c c c
— Red-headed Woodpecker.....	r r r r
— Yellow-bellied Sapsucker .....	u u o
— Hairy Woodpecker† .....	u u u u
— Downy Woodpecker† .....	c c c c
— Red-cockaded Woodpecker† .....	r r r r
— Eastern Kingbird† .....	c c c
— Western Kingbird .....	r
— Great Crested Flycatcher† .....	c c c
— Eastern Phoebe†.....	c o c r
— Acadian Flycatcher†.....	c c c
— Least Flycatcher.....	r r
— Eastern Wood Pewee† .....	c c c
— Horned Lark† .....	u o u o
— Tree Swallow† .....	c c a o
— Bank Swallow.....	u u r
— Rough-winged Swallow†.....	u u u
— Barn Swallow† .....	a a a
— Purple Martin† .....	c c u

Blue Jay t	.....	U	U	U	U
American Crow t	.....	C	C	C	C
Fish Crow t	.....	U	U	U	U
Black-capped Chickadee	.....				O
Carolina Chickadee t	.....	C	C	C	C
Tufted Titmouse t	.....	U	U	U	U
White-breasted Nuthatch	.....	r	r	r	U
Red-breasted Nuthatch	.....	O	O	O	U
Brown-headed Nuthatch t	.....	U	U	U	U
Brown Creeper	.....	U	U	U	U
House Wren t	.....	C	C	C	O
Winter Wren	.....	U	U	U	U
Carolina Wren t	.....	C	C	C	C
Marsh Wren t	.....	a	a	a	U
Sedge Wren t	.....	U	U	U	O

**MOCKINGBIRDS - THRUSHES - GNATCATCHERS and KINGLETS - WAXWINGS**

Northern Mockingbird t	.....	C	C	C	C
Grey Catbird t	.....	C	U	C	U
Brown Thrasher t	.....	C	U	C	U
American Robin t	.....	C	C	C	U
Wood Thrush t	.....	C	C	C	C
Hermit Thrush	.....	C	C	U	
Swainson's Thrush	.....	U	O	U	
Gray-cheeked Thrush	.....	O	O	O	
Veery	.....	U	O	U	
Eastern Bluebird	.....	U	U	U	U
Blue-gray Gnatcatcher t	.....	U	U	U	U
Golden-crowned Kinglet	.....	C	C	C	C
Ruby-crowned Kinglet	.....	C	C	U	
Water Pipit	.....	O	U	U	
Cedar Waxwing	.....	U	U	U	

Loggerhead Shrike	.....	U	O	O	U
European Starling t	.....	C	C	C	C
White-eyed Vireo t	.....	C	C	C	C
Yellow-throated Vireo t	.....	U	r	U	
Solitary Vireo	.....	r		O	
Red-eyed Vireo t	.....	C	C	C	C
Black-and-white Warbler	.....	C	O	C	
Prothonotary Warbler t	.....	U	O	r	
Worm-eating Warbler t	.....	U	O	r	
Blue-winged Warbler	.....	O	U	O	
Golden-winged Warbler	.....	r			
Tennessee Warbler	.....	r	O	r	
Orange-crowned Warbler	.....	r	r	r	
Nashville Warbler	.....	r	r		
Northern Parula t	.....	U	O	U	
Yellow Warbler t	.....	C	C	C	C
Magnolia Warbler	.....	O	O	U	
Cape May Warbler	.....	O	O	U	
Black-throated Blue Warbler	.....	U	O	U	
Yellow-rumped Warbler	.....	a	r	a	C
Black-throated Green Warbler	.....	U	O	U	
Yellow-throated Warbler	.....	r	r		
Blackburnian Warbler	.....	O	O	O	
Chestnut-sided Warbler	.....	U	O	U	
Bay-breasted Warbler	.....	r	O	r	
Blackpoll Warbler	.....	U	O	U	
Pine Warbler	.....	C	C	C	U
Prairie Warbler t	.....	U	U	U	
Palm Warbler	.....	U		O	
Ovenbird t	.....	C	U	C	
Northern Waterthrush	.....	r	O	U	
Louisiana Waterthrush	.....	O	r	O	
Kentucky Warbler t	.....	U	U	O	
Common Yellowthroat t	.....	a	C	a	O
Yellow-breasted Chat t	.....	C	C	C	
Hooded Warbler	.....	U	O	U	
Canada Warbler	.....	O	O	U	
American Redstart t	.....	C	U	C	

House Sparrow t	.....	a	a	a	a
Bobolink	.....	U	U	a	
Eastern Meadowlark t	.....	C	C	C	C
Red-winged Blackbird t	.....	a	a	a	a
Orchard Oriole t	.....	C	C	O	
Northern Oriole t	.....	U	O	U	
Rusty Blackbird	.....	U	U	U	U
Boat-tailed Grackle	.....	O	O	O	
Common Grackle t	.....	a	a	a	a
Brown-headed Cowbird t	.....	C	C	C	C
Scarlet Tanager t	.....	U	U	U	U
Summer Tanager	.....	U	U		

**GROSEBEAKS, SPARROWS and BUNTINGS**

Northern Cardinal t	.....	C	C	C	C
Rose-breasted Grosbeak	.....	r			
Blue Grosbeak	.....	U	O	O	
Evening Grosbeak	.....	O	O	U	
Indigo Bunting t	.....	C	C	U	
Purple Finch	.....	U		O	
Common Redpoll	.....			r	
Pine Siskin	.....	O		O	U
American Goldfinch t	.....	C	C	C	C
Rufous-sided Towhee t	.....	C	C	C	U
Savannah Sparrow	.....	C	r	C	C
Grasshopper Sparrow t	.....	U	U	U	
Henslow's Sparrow t	.....	U	U	O	
Sharp-tailed Sparrow t	.....	U	O	U	r
Seaside Sparrow t	.....	O	U	O	r
Vesper Sparrow	.....	U	O	O	r
Northern Junco	.....	a		a	a
American Tree Sparrow	.....	U		U	U
Chipping Sparrow t	.....	C	C	O	
Field Sparrow t	.....	C	C	C	C
White-crowned Sparrow	.....	O		O	
White-throated Sparrow	.....	a		a	a
Fox Sparrow	.....	U		U	U
Swamp Sparrow t	.....	C		C	a

**JAYS and CROWS - TITMICE  
NUTHATCHES - WRENS**

s S F W

— Blue Jay †	.....	u	u	u	u
— American Crow †	.....	c	c	c	c
— Fish Crow †	.....	u	u	u	u
— Black-capped Chickadee	.....				o
— Carolina Chickadee †	.....	c	c	c	c
— Tufted Titmouse †	.....	u	u	u	u
— White-breasted Nuthatch	.....	r		r	u
— Red-breasted Nuthatch	.....	o		o	u
— Brown-headed Nuthatch †	.....	u	u	u	u
— Brown Creeper	.....	u		u	u
— House Wren †	.....	c	c	c	o
— Winter Wren	.....	u		u	u
— Carolina Wren †	.....	c	c	c	c
— Marsh Wren †	.....	a	a	a	u
— Sedge Wren †	.....	u	u	u	o

**MOCKINGBIRDS - THRUSHES -  
GNATCATCHERS and KINGLETS -  
WAXWINGS**

— Northern Mockingbird †	.....	c	c	c	c
— Grey Catbird †	.....	c	u	c	u
— Brown Thrasher †	.....	c	u	c	u
— American Robin †	.....	c	c	c	u
— Wood Thrush †	.....	c	c	c	
— Hermit Thrush	.....	c		c	u
— Swainson's Thrush	.....	u	o	u	
— Gray-cheeked Thrush	.....	o	o	o	
— Veery	.....	u	o	u	
— Eastern Bluebird	.....	u	u	u	u
— Blue-gray Gnatcatcher †	.....	u	u	u	
— Golden-crowned Kinglet	.....	c		c	c
— Ruby-crowned Kinglet	.....	c		c	u
— Water Pipit	.....	o		u	u
— Cedar Waxwing	.....	u		u	u



**The  
CANADA GOOSE  
at  
BLACKWATER**

**National Wildlife Refuge**



# THE CANADA GOOSE

at *BLACKWATER*

## NESTING AND FAMILY LIFE

Geese form very strong, lasting social bonds. A pair usually mate for life, though in the event one dies, the other remates. Some Canada geese nest for the first time at the end of their second year, but most are approaching their third birthday. They usually lay 5-8 eggs requiring about 28 days of incubation. The proud parents are very protective of their young goslings. Family ties remain strong throughout the first year. While most Canada geese go north to nest, a few remain at Blackwater where the young broods may be seen in early summer.

## THE ARRIVAL

The advance guard arrives in late September, and numbers steadily increase throughout October until the peak concentration of about 80,000 is reached in late November. Some 30,000 geese remain at Blackwater all winter, while others use it as a resting and feeding area on their way further south.

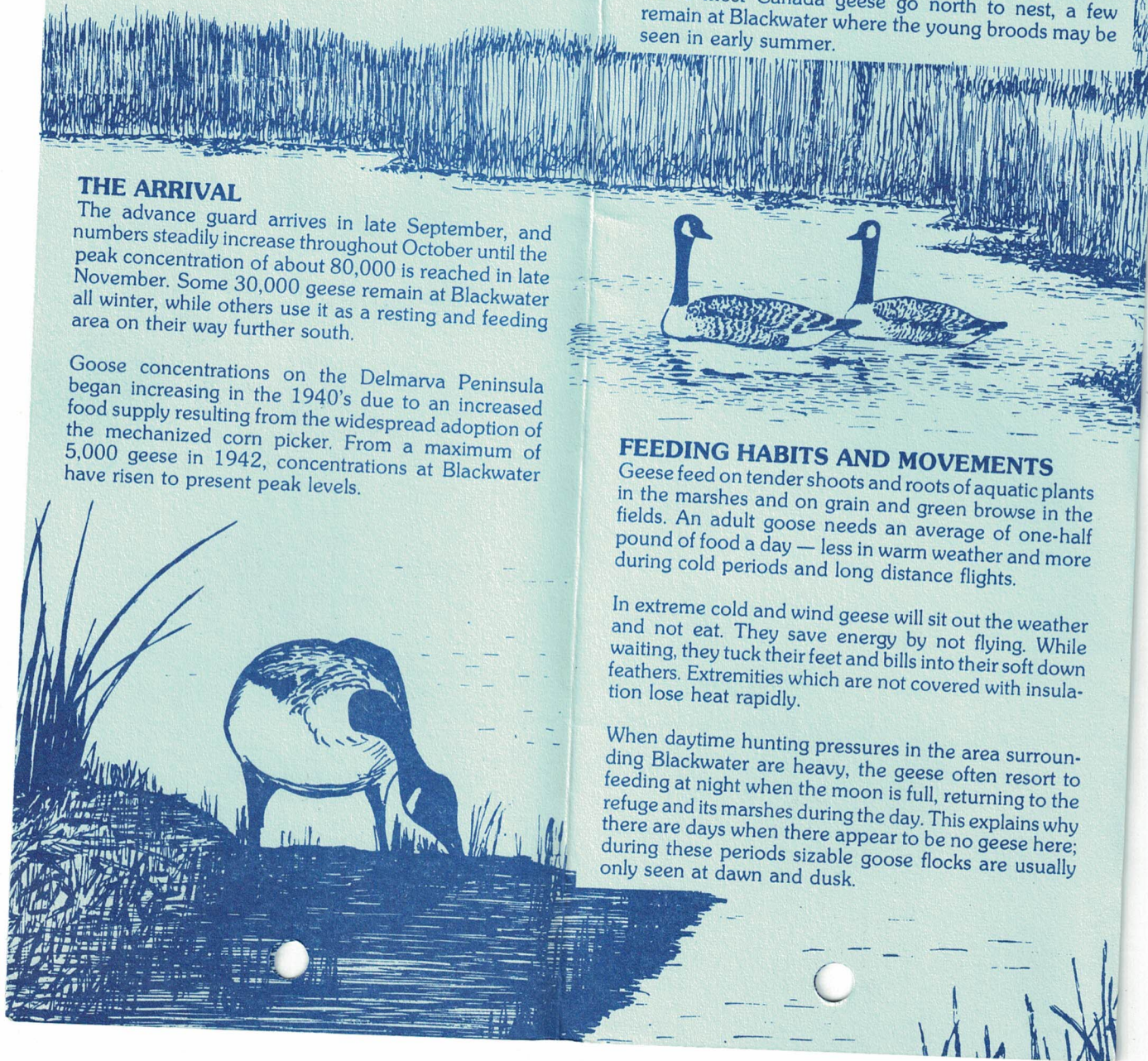
Goose concentrations on the Delmarva Peninsula began increasing in the 1940's due to an increased food supply resulting from the widespread adoption of the mechanized corn picker. From a maximum of 5,000 geese in 1942, concentrations at Blackwater have risen to present peak levels.

## FEEDING HABITS AND MOVEMENTS

Geese feed on tender shoots and roots of aquatic plants in the marshes and on grain and green browse in the fields. An adult goose needs an average of one-half pound of food a day — less in warm weather and more during cold periods and long distance flights.

In extreme cold and wind geese will sit out the weather and not eat. They save energy by not flying. While waiting, they tuck their feet and bills into their soft down feathers. Extremities which are not covered with insulation lose heat rapidly.

When daytime hunting pressures in the area surrounding Blackwater are heavy, the geese often resort to feeding at night when the moon is full, returning to the refuge and its marshes during the day. This explains why there are days when there appear to be no geese here; during these periods sizable goose flocks are usually only seen at dawn and dusk.





### PHYSICAL CHARACTERISTICS

The color patterns of a Canada goose are so distinctive, that it is almost impossible to confuse it with any other species. The head, bill, neck, feet, and tail are black, while the cheek patches which meet under the chin are its most easily recognized characteristic. The upper parts are grayish-brown with the underparts lighter and becoming white near the tail.

It is not easy to distinguish a gander (male) from a goose (female). Generally the gander is acknowledged as the larger of the pair, and he has a deeper sounding call.

At Blackwater the average Canada goose weighs about 8 pounds, but their weights may range from a small 6 pounds to over 15 pounds for an older bird. The wingspread varies from 5 to over 6 feet.

Canada geese held in captivity often live 20 - 30 - 40 years, but the geese who migrate to Blackwater probably live an average of five to ten years.



## GRATION

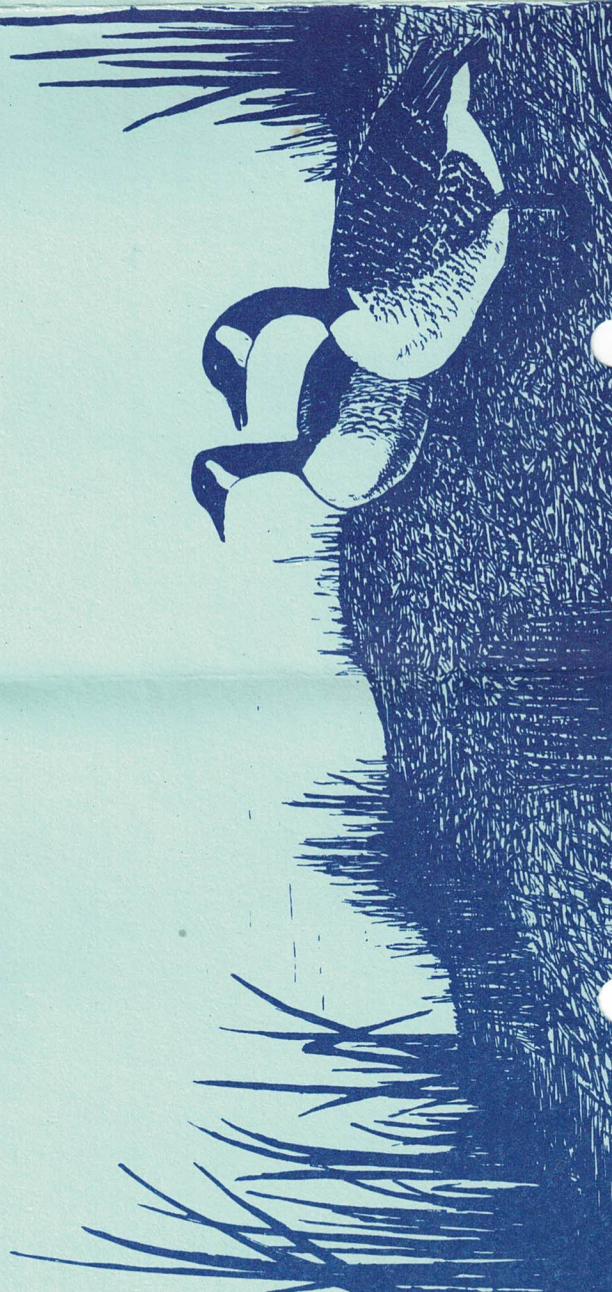
There has been much speculation as to what causes the geese to begin their spring and fall migrations. The increasing or decreasing length of days, combined with weather conditions and other variables, motivate the geese to migrate twice yearly. Fat deposits accumulate prior to migration and provide energy for the long flight.

The usual "V" flight formation provides each goose (except the leader) with favorable air currents in which to fly. Older geese alternately share the lead position. These have been observed at altitudes of 29,000 feet, though the normal migration altitude is only 3,000 feet.



## DEPARTURE

Most of the Canada geese wintering at Blackwater Refuge and other areas of the Eastern Shore travel north in the spring. The flocks begin moving out in late February and most are gone by mid-March. From here they travel to their ancestral nesting grounds near James Bay, Canada. There, during the summer months, they nest and rear the young — only to begin the cycle once again with their return to southern wintering grounds in the autumn.



As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U. S. administration.

For further information contact:

Refuge Manager  
Blackwater National Wildlife Refuge  
Route 1, Box 121  
Cambridge, Maryland 21613  
Telephone: (301) 228-2677

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
Fish and Wildlife Service

# PRIME HOOK

## National Wildlife Refuge



THINGS TO DO ON THIS REFUGE

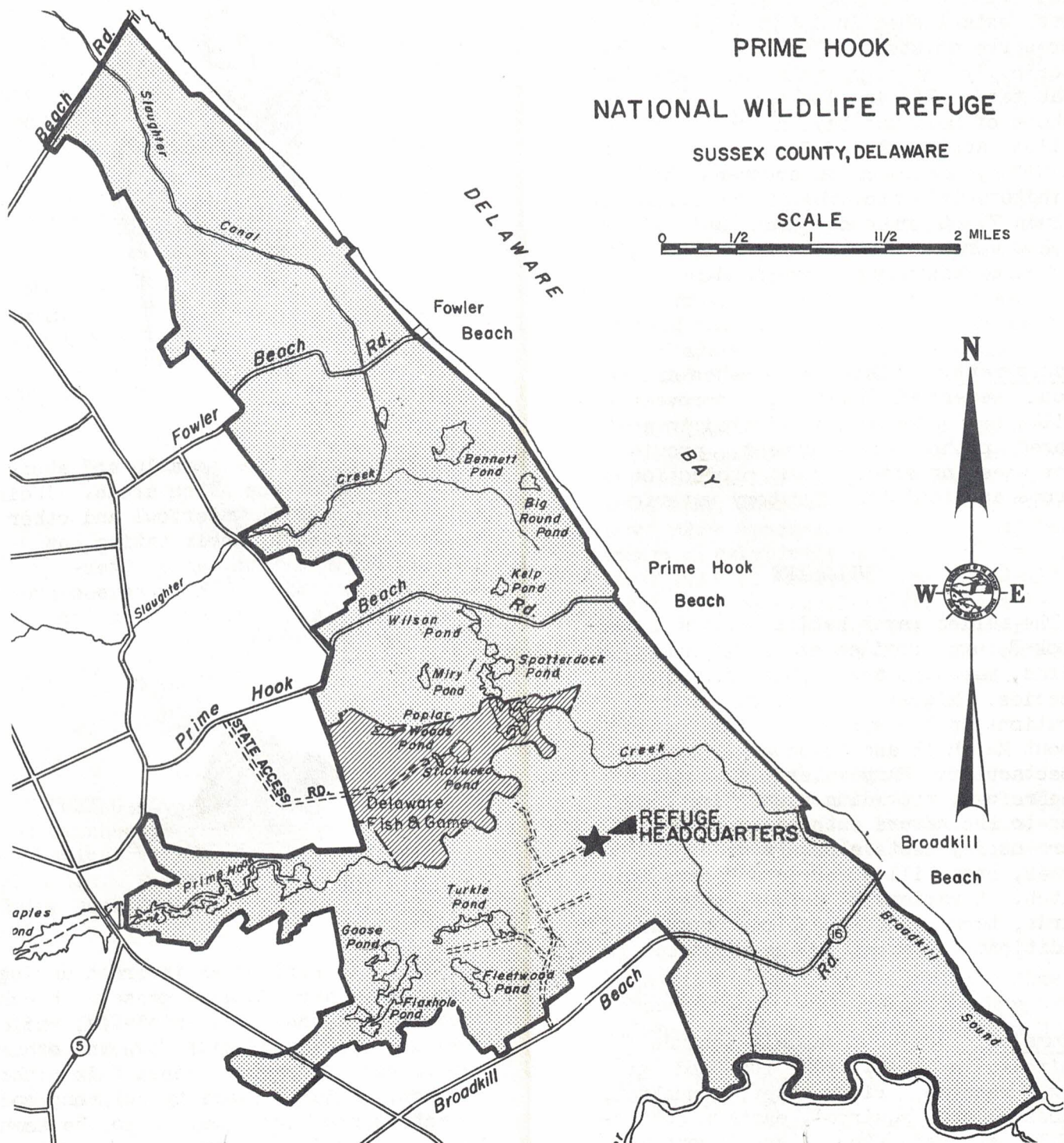
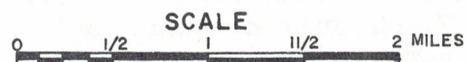
FISH--four convenient sites.

BOAT-LAUNCHING--four areas provided.

CANOEING--over 15 miles of canoe waterways.

OBSERVE & PHOTOGRAPH--waterfowl, shorebirds, muskrats, and many other species of wildlife in their natural habitat.

PRIME HOOK  
NATIONAL WILDLIFE REFUGE  
SUSSEX COUNTY, DELAWARE



The Prime Hook National Wildlife Refuge was established in 1963 primarily to preserve coastal wetlands that are historically of high value as waterfowl habitat. It is located on the west shore of Delaware Bay, approximately 22 miles southeast of Dover, the State capitol, and 64 miles southeast of Wilmington, Delaware. The 10,700 acres include 7,300 acres of marsh and water; 1,200 acres of timber and brush; 2,100 acres of pasture and cropland.

Management. Since the marshes are now good waterfowl habitat, improvements will be essentially limited to scattered pothole development, provision for nesting sites, and production of crops as food for migratory waterfowl.

#### WILDLIFE

The varied marsh habitat of the Prime Hook Refuge provides homes for numerous birds, mammals, and fishes of many species. Migrating waterfowl concentrations in the spring and fall, on or about March 15 and November 1, are spectacular. Many waterfowl winter on the refuge, providing wintertime viewing to the nature enthusiast. The rare osprey nests along Prime Hook Creek, Broadkill River, and Petersfield Ditch. A variety of herons, shorebirds, terns, and song birds provides additional interest to the visitor.

Mammals. Resident mammals include the white-tailed deer, red fox and gray fox, raccoon, river otter, muskrat, opossum, gray squirrel, eastern cottontail, striped skunk and woodchuck.



Muskrat houses are notable and abundant throughout the marsh areas. Their activities benefit waterfowl and other wetland species by their eating out small clearings into dense water-surface vegetation. Their houses provide nesting and loafing sites for waterfowl and other birds.

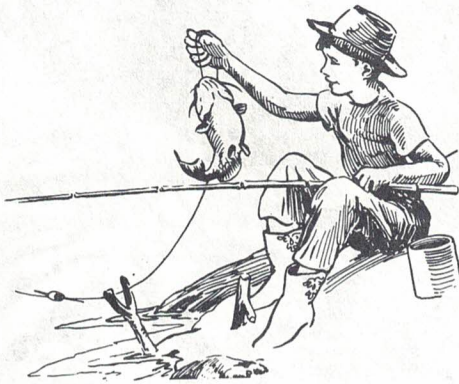


Birds. Of particular interest during migration are Canada geese, black ducks, mallards, and pintails, while several species of waterfowl and other waterbirds commonly nest in the marshes. A large variety of song and insectivorous birds may also be seen by the careful observer.

## PUBLIC USES

**FISHING**--All freshwater streams and ponds throughout the refuge are open to sport fishing in accordance with state regulations. Largemouth bass and pickerel are most sought after and abundant. Favorite sites are Prime Hook Creek, Petersfield Ditch, Turkle Pond, and Fleetwood Pond.

Warm-water fish are plentiful in Turkle Pond, Fleetwood Pond, Headquarters Ditch, and Waples Pond. Large-mouth bass and pickerel are most popular with fishermen.



**CANOEING**--Over 15 miles of streams and ditches provide the canoe-enthusiast with hours of potential pleasure. Favorite routes are along Prime Hook Creek and Petersfield Ditch.

**BOATING**--Permitted in all freshwater areas. Boats may be launched from designated access points along public roads and at Turkle Pond, Fleetwood Pond, Headquarters Ditch, and Waples Pond.

**SIGHTSEEING**--Vehicle travel provides delightful sightseeing opportunity on refuge roads in all seasons. Frequently waterfowl and shorebirds are best observed from the shaded interior of an automobile.

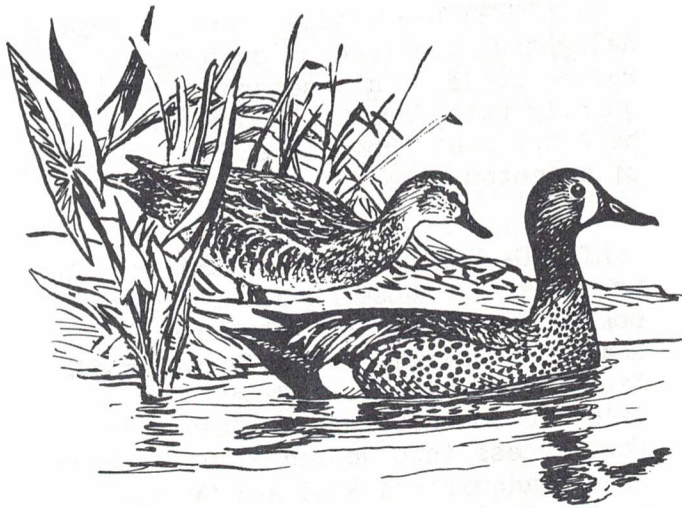
**HIKING**--Hiking is permitted in all areas except those marked closed by posting. Hiking is a pleasurable and healthful exercise which provides the finest viewing of a refuge and its wildlife in undisturbed activities. Foot-access into wooded areas is best from Headquarters Road and Turkle Pond and Fleetwood Pond Roads.

**PHOTOGRAPHY**--The hiking trails and vehicle routes all offer excellent opportunities for wildlife photography. Waterfowl, shorebirds, muskrats, and many other species of wildlife may be observed relatively undisturbed in their natural habitat. The Broadkill Beach Road is excellent for observation of feeding shorebirds. Other areas of interest are along Slaughter Beach Road and Fowler Beach Road.

Hunting is permitted in certain seasons in accordance with state and special regulations. Further information is available at refuge headquarters.

Additional information and current regulations may be obtained Monday through Friday at Refuge Headquarters located 1.6 miles north of Broadkill Beach Road, Route 16. Correspondence should be addressed to Refuge Manager, Prime Hook National Wildlife Refuge, Box 195, Milton, Delaware 19968. Telephone number is (302) 684-8419.





As the Nation's principal conservation agency, the Department of the Interior has basic responsibilities for water, fish, wildlife, mineral, land, park, and recreational resources. Indian and Territorial affairs are other major concerns of America's "Department of Natural Resources."

The Department works to assure the wisest choice in managing all our resources so each will make its full contribution to a better United States—now and in the future.



**UNITED STATES DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE  
BUREAU OF SPORT FISHERIES AND WILDLIFE**

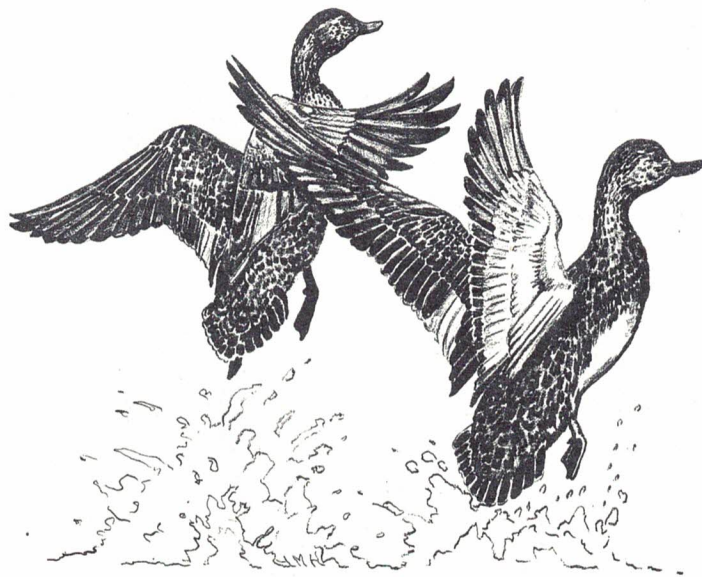
RL 523-R  
June 1970



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# BOMBAY HOOK

NATIONAL WILDLIFE REFUGE



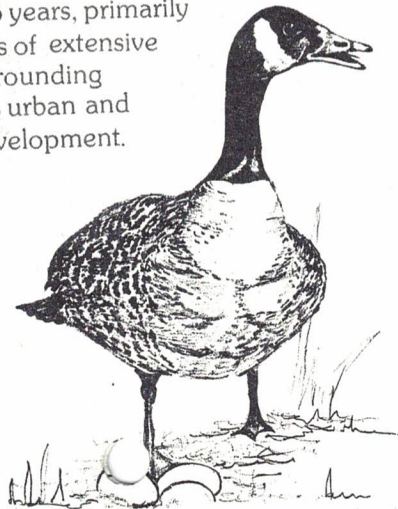
Delaware

## WELCOME

BOMBAY HOOK NATIONAL WILDLIFE REFUGE is approximately nine miles southeast of Smyrna, Delaware and ten miles northeast of Dover, the State Capital. It is 45 miles south of Wilmington, Delaware. Highway signs direct visitors to the refuge once they are in the vicinity of State Route 9.

The refuge comprises 16,280 acres. Approximately three-quarters of the area is brackish tidal marsh. Other acreage includes 1,200 acres of impounded fresh water pools, brushy and timbered swamps, 1,000 acres of agricultural lands, and timbered and grassy upland. The general terrain is flat and less than ten feet above sea level.

In 1937, Bombay Hook was established as a link in a chain of waterfowl refuges that extend from Canada to the Gulf of Mexico. It is primarily a refuge for migrating and wintering ducks and geese. It also offers haven for great numbers of land and shorebirds. The value of Bombay Hook as an area for the protection and preservation of waterfowl has increased greatly in the past 25 years, primarily due to the loss of extensive tracks of surrounding marshland to urban and industrial development.



## HISTORY

The recorded history of the Bombay Hook area began in 1679 with the sale of marshland from Mechacksett, Chief of the Kahansink to Peter Bayard of New York. Early Dutch settlers cut salt hay from the marsh, trapped muskrats and hunted waterfowl. The tidal streams that interlace the marsh were plied for fish, crabs, and oysters.

Following establishment of the refuge and through the early 1940's, civilian conservation corps members based at Leipsic, constructed dikes, and buildings on the refuge. With the onset of World War II, the Army Air Corps based at Dover, used parts of the refuge for experimentation and training in air-to-ground rockets.



## MANAGEMENT

The refuge management programs are primarily aimed at developing and protecting desirable habitat for waterfowl and other migratory birds, including the endangered Southern bald eagle. The refuge is located at a focal point for waterfowl migrating to and from their northern breeding grounds and various wintering areas. Large numbers of ducks and geese arrive each fall to either spend the winter or merely stop over on their way southward.

To supplement the excellent production of aquatic food plants in the refuge pools, upland agricultural crops are produced on approximately 1,000 acres offering a supplemental food supply for the waterfowl.

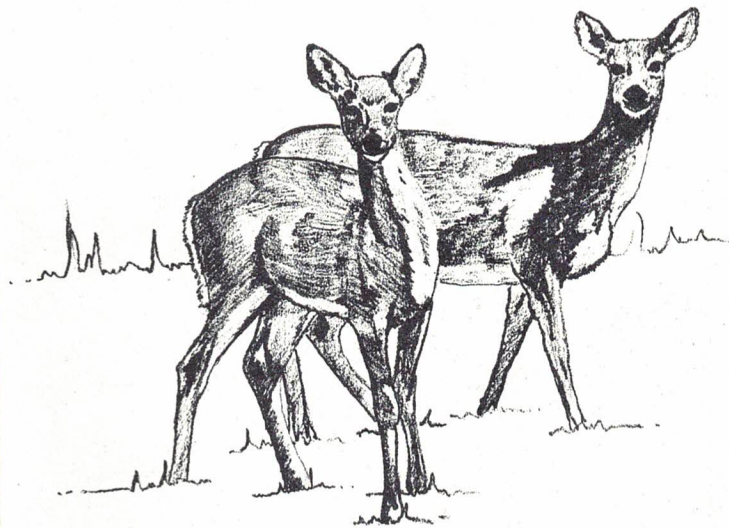
Brackish tidal marsh is undoubtedly the most valuable wildlife habitat in the state of Delaware. Large portions of this acreage have been maintained in a near pristine state. The marsh with its intersecting tidal streams and rivers provides excellent natural habitat for the birds and mammals of the area and also serves as a nursery and breeding area for marine organisms, many of which are of sporting and commercial interests.

## BIRDS

Migrations through the refuge, especially in the fall, provide excellent opportunity for nature study. Organized field trips are regularly scheduled by ornithological clubs from nearby cities, and more than 100 species have been reported during the annual Christmas Bird Count. In addition to the variety of waterfowl and shorebirds, many other birds are observed here. Over 300 species are listed in a separate leaflet, "Birds of the Bombay Hook Refuge."

## MAMMALS

Whitetail deer are easily observed feeding in the refuge fields just before sunset. The careful observer may occasionally see some of the more secretive mammals, such as the red and gray fox, river otter, muskrat, Virginia opossum, eastern gray squirrel, woodchuck, and beaver.

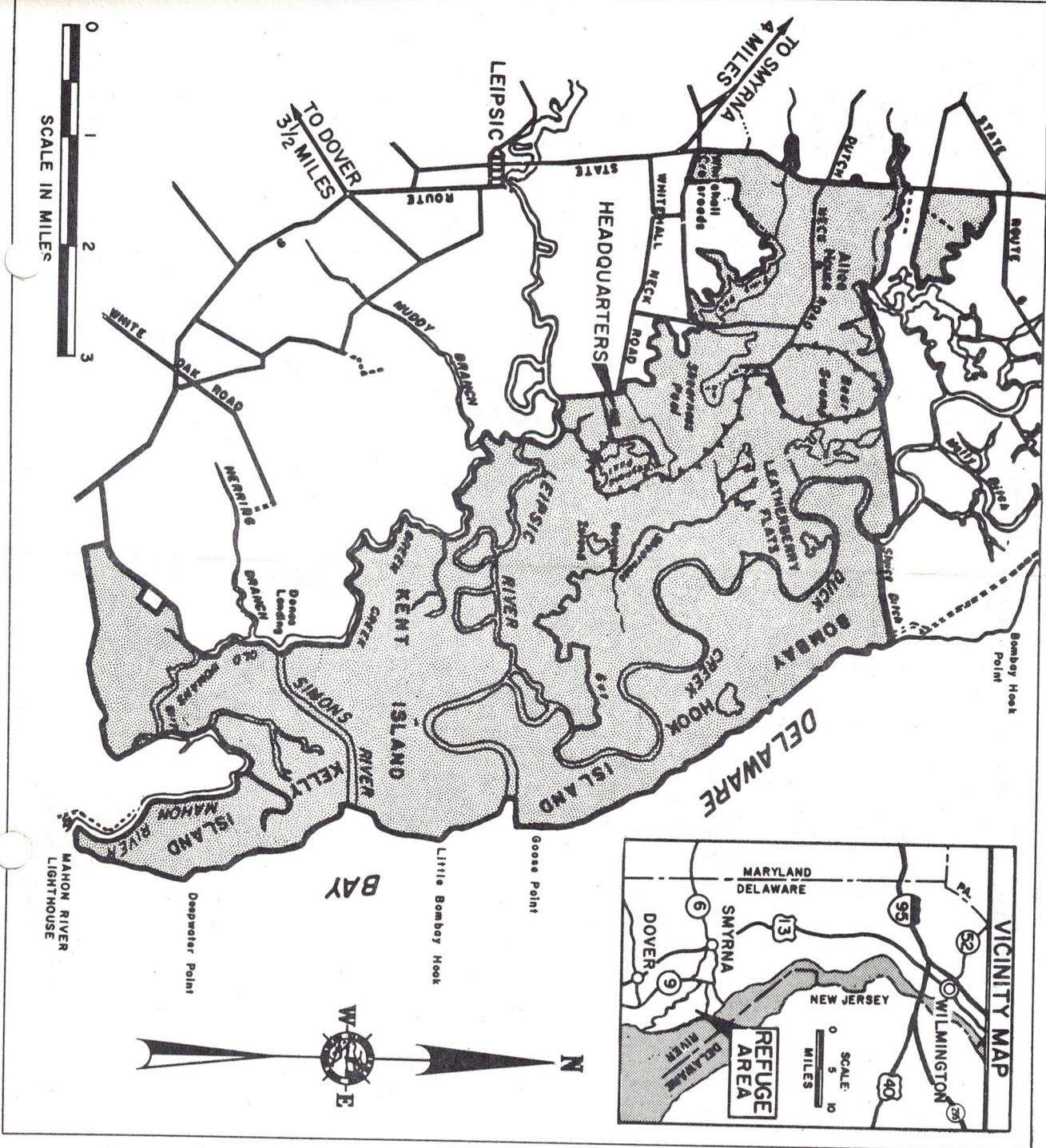


## RECREATION

The public is welcome to visit the refuge for nature study, photography, and sightseeing during daylight hours. During wet periods the auto tour route may be closed to prevent deterioration of the road system. Observation towers, nature trails, restrooms, and an information booth are provided. The period from October 1 through November 30, is generally the most interesting to the average refuge visitor, as this is the period during which waterfowl populations are at their peak.

Public hunting, primarily for deer and waterfowl, is permitted on portions of the refuge during the legal state seasons. Interested persons should contact the refuge manager for more details.

The refuge office is open from 8:00 a.m. to 4:30 p.m., Monday through Friday.



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For further information contact:

Refuge Manager  
 Bombay Hook National Wildlife Refuge  
 RFD #1, Box 147  
 Smyrna, Delaware 19977  
 Telephone: (302) 653-9345

UNITED STATES  
 DEPARTMENT OF THE INTERIOR  
 FISH AND WILDLIFE SERVICE





birds  
of  
eastern  
neck

national wildlife  
refuge



established in 1962 to provide a feeding and resting place for migratory and wintering waterfowl.

The 2,285 acres of diversified habitat of the island, plus the waters of Chester River and Chesapeake Bay, provide habitat for a wide variety of bird life. Diving and puddle ducks, swans, and geese concentrate around the island in late fall and early winter. Peak concentrations occur from November to January.

This folder lists the birds that are found in the area of Eastern Neck Refuge. Of the 240 species recorded, 13 have not been identified on the refuge and are shown in italics. Seasonal abundance data for each species apply to the general Eastern Neck (upper Chesapeake Bay) region and may reflect the species' status on the refuge.



Most birds are migratory, therefore their seasonal occurrence is coded as follows:

- SEASON**
- S — Spring
  - S — Summer
  - F — Fall
  - W — Winter
- March-May  
June-August  
September-November  
December-February
- t = *Nesting has occurred on the refuge*

**RELATIVE ABUNDANCE**

- a — **abundant** a species which is very numerous.
- c — **common** certain to be seen or heard in suitable habitat.
- u — **uncommon** present, but not certain to be seen.
- o — **occasional** seen only a few times during a season
- r — **rare** seen at intervals of 2 to 5 years.

	S	S	F	W
Common Loon.....	u	c		
Horned Grebe.....	u	c	c	c
<i>Red Throated Loon</i> .....	u	u	u	u
Red-necked Grebe.....	r	r	r	r
Pied-billed Grebe t.....	u	r	c	c
Double-crested Cormorant.....	c	c		

Great Blue Heron t.....	c	c	c	u
Green Heron t.....	c	c	c	r
Little Blue Heron.....	r	r		
Cattle Egret.....	u	u	r	
Great Egret.....	r	r	u	u
Snowy Egret.....	u	u	u	u
Louisiana Heron.....	r	r	u	
Black-crowned Night Heron.....	u	u	r	
<i>Yellow-crowned Night Heron</i> .....	u	u	u	u
Least Bittern t.....	u	u		
American Bittern t.....	r	u	u	r
Glossy Ibis.....	r	r		

**SWANS, GEESE and DUCKS**

Mute Swan t.....	c	c	c	c
Whistling Swan.....	c	a	a	
Canada Goose.....	a	a	a	
White-fronted Goose.....	r	r		
Snow Goose.....	u	u	u	u
Mallard t.....	a	a	a	a
Black Duck t.....	c	c	c	c
Gadwall.....	c	r	c	u
Pintail.....	c	c	c	c
Green-winged Teal.....	c	c	r	
Blue-winged Teal t.....	c	r	c	r
American Wigeon.....	u	c	c	c
<i>European Wigeon</i> .....	u	u	u	u
Northern Shoveler.....	u	c	r	
Wood Duck t.....	c	c	c	u
Redhead.....	u	u	u	u
Ring-necked Duck.....	u	u	u	u
Canvasback.....	c	c	c	c

Greater Scaup.....	u	u	c
Lesser Scaup.....	c	c	c
Common Goldeneye.....	c	c	c
Bufflehead.....	c	c	c
Oldsquaw.....	c	c	c
White-winged Scoter.....	u	u	c
Surf Scoter.....	u	u	u
Black Scoter.....	u	u	u
Ruddy Duck.....	c	c	c
Hooded Merganser.....	u	u	c
Common Merganser.....	r	r	u
Red-breasted Merganser.....	u	r	c

**VULTURES - HAWKS - QUAIL - RAILS and COOTS**

Turkey Vulture t.....	a	a	a	a
Black Vulture t.....	c	c	c	c
Sharp-shinned Hawk.....	u	c	u	
Cooper's Hawk.....	r	r	r	
Red-tailed Hawk t.....	c	c	c	c
Red-shouldered Hawk t.....	u	u	u	u
Broad-winged Hawk.....	r	u	c	
Rough-legged Hawk.....	r	r	r	
Golden Eagle.....	r	r	r	
Bald Eagle t.....	c	u	c	u
Marsh Hawk.....	c	c	c	c
Osprey t.....	a	a	c	
Merlin.....	r	r	r	
American Kestrel t.....	a	u	a	a
Bobwhite t.....	a	a	a	a
<i>Turkey</i> .....	u	u	u	u
King Rail t.....	c	c	c	c
Clapper Rail.....	r	r	r	
Virginia Rail t.....	a	a	a	
Sora.....	r	r	r	
Common Gallinule.....	r	r	r	r
American Coot.....	c	c	c	c

**PLIVERS, SNIPES and SANDPIPERS**

Semipalmated Plover.....	u	u	u
Killdeer t.....	c	c	c

s S F W

Black-bellied Plover ..... u u u  
 American Woodcock ..... u u u u  
 Common Snipe ..... u u u  
 Spotted Sandpiper ..... c u c  
 Solitary Sandpiper ..... u u u  
 Greater Yellowlegs ..... c c r  
 Lesser Yellowlegs ..... c u c  
 Pectoral Sandpiper ..... u u u  
 Western Sandpiper ..... u u u u  
 Least Sandpiper ..... c c c  
 White-rumped Sandpiper ..... u u  
 Dunlin ..... c u c u  
 Stilt Sandpiper ..... u u  
 Semipalmated Sandpiper ..... c c c  
 Short-billed Dowitcher ..... u u u

GULLS and TERNS - DOVES

CUCKOOS - OWLS - NIGHTHAWKS

*Glaucous Gull* ..... u  
 Great Black-backed Gull ..... u u  
 Herring Gull ..... c u c c  
 Ring-billed Gull ..... a r a c  
 Laughing Gull ..... c u c r  
 Bonaparte's Gull ..... u u u  
 Forster's Tern ..... r o c  
 Common Tern ..... u u u  
 Least Tern ..... r u u  
 Royal Tern ..... r u  
 Caspian Tern ..... u u  
 Rock Dove ..... u u u u  
 Mourning Dove ..... c c c c  
 Yellow-billed Cuckoo ..... u u u  
 Black-billed Cuckoo ..... u u u  
 Barn Owl ..... u u u u  
 Screech Owl ..... u u u u  
 Great Horned Owl ..... u u u u  
 Snowy Owl ..... u u  
 Barred Owl ..... c c c c  
 Short-eared Owl ..... u u u  
 Saw-whet Owl ..... o o

s S F W

Whip-poor-will ..... u u u  
 Common Nighthawk ..... u u c  
 Chimney Swift ..... c c c

HUMMINGBIRDS - KINGFISHERS -  
 WOODPECKERS - FLYCATCHERS  
 LARKS - SWALLOWS

Ruby-throated Hummingbird ..... u u u  
 Belted Kingfisher ..... u u u u  
 Common Flicker ..... c c c c  
 Red-bellied Woodpecker ..... c c c c  
 Red-headed Woodpecker ..... r r r  
 Yellow-bellied Sapsucker ..... u u u  
 Hairy Woodpecker ..... u u u u  
 Downy Woodpecker ..... c c c c  
 Eastern Kingbird ..... c c c  
 Great Crested Flycatcher ..... u c u  
 Eastern Phoebe ..... c u c u  
 Yellow-bellied Flycatcher ..... o  
 Acadian Flycatcher ..... u u u  
 Eastern Wood Pewee ..... c c c  
 Horned Lark ..... c c u u  
 Tree Swallow ..... c c a o  
 Bank Swallow ..... u c c  
 Rough-winged Swallow ..... u u u  
 Barn Swallow ..... a a  
 Cliff Swallow ..... r  
 Purple Martin ..... u c u

JAYS and CROWS - TITMICE  
 NUTHATCHES - WRENS

Blue Jay ..... u u a c  
 Common Crow ..... c c c c  
 Fish Crow ..... c u c u  
 Black-capped Chickadee ..... o  
 Carolina Chickadee ..... c c c c



Tufted Titmouse f ..... c c c c  
 White-breasted Nuthatch t ..... u u u u  
 Red-breasted Nuthatch ..... u u u u  
 Brown Creeper ..... u u u u  
 House Wren t ..... c c c r  
 Winter Wren ..... u u u u  
 Carolina Wren t ..... c c c c  
 Marsh Wren t ..... c c c r  
 Sedge Wren t ..... o o o o

**MOCKINGBIRDS - THRUSHERS - GNATCATCHERS and KINGLETS - WAXWINGS**

Mockingbird t ..... c c c c  
 Gray Catbird t ..... c c c r  
 Brown Thrasher t ..... c c c r  
 American Robin t ..... a c a u  
 Wood Thrush t ..... c c c c  
 Hermit Thrush ..... u u u u  
 Swainson's Thrush ..... c c c c  
 Gray-cheeked Thrush ..... u u u u  
 Veery ..... u u u u  
 Eastern Bluebird t ..... u u u u  
 Blue-gray Gnatcatcher ..... u r u u  
 Golden-crowned Kinglet t ..... u c c c  
 Ruby-crowned Kinglet ..... u c c c  
 Water Pipit ..... r r r r  
 Cedar Waxwing t ..... c r c u

**SHRIKES - VIREOS - WARBLERS - BLACKBIRDS - TANAGERS**

Northern Shrike ..... c  
 Loggerhead Shrike ..... u u u u  
 Starling t ..... c c a c  
 White-eyed Vir ..... u u u u

Yellow-throated Vireo t ..... u u u u  
 Solitary Vireo ..... r r r r  
 Red-eyed Vireo t ..... c u c c  
 Warbling Vireo t ..... r r r r

Black-and-white Warbler t ..... c u c c  
 Prothonotary Warbler t ..... u u u u  
 Blue-winged Warbler ..... u r u u  
 Orange-crowned Warbler ..... o o o o  
 Nashville Warbler ..... r r r r  
 Northern Parula t ..... u u u u  
 Yellow Warbler t ..... u c u u  
 Magnolia Warbler ..... u r u u  
 Cape May Warbler ..... r r u u  
 Black-throated Blue Warbler ..... u u c c  
 Yellow-rumped Warbler ..... a a c c  
 Black-throated Green Warbler ..... u u u u  
 Blackburnian Warbler ..... u r u u  
 Yellow-throated Warbler t ..... u u u u  
 Chestnut-sided Warbler ..... u u u u  
 Bay-breasted Warbler ..... u r u u  
 Blackpoll Warbler ..... u r u u  
 Pine Warbler t ..... u u u r  
 Prairie Warbler t ..... u u u u  
 Palm Warbler ..... u u o o  
 Ovenbird t ..... u u c c  
 Northern Waterthrush ..... u u u u  
 Louisiana Waterthrush t ..... u r u u  
 Kentucky Warbler t ..... u u u u  
 Common Yellowthroat ..... c a c o  
 Yellow-breasted Chat t ..... u u o o  
 Wilson's Warbler ..... r r r r  
 Canada Warbler ..... u u u u  
 American Redstart ..... c u c c  
 House Sparrow t ..... c c c c

Bobolink ..... u c c c  
 Eastern Meadowlark t ..... c c a c  
 Yellow-headed Blackbird ..... u u u u  
 Red-winged Blackbird t ..... a a a a  
 Orchard Oriole t ..... u u u u  
 Northern Oriole t ..... u u o o  
 Rusty Blackbird ..... r r u u  
 Brewer's Black' ..... u u u u  
 Common Grackl' ..... c a a c

Brown-headed Cowbird ..... c c c c  
 Scarlet Tanager t ..... u r u u  
 Summer Tanager t ..... r r r r

**GROSEBEAKS, SPARROWS and BUNTINGS**

Cardinal t ..... c c c c  
 Rose-breasted Grosbeak ..... r u u u  
 Blue Grosbeak t ..... r u r u  
 Evening Grosbeak ..... u u u u  
 Indigo Bunting t ..... c c c c  
 Purple Finch ..... u u u u  
 House Finch ..... u r u u  
 Pine Siskin ..... r r u u  
 American Goldfinch t ..... c u c c  
 Rufous-sided Towhee t ..... c c c u  
 Savannah Sparrow ..... u u u u  
 Grasshopper Sparrow t ..... u u u u  
 Henslow's Sparrow t ..... r r r r  
 Sharp-tailed Sparrow ..... r r r r  
 Seaside Sparrow t ..... u u r r  
 Vesper Sparrow ..... r r r r  
 Dark-eyed Junco ..... a a a a  
 Tree Sparrow ..... u u u u  
 Chipping Sparrow t ..... c c c o  
 Field Sparrow t ..... c c c c  
 White-crowned Sparrow ..... u u u u  
 White-throated Sparrow ..... a a a a  
 Fox Sparrow ..... r u u u  
 Swamp Sparrow ..... c c c c  
 Song Sparrow t ..... a c a c  
 Lapland Longspur ..... o o o o  
 Snow Bunting ..... o o o o



s S F W

___	Brown-headed Cowbird.....	c	c	c	c
___	Scarlet Tanager† .....	u	r	u	
___	Summer Tanager†.....	r	r	r	

**GROSBEAKS, SPARROWS  
and BUNTINGS**

___	Cardinal†.....	c	c	c	c
___	Rose-breasted Grosbeak .....	r	u		
___	Blue Grosbeak† .....	r	u	r	
___	Evening Grosbeak.....	u	u	u	
___	Indigo Bunting† .....	c	c	c	
___	Purple Finch.....	u	u	u	
___	House Finch.....	u	r	u	u
___	Pine Siskin .....	r	u	u	
___	American Goldfinch† .....	c	u	c	c
___	Rufous-sided Towhee† .....	c	c	c	u
___	Savannah Sparrow.....	u	u	u	
___	Grasshopper Sparrow†.....	u	u	u	
___	Henslow's Sparrow†.....	r	r	r	
___	Sharp-tailed Sparrow .....	r	r	r	
___	Seaside Sparrow† .....	u	u	r	
___	Vesper Sparrow .....	r	r	r	
___	Dark-eyed Junco .....	a	a	a	
___	Tree Sparrow .....	u	u	u	
___	Chipping Sparrow† .....	c	c	c	o
___	Field Sparrow† .....	c	c	c	c
___	White-crowned Sparrow .....	u	u	u	
___	White-throated Sparrow .....	a	a	a	
___	Fox Sparrow.....	r	u	u	
___	Swamp Sparrow .....	c	c	c	
___	Song Sparrow† .....	a	c	a	c
___	Lapland Longspur .....				o
___	Snow Bunting .....				o



NOTES

Location \_\_\_\_\_

Date \_\_\_\_\_ Total \_\_\_\_\_

Observers \_\_\_\_\_

Weather \_\_\_\_\_ Wind \_\_\_\_\_

Time \_\_\_\_\_

This list was prepared from the records of the Migratory Non-game Bird Section of the Wildlife Service's Patuxent Wildlife Research Center and updated in 1979 by the Maryland Ornithological Society, Kent County Chapter. It is subject to change as more birds are identified on the refuge.

Please report any sightings of birds not in agreement with this list to:

Refuge Manager  
Eastern Neck National Wildlife Refuge  
Route 2, Box 225  
Rock Hall, Maryland 21661  
Telephone: (301) 639-7056

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE



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