



A Field Guide to Hog Island Wildlife Management Area

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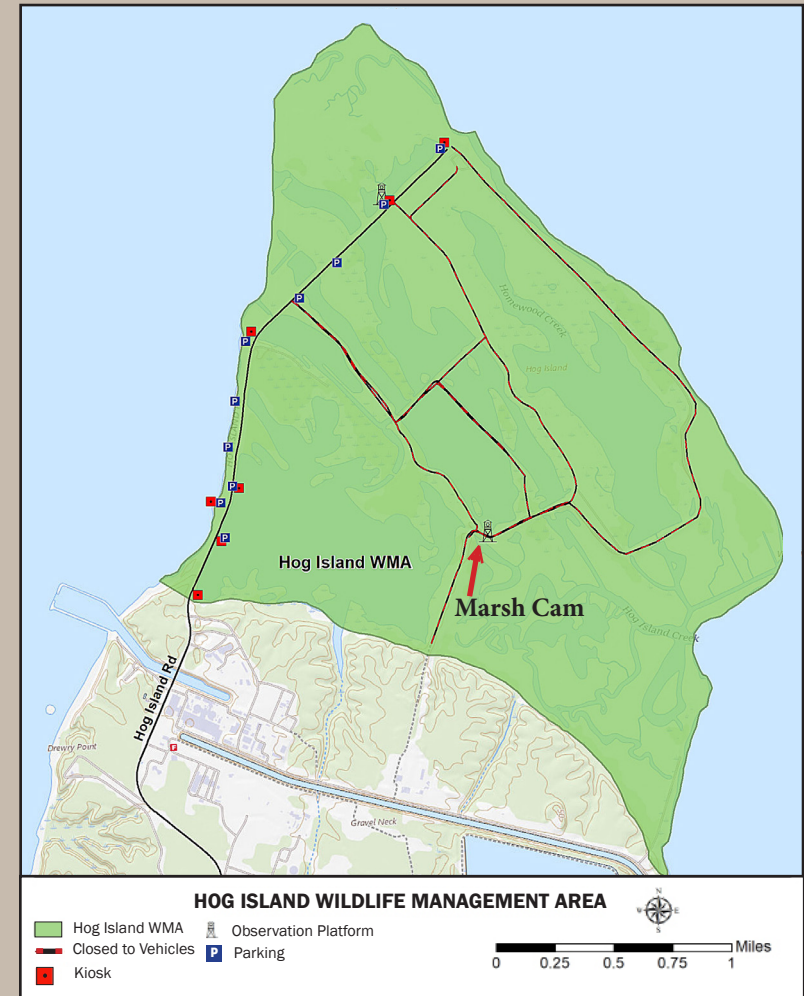
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Back Cover - Snowy and Common egrets

The Hog Island Marsh Cam

The Marsh Cam is a livestreaming camera located on the southern end of Hog Island Wildlife Management Area (WMA), centered between a tidal marsh and two managed impoundments. It remains in operation 24/7, every day of the year, which means that night or day no matter the season, there is always something to see! Check it out!

viriniawildlife.gov/marsh-cam



CONSERVE. CONNECT. PROTECT.

MISSION STATEMENT

Conserve and manage wildlife populations and habitat for the benefit of present and future generations. Connect people to Virginia's outdoors through boating, education, fishing, hunting, trapping, wildlife viewing, and other wildlife-related activities. Protect people and property by promoting safe outdoor experiences and managing human-wildlife conflicts.

Secondary School
Lesson Guide

The Ecology of Hog Island Workbook

Teacher Guide



Students!

Here is your chance to observe a marsh in action!

Your teacher will guide you in making entries into a Marsh Cam Observations document as seen below.

My Marsh Cam Observations

Why Create an Observation Journal Entry?

Journal entries provide a record of what was seen and done on any given day. They often contain information such as the date, time of day, and observations of the weather. While journal entries are most often meant for the person writing the entry to reflect upon, they can also be used to learn more about history and even scientific concepts. For example, much of the early colonial history of Jamestown was informed by journals such as Captain John Smith's. When observations about nature are included in journal entries, scientists can see how the plants, animals, and even climate has changed from the past to the present.

Documenting Wildlife Species

While viewing the Marsh Cam, place the types of wildlife species you observe in the correct habitat below. If you don't know the exact name of the wildlife species, describe it to the best of your ability and try to identify it later using a field guide (online or book). Many of the birds at Hog Island are migratory so keep that in mind when attempting to identify any birds you see.

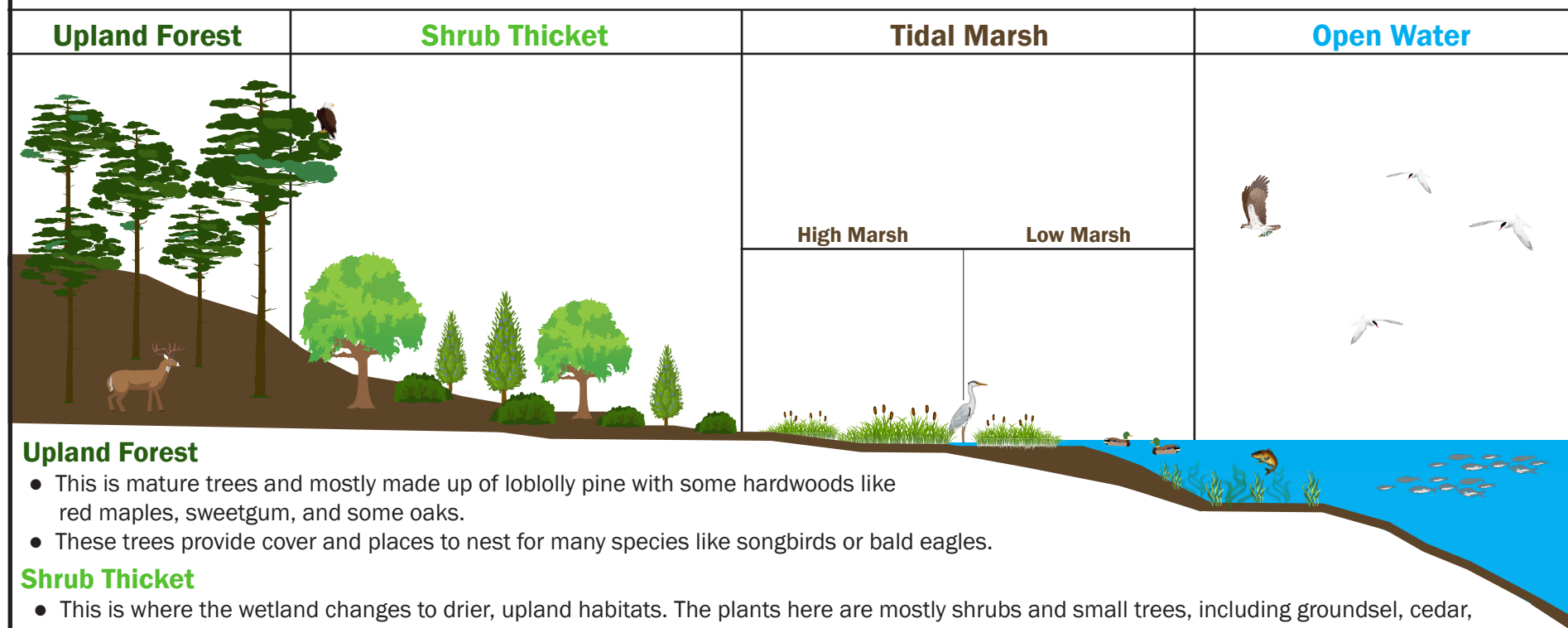
Date: _____

Time: _____

Weather conditions: _____

Species Name If you do not know the species name, describe it here	In what habitat did you see the species?	How many individuals of the species do you see?	Describe the Behavior of the Animal (feeding, swimming, resting, hunting, flying, walking, etc)
	☐ Tidal water ☐ Tidal marsh ☐ Inland wetland impoundment ☐ Shrub thicket ☐ Other		
	☐ Tidal water ☐ Tidal marsh ☐ Inland wetland impoundment ☐ Shrub thicket ☐ Other		

Coastal Wetland Habitats



Upland Forest

- This is mature trees and mostly made up of loblolly pine with some hardwoods like red maples, sweetgum, and some oaks.
- These trees provide cover and places to nest for many species like songbirds or bald eagles.

Shrub Thicket

- This is where the wetland changes to drier, upland habitats. The plants here are mostly shrubs and small trees, including groundsel, cedar, black locust, and persimmon. This provides cover and food for wildlife.

Tidal Marsh

- The marsh is a wetland with mostly grasses and grass-like plants like sedges and rushes. The rich mud of the marsh supports supports many invertebrates (like fiddler crabs) that provide food for wildlife. Marshes filter storm water and help prevent erosion and are very important for the health of the ecosystem.
- The **Low Marsh** is the area closest to open water and is flooded when the tide rises.
 - Smooth cordgrass
- The **High Marsh** only floods during high tide and/or during storm events.
 - Big cordgrass, Black needlerush
- **Intertidal Mud Flats** are mud and sediment that are exposed during low tides. There is little to no vegetation, but many invertebrates feed in the nutrient-rich mud, attracting wildlife that feeds on these invertebrates.

Open Water

- Open water habitat is used by fish as well as aquatic mammals like mink, otter, and muskrat. Many birds such as waterfowl, osprey, pelicans, and terns hunt for food here.
- Submerged aquatic vegetation (SAV) can be found here and provides food and hiding places for many species
- The salt content of the water at Hog Island varies with rainfall and tides, but is usually low enough to support mostly freshwater species.



A pair of mallards demonstrate typical “puddle duck” feeding as they search for aquatic plants in shallow water.

Dabbling Ducks – Also known as “puddle ducks,” this group mainly eats plants that grow in shallow water, called submerged aquatic vegetation or SAV, and small aquatic animals like insects and snails. These ducks generally feed in water that is less than two feet deep where they can tip forwards and easily reach the plants and insects with their bill.

American Black Duck (*Anas rubripes*)

Description:

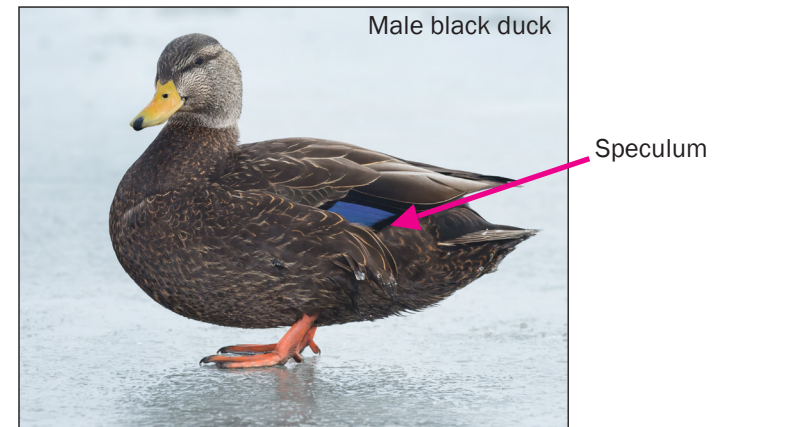
- Similar in size and appearance to female mallard ducks, but have a darker chocolate-brown body and pale brown head
- Males have a yellow bill - females have a tan-olive bill
- Bright white underwings
- Speculum is purple with black border

Distribution and Habitat:

- Throughout central and eastern North America
- In central U.S., often associated with wooded wetlands
- In Virginia this species primarily nests and roosts in secluded, tidal saltwater marshes and is much less likely to be seen in urban or residential areas

Management:

- Has recently shown significant decline partly due to loss of suitable habitat. In order to study and better understand the movements and habits of American black ducks, the Virginia Department of Wildlife Resources, in coordination with other wildlife agencies in states along the Atlantic Coast, is capturing and fixing telemetry radios on individual birds.



Gadwall (*Mareca strepera*)

Description:

- Medium-sized ducks - slightly smaller than American black ducks and mallards
- “Square” heads
- Male has gray-brown coloration with a white belly. Male gadwall have a black rear and tail and a dark bill.
- Females are mottled brown, white, and grey across their back, and the edge of their bill is yellowish-orange.
- Distinctive reddish-brown, black, and white portions on their outer wing.

Distribution and Habitat:

- Gadwall breed, migrate, or overwinter across most North America.
- Gadwall will use a wide range of wetland habitats during their migration, and can often be found in shallow water marshes with both open water and flooded vegetation.

Management:

- DWR has several protected state lands, including Hog Island WMA, where seasonal, shallow-water wetlands are managed to promote the growth of SAV to support species including gadwall.



Top, male gadwall, below, female gadwall

Green-Winged Teal (*Anas crecca*)

Description

- Smallest duck species in North America (half the size of a mallard)
- Males have a cinnamon-brown head with a green strip starting at the eye and curving down toward the back of their neck.
- Females are mottled brown.
- Dark bills, brown speckled white chests, and a distinctive iridescent green wing patch.

Distribution and Habitat:

- Green-winged teal occupy a very large range across North America.
- They are known to breed in the northernmost portions of Alaska and over-winter in the tropical landscapes of Jamaica and southern Mexico.
- In Virginia, you can find these ducks in shallow-water wetlands including freshwater ponds, tidal marshes, and flooded agricultural fields.

Management:

- DWR has several protected state lands, including Hog Island WMA, where seasonal, shallow-water wetlands are managed for waterfowl. Teal will forage in very shallow water and on mud flats – sifting mud through their bills to get seeds and invertebrates.



Left, male green-winged teal, right, female green-winged teal



Mallard (*Anas platyrhynchos*)

Description:

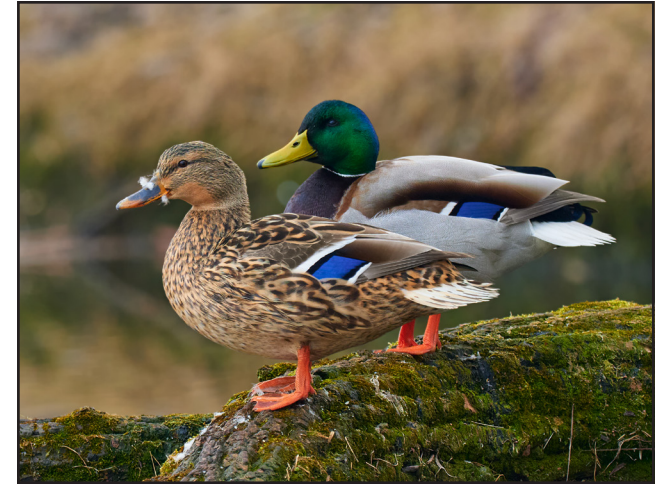
- Males: iridescent green heads with a bright yellow bill
- Females: mottled brown with an orange bill
- Both male and female have a distinct white-bordered, iridescent blue patch on their wings called a speculum

Distribution and Habitat:

- Found across the globe and inhabit a wide variety of wetland types, including marshes, rivers, swamps, ponds, and lakes - can be common in human-made water features

Conservation and Management:

- Although common, mallards have declined by 50 percent in the last 20 years.
- DWR captures and bands approximately 100 mallards each year.



Female mallard (with feathers on beak), foreground, male in the background.





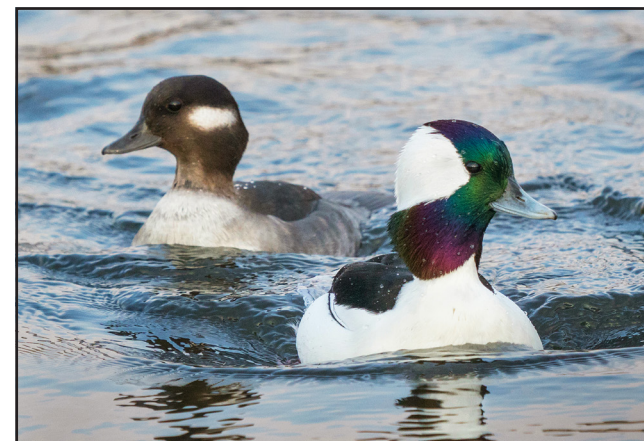
A ring-necked duck dives to forage. Here, you can see the bronze neck ring that gives the duck its name.

Diving Ducks - As you would expect, diving ducks dive underwater to forage. While sitting or swimming on the water surface, these ducks will leap up and arch forward to dive head first underwater and then use their feet to swim. They feed on a wide variety of aquatic animals including fish, clams, and insects, and an array of SAV including water celery, pondweeds, and wild rice.

Bufflehead (*Bucephala albeola*)

Description:

- Small ducks with a large head and a short, stout gray bill
- Males have a black head with an iridescent green and purple sheen and a large white patch behind the eye. They also have a bright white body and a jet black back. This two-tone appearance can be recognized across long distances. A noticeable white stripe across the outer wing is visible while the bird is in flight.
- Females are brown, with a smaller white patch behind their eye and on their wing.
- This species is able to jump off the water into flight without needing a “running” start.



Male bufflehead, foreground, female in the background.

Distribution and Habitat:

- Breed in the northern boreal forests of Canada and Alaska where they build nests in tree cavities.
- Common across the United States and down into central Mexico during the winter months.
- During the winter months in Virginia, you will often see bufflehead ducks along coastal estuaries, bays, rivers, and other open water bodies.

Hooded Merganser (*Lophodytes cucullatus*)

Description:

- Small, charismatic species that is easily identified by its movable, fan-shaped crest, or hood, that often resembles a mohawk atop their head.
- Males have a white chest and belly with chestnut sides, and are black on top. They have a black bill and a black head with a large white patch that covers the back half of their head.
- Females are mottled gray and brown with a reddish tinge along the top of their hood.
- Mergansers are easily distinguishable by their narrow and thin saw-tooth shaped bill, which is a specialized adaptation useful for eating fish and other aquatic animals.

Distribution and Habitat:

- Although hooded mergansers can be found across the United States and in southern Canada, many of the birds you will see at Hog Island are residents or are only migrating short distances. During the breeding season in the spring and summer you are likely to see these birds on smaller ponds and streams that support fish and are surrounded by forested areas, as they nest in holes or cavities inside trees. In the winter, they often move to larger bodies of water such as wooded swamps and brackish tidal estuaries.
- Will frequent waterbodies that have populations of fish and other prey.
- Nest in cavities and will use nest boxes



Female hooded merganser, foreground, male in the background.



A male hooded merganser displaying by raising his hood.

Ring-necked Duck (*Aythya collaris*)

Description:

- Medium-sized ducks
- Distinctively tall and angular head that comes to a peak toward the back.
- Males have a black head, gray sides, and a dark bill with notable white markings.
- Hens are mostly brown in color with gray tones on the lower portion of their face and dark bills with a single white marking.
- Although this species does have a narrow, brownish-colored ring near the base of their neck, you are not likely to notice it.

Distribution and Habitat:

- Breeding grounds in wetlands associated with the boreal forests of Canada.
- Most over-winter in the southern United States, but some birds travel as far south as Panama.
- During the winter months in the Mid-Atlantic region, these birds are common in more secluded and sheltered freshwater marshes, beaver ponds, and wooded swamps.
- Although a diving duck, these birds will use shallow wetlands and feed primarily on plants and seeds.



Male ring-necked duck, foreground, female in the background.





Canada geese will swim together, but can also be found swimming with snow geese, ducks and swans.

Swans and Geese – These birds are closely related to ducks, but are larger. Unlike many ducks, males and female geese have a similar appearance.

Canada Goose (*Branta canadensis*)

Description:

- Large goose (5-20 lbs) with gray-brown body, black head and neck, and white chinstrap
- White rump
- There are seven recognized sub-species with relatively subtle variations of plumage color and physical appearance.

Distribution and Habitat:

- Two distinct populations or groups in Virginia, migratory and resident
- Migratory Canada geese – breed in far Northern Canada
- Resident Canada geese - present in Virginia year-round and breed in a variety of habitats including rural, urban and suburban areas.
- Both migratory and resident geese can be found at Hog Island WMA in large flocks during the winter.
- In winter, Canada geese can be found in and near a variety of waterbodies and often gather in agricultural fields.



Management:

- An early hunting season allows harvest of resident birds without impacting the migratory population. Both resident and migratory geese can be hunted during the later season.
- Resident Canada geese are banded by DWR annually to help monitor and manage this population.

Snow Geese (*Anser caerulescens*)

Description:

- Medium-sized goose (3 ½ - 7 ½ lbs)
- All white with black wing-tips - A “blue” morph variety of the species has a variably dark body with some white.
- All color forms have pink legs and a pink bill with black “grin” patch.

Distribution & Habitat:

- Breed in arctic North America and migrate south as far as Mexico. Eastern breeding population overwinters along the Mid-Atlantic coast, including Virginia
- Breed in colonies on islands in ponds, lakes, and the mouths of shallow rivers
- Overwinters in marshes and shallow waters of tidal and fresh waters, grasslands and farm fields.

Management:

- Increasing populations of snow geese are damaging delicate breeding habitat, so there is an extended hunting season for this species.



A “blue morph” snow goose.



Thousands of snow geese flock and travel together during migration.

Tundra Swan (*Cygnus columbianus*)

Description:

- Large, white bird (8-23 lbs) with black legs and black bill, with a small yellow spot on the bill near the eye.
- Juvenile birds may have some dingy gray/brown feathers and pinkish bill.

Distribution and Habitat:

- Breeds in shallow ponds, lakes, and pools in the Arctic tundra, with separate populations that winter in North America and Europe.
- Overwinters in marshes, grasslands, and farm fields, especially near coastal estuaries

Management:

- Hog Island WMA maintains shallow-water areas and farm fields that provide winter habitat.





A bald eagle grabs a shad from the river.

Birds of Prey: This group of birds is mostly made up of birds that actively hunt live prey, although some species scavenge (and many species do both!). Most of these birds have strong talons (feet) that can grab and hold prey and curved bills that help them tear flesh. This group includes eagles, hawks, falcons, owls, and vultures. In most raptor species, females are larger males.

American Kestrel (*Falco sparverius*)

Description

- Smallest falcon in North America
- Weighs .25 lb - females are slightly larger than males
- Primarily hunts insects, but also takes small mammals, birds, and other prey.
- Bright, rusty-red back. Male has gray wings, female has reddish wings with black barring. Both males and females have black “sideburns” and “moustache.”

Distribution and Habitat

- Widespread across North and South America
- Breed in semi-open habitats with enough trees to provide cavity nesting sites.
- North American population migrates to southern part of range in winter.
- Nests in cavities and will use artificial nest boxes.

Management

- Although relatively common, numbers have declined significantly in recent years. Scientists are studying causes.



Female American kestrel



Male American kestrel

Bald Eagle (*Haliaeetus leucocephalus*)

Description

- Large bird, 5- 10 lbs
- Adults have a brown body with distinctive white head and tail (juveniles are mottled brown with increasing white developing over their first five years).
- Yellow bill and feet
- Often seen soaring with a wingspan up to 6 feet across

Distribution and Habitat

- Year-round resident throughout much of the United States and Canada, with wintering populations in the desert Southwest, Virginia and parts of Mexico.
- Commonly found in forested areas adjacent to large bodies of water
- In Virginia, populations are centered in the Coastal Plain region.
- The James River is noted as a bald eagle “concentration area,” and is home to several hundred eagles throughout the year including breeding, migrating, and overwintering birds.
- Hog Island WMA is key eagle habitat with as many as 200 birds congregating here to feed on fish in the impoundments and adjacent river.

Management

- This species was one of the first protected by the Endangered Species Act in 1973, but a remarkable recovery led to them being removed from the Endangered Species List in 2007.
- The flooding and draining of impoundments concentrates fish such as gizzard shad and carp and provides a feast for eagles and other fish-eating birds.



A pair of bald eagles guard their nest.



A juvenile bald eagle.



Barred Owl (*Strix varia*)

Description

- Grayish brown owl up to 19" tall weighing from 1 – 2 ¼ lbs
- No “ear tufts”
- Breast has long, brown streaks or bars
- Dark doll’s eyes
- Feathered legs

Distribution and Habitat

- Eastern North America, across Canada and the Pacific Northwest
- Forests and woodlands especially wooded swamps and riparian areas

Management

- Sustainable forest management is important for this species
- Will use nest boxes



Fledgling barred owl on forest floor after leaving nest.



Nestling and adult with prey in nest cavity of a tree.

Northern Harrier (*Circus hudsonius*)

Description

- Long-winged, long-tailed hawk that glides over grasslands and marshes hunting small mammals
- Male average $\frac{3}{4}$ lb, females 1 lb
- Females are brown with buffy breast, males are gray and pale below. Juveniles are brown with reddish breast.
- Have a round facial disc (similar to owls) that helps them hear prey moving through the grass.

Distribution and Habitat

- Widespread through North America. Rare breeder in Virginia, limited to extensive coastal marshes.
- Common migrant and winter resident in much of Virginia

Management

- Maintaining extensive grasslands and marshes like those at Hog Island WMA provides important wintering habitat.



Harriers can be seen hunting over meadows and marshes for small mammals.



Harriers nest on the ground in marshes and meadows.

Osprey (*Pandion haliaetus*)

Description

- Large birds ranging from 3-4 ½ lbs
- Brown back and upper wings with mostly white breast, belly, and head and a dark stripe through the eye.
- Underside of wings and tail has dark and light bands
- Dark wing tips and carpal patch
- Soars with bent wrist making an M shape
- Only raptor to plunge feetfirst into the water (as much as three feet deep)

Distribution and Habitat

- Found worldwide
- Hunts over water bodies, almost exclusively capturing fish.
- Found around large water bodies, especially in Coastal Virginia
- Builds nests close to or over the water
- Nests in live and dead trees and a variety of human-made structures (channel markers, communication towers). Will use platforms specially built to encourage their nesting

Management

- Pesticide pollution caused population decreases in Virginia until 1970s. Following the banning of DDT and other pesticides, populations recovered.
- Discarded fishing line and other trash are a major hazard to this species
- The Center for Conservation Biology tracks osprey nests at: www.osprey-watch.org/ - you can participate!



Adult female feeds fish to older chicks.



Adult female prepares to grab a fish.



Red-Shouldered Hawk (*Buteo linneatus*)

Description

- Medium size (17-24" tall , 1 ¼ to 1 ½ lbs) soaring hawk with broad wings and tail
- Adults have reddish breast, belly, and shoulder. Back and head are mottled brown and white. Flight feathers on wing boldly marked with black and white bars. The tail has broad black bars alternating with narrow white.
- Juvenile birds are brown above with pale belly and breast with small brown streaks. Their tail banded with broad brown bars separated by narrow white bars.

Distribution and Habitat

- Found through much of eastern North America – with a separate western population along the Pacific coast.
- Common in bottomland hardwood forests, along rivers and large waterbodies and wooded swamps. Also relatively common near human residential areas.
- Feed primarily on small mammals, amphibians and reptiles. At certain times of year, crayfish, birds and even fish can be part an important part of their diet.
- The fields, woods and impoundments at Hog Island WMA provide excellent feeding areas for red-shouldered hawks.



Top: Adult pair perch together, Above: Adult feeds chicks in nest.

PELICANS & CORMORANTS



Brown Pelican (*Pelecanus occidentalis*)

- Breeds in Virginia



Double-Crested Cormorant

(*Nannopterum auritum*)

- Hunts fish underwater
- Perches on branches and stumps to dry its wings after hunting



White Pelican (*Pelecanus erythrorhynchos*)

- Found in Western North America and have become a regular winter visitor at Hog Island WMA



Snowy Egret (*Egretta thula*)

- 2 feet tall
- Black bill and legs with yellow feet
- Showy, white breeding plumage

HERONS & EGRETS



Great Blue Heron (*Ardea herodias*)

- 5 feet tall
- Hunts in water and on land



Great Egret (*Ardea alba*)

- 3 feet tall
- Yellow bill and black legs

GULLS, TERNS & SKIMMERS



Laughing Gull (*Leucophaeus atricilla*)

- Non-breeding plumage: dark beak and legs, lighter gray back with small amounts of gray on back of head



Laughing Gull (*Leucophaeus atricilla*)

- Small gull
- Breeding plumage: reddish beak and legs, dark gray back, black head, white ring around eye



Royal Tern (*Thalasseus maximus*)

- Terns dive beak-first into water to catch small fish
- Shaggy black crest during breeding season
- Bright orange beaks



Ring-Billed Gull (*Larus delawarensis*)

- Medium-sized gull
- Small, yellowish beak with ring around the tip, yellowish legs
- Light gray back



Black Skimmer (*Rynchops niger*)

- Flies with lower beak in the water to scoop up small fish



Black Skimmer (*Rynchops niger*)

- Black back and head
- Large orange-and-black beak
- Very short red legs

SHOREBIRDS



Greater Yellowlegs (*Tringa melanoleuca*)

- Upright posture
- Common migrant and winter resident



Lesser Yellowlegs (*Tringa flavipes*)

- Upright posture
- Smaller size and beak than greater yellowlegs



Marbled Godwit (*Limosa fedoa*)

- Very long, pink bill with upturned, black tip
- Medium-sized wading bird
- Black legs



Roseate Spoonbill (*Platalea ajaja*)

- Large wading bird with pink plumage
- Long, gray bill with spoon-shaped tip
- Rare visitor to Virginia



Belted Kingfisher (*Megasceryle alcyon*)

- Medium-sized, blue gray bird with a crest
- Long, thick, gray bill
- Dives from perches to catch minnows and other prey

SHOREBIRDS



Killdeer (*Charadrius vociferus*)

- This shorebird can be found in many upland habitats



Semipalmated Sandpiper (*Calidris pusilla*)

- Small shorebird with short, black beak
- Black legs
- Can have rusty mottling on back



Least Sandpiper (*Calidris minutilla*)

- Smallest shorebird in Virginia
- Greenish legs



Solitary Sandpiper (*Tringa solitaria*)

- Slender shorebird
- Tail bobs up and down



Short-Billed Dowitcher (*Limnodromus griseus*)

- Medium-sized shorebird
- Feeds by probing its bill in the mud like a sewing machine
- Only short-billed when compared to similar looking long-billed dowitcher



Western Sandpiper (*Calidris mauri*)

- Small shorebird with bigger head, body, and longer beak than Semipalmated Sandpiper
- Most common sandpiper seen in migration and during winter in Virginia

UPLAND GAME BIRDS



Wild Turkey Gobbler

Wild Turkey (*Meleagris gallopavo*)

- Large bird
- Mature males, called “gobblers,” spread their tail and strut to attract females
- “Beard” grows from chest on males



Female Bobwhite

Northern Bobwhite

- Female, tan facial markings
- Small, ground nesting bird that likes shrubby and grassy areas



Male Bobwhite

Northern Bobwhite (*Colinus virginianus*)

- Male, black and white facial markings
- Small, ground nesting bird that likes shrubby and grassy areas
- Distinctive BOB-white call



Wild turkey foraging for grasshoppers and other insects and plants.



Wild turkey hen foraging with a chick (poult).

SONGBIRDS



Savannah Sparrow
(*Passerculus sandwichensis*)

- Light-colored sparrow
- Migrant and winter resident



Swamp Sparrow (*Melospiza georgiana*)

- Common winter resident
- Generally found near wet areas, but will use weedy fields



Red-Winged Blackbird (*Agelaius phoeniceus*)

- Male is black with bright red shoulders
- Female is brown and streaky
- Nests in marshes



Common Grackle (*Quiscalus quiscula*)

- Common
- Long, slender blackbird. Iridescent (females less shiny)



Tree Swallow (*Tachycineta bicolor*)

- Captures insects in flight and can be seen swooping over waterbodies.
- Will roost by the thousands in marshes during migration and in the winter



Eastern Bluebird (*Sialia sialis*)

- Related to robins and thrushes
- Nests in cavities and commonly uses nest boxes
- Male, right, has brighter colors than female

AMPHIBIANS & REPTILES



Green Frog (*Lithobates clamitans*)

- Common large frog
- Call sounds like plucking a banjo string



Northern Diamond-ed Terrapin
(*Malaclemys terrapin terrapin*)

- Found in brackish water
- Species of Greatest Conservation need due to habitat loss and other threats



Snapping Turtle (*Chelydra serpentina*)

- Virginia's largest freshwater turtle
- Knobby shell that becomes smooth with age



Spring Peeper (*Pseudacris crucifer*)

- Small tree frog, one of the first to become active in spring with loud choruses
- Tan with dark, cross-shaped mark across their back



Eastern River Cooter
(*Pseudemys concinna concinna*)

- Often seen basking on logs and banks of rivers or pond
- Narrow, yellow stripes on head and neck



Yellow-Bellied Slider
(*Trachemys scripta scripta*)

- Generally shows a thick, vertical, yellow bar behind the eye
- Common basking turtle

MAMMALS



Coyote (*Canis latrans*)

- Largest wild member of the dog family in Virginia (up to 45 lb)
- Eats a variety of prey (including fruit), - but mostly small mammals

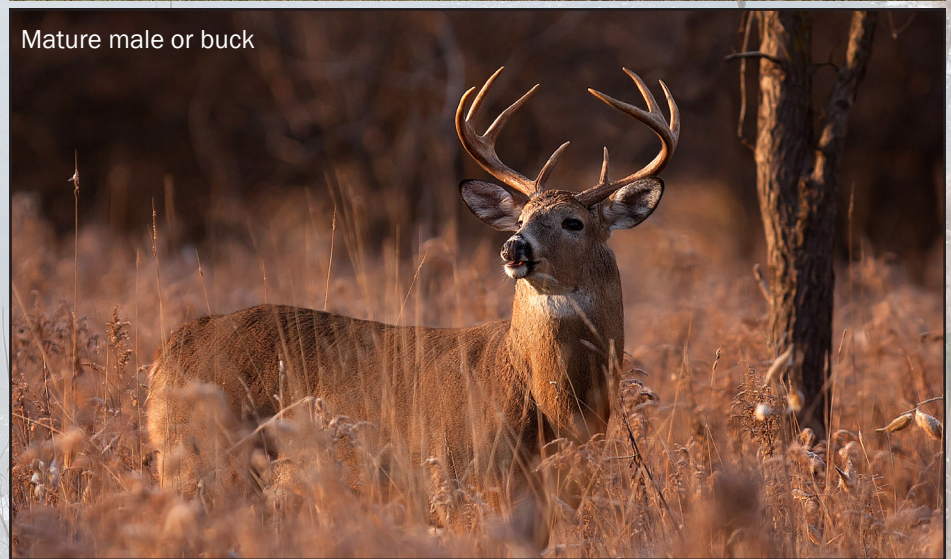


Eastern Cottontail (*Sylvilagus floridanus*)

- Most common rabbit in Virginia
- Feeds on a variety of vegetation



Female or doe with fawn



Mature male or buck

White-Tailed Deer (*Odocoileus virginianus*)

- Males (bucks) grow antlers during the breeding season and shed them in late winter and early spring
- Females (does) don't grow antlers normally
- Fawns have white spots as camouflage



Northern River Otter (*Lontra canadensis*)

- Largest member of the weasel family
- Aquatic mammal that feeds on fish and other aquatic prey



American Mink (*Neogale vison*)

- Medium-sized, semi-aquatic weasel
- Feeds on aquatic prey and small mammals



Northern Raccoon (*Procyon lotor*)

- Mostly nocturnal, but can also be active during the day
- Omnivore that eats a huge variety of food including fruits, insects, and eggs, and mollusks



Common Muskrat (*Tachycineta bicolor*)

- Aquatic rodent that feeds on marsh vegetation
- Dens in banks of waterbodies or in large grass "huts"



Nutria (*Mycastor coypus*)

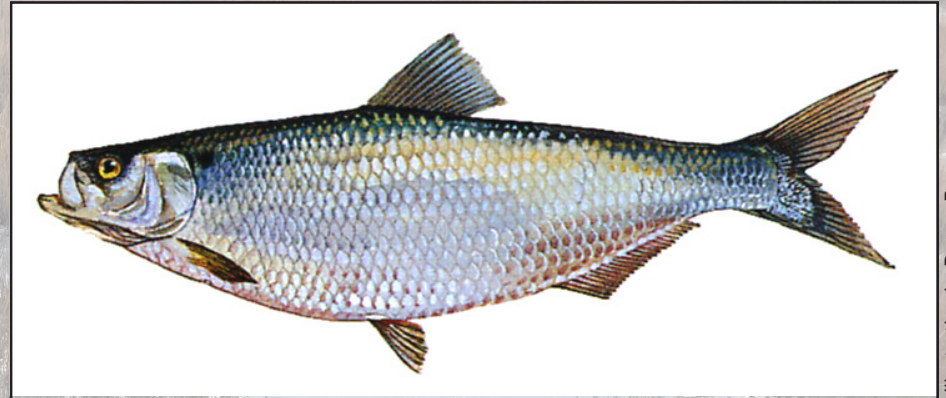
- Large aquatic rodent
- Prominent white whiskers and orange teeth
- Invasive in Virginia and destructive to marsh habitat

FISH



Common or European Carp (*Cyprinus carpio*)

- Feeds by nosing through mud to sift for food
- Not native to North America
- Can gulp air in oxygen-poor water



Hickory Shad (*Alosa mediocris*)

- Anadromous - spends life in salt water but returns to fresh water to spawn



Mummichog (*Fundulus heteroclitus*)

- Small, estuarine species that tolerates wide ranges of salinity
- Burrows into mud and swims in schools
- First fish to be sent into space in 1973

Illustration by Duane Raver

Courtesy of Connecticut Department of Energy and Environmental Protection

NOTES

