

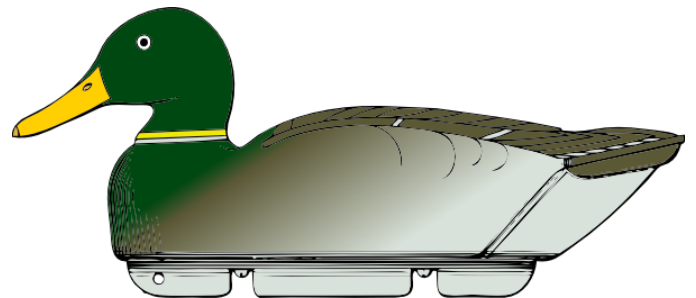
MIDDLE CREEK WILDLIFE MANAGEMENT AREA



Self-Directed Curriculum

Decoy

Detective



Self-Directed Curriculum Kits

- **Connect With Wildlife**

Students compare and identify twelve different Pennsylvania mammals using their pelts and wildlife background information.

- **Decoy Detective**

Students use the decoys to learn about waterfowl identification and divide birds into a diver or puddle duck classification.

- **Feet Are Neat**

Students explain the role of bird feet in bird survival and compare and contrast bird feet adaptations.

- **Let's Wing It**

Students compare and identify the different types of flight feathers that make up a bird's wing.

- **Scatology**

Students create fake animal scat and learn to identify an animal by its droppings.

- **Skull King**

Students infer from a skull what classification and niche the animal inhabits.

- **The Nose Knows**

Students identify different food smells and will compare the ability to distinguish different smells to animals using their sense of smell to find mates, offspring and food.

- **Wildlife Tracks**

Students use a variety of methods to observe, identify, collect and document tracks of different common wildlife species in Pennsylvania.

DECOY DETECTIVE- Teacher's Page

Objective:

Students will use the decoys to learn about waterfowl identification and divide birds into a diver or puddle duck classification.

Materials Needed:

- Assortment of plastic waterfowl decoys (with ID key)
- *Ducks Unlimited* waterfowl posters (multiple copies)
- *Peterson's Field Guide to Eastern Birds* (multiple copies)
- *Ducks at a Distance* waterfowl identification guides (multiple copies)
- Student worksheets
- Portion of *Wetland Wonders* curriculum

Background:

Waterfowl identification is important for those people who want to learn to identify different species, as well as those who are interested in hunting waterfowl. Ducks are often classified as either puddle ducks or diver ducks.

Puddle ducks are typically birds found in fresh, shallow marshes and rivers rather than large lakes and bays. They usually have colorful wing speculums. They can dive under water but prefer to feed by tipping over (dabbling.) Puddle ducks also feed in croplands because they are sure-footed and can walk or run well on land. They can easily launch themselves into the air from a stationary position on the water or land. Their diet is mostly made up of vegetables and grain. Examples of puddle ducks include mallards, black duck and wood ducks.

Diver ducks frequent the larger, deeper lakes and rivers as well as coastal bays and inlets. They usually do not have very colorful wing speculums like puddle ducks. Many of them have short tails and rather large paddle-like feet that can be used as rudders during flight and can often be seen while flying. When launching into flight, many divers have to run across the surface before taking off. They feed by diving many times to extreme depths. They feed on fish, shellfish, mollusks and aquatic plants. Examples include canvasbacks, ring-necked ducks and scaup.

Activities:

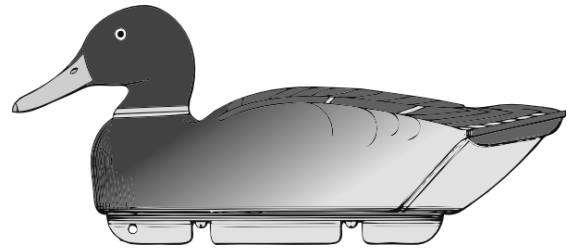
Start the lesson by asking the students questions about species of ducks and geese found in Pennsylvania. Discuss the differences between puddle and diver ducks. Divide the class into groups of 4-5 students and hand each group 4-5 different plastic waterfowl decoys as well as a copy of the field guides and *Ducks Unlimited* poster. Tell the students to handle the decoys and by using their field guides and posters, try and determine the species, sex and if it is a duck, have them decide if it is a diver or puddle duck. Give the students 10-15 minutes to work on this activity. When they are done, have them take turns holding up the birds and telling the class what they have. Use the key help correct any mistaken identifications.

Extension:

Refer to the attached *Wetland Wonders* curriculum and have students complete the activities included in the *Dabbling & Diving Duck* and *Get Your Ducks in a Row!* lesson plans.

DECOY DETECTIVE

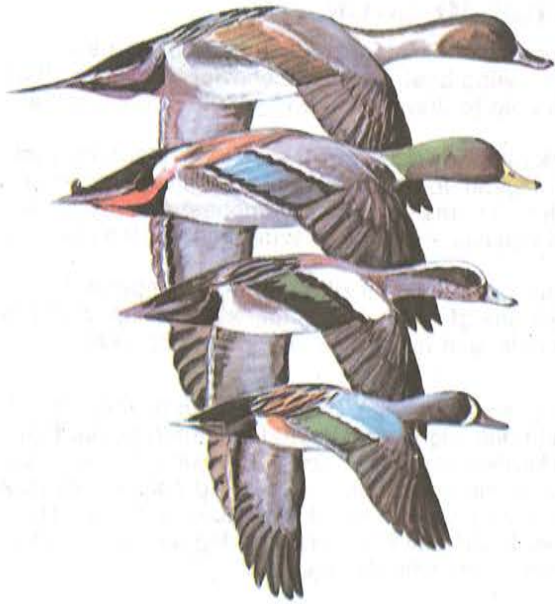
STUDENT WORKSHEET



Name(s): _____

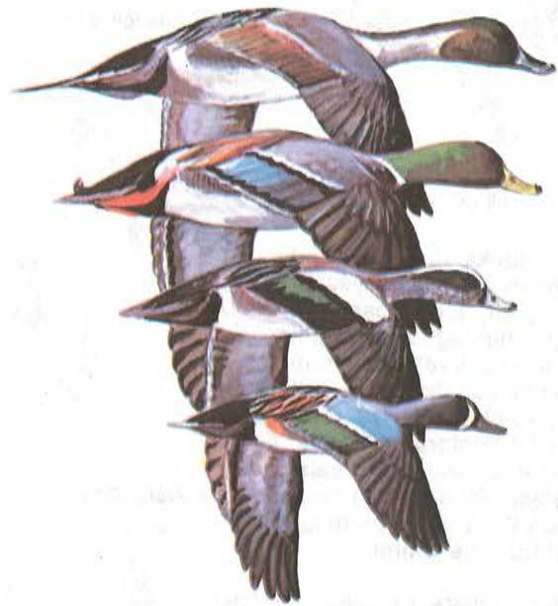
Your teacher will provide you with several decoys of ducks and geese. Use your field guides to try to determine the name of the species and whether it is a duck or a goose. If it is a duck, try to determine whether it is a drake (male) or hen (female) and whether it is a puddle duck or diver duck.

Decoy	Name of Species	Sex (check one)		Type (check one)	
		Drake	Hen	Puddle	Diver
1					
2					
3					
4					
5					



DUCKS AT A DISTANCE

A WATERFOWL IDENTIFICATION
GUIDE



By Bob Hines
DEPARTMENT OF THE INTERIOR
U.S. Fish and Wildlife Service
Washington, D.C. 1978

Identification is Important

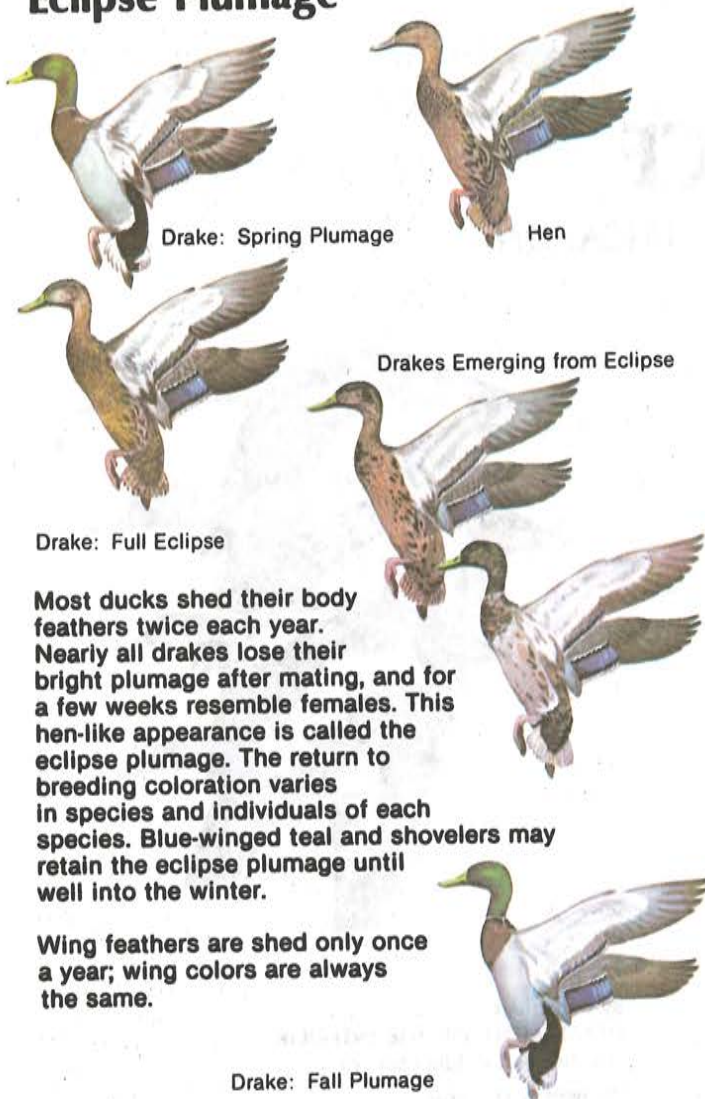
Identifying waterfowl gives many hours of enjoyment to millions of people. This guide will help you recognize birds on the wing—it emphasizes their fall and winter plumage patterns as well as size, shape, and flight characteristics. It does not include local names.

Recognizing the species of ducks and geese can be rewarding to birdwatchers and hunters—and the ducks.

Hunters can contribute to their own sport by not firing at those species that are either protected or scarce, and needed as breeders to restore the flocks. It can add to their daily limit; when extra birds of certain species can be taken legally, hunters who know their ducks on the wing come out ahead.

Knowing a mallard from a merganser has another side: gourmets prefer a corn-fed mallard to the fish duck.

Eclipse Plumage



Most ducks shed their body feathers twice each year. Nearly all drakes lose their bright plumage after mating, and for a few weeks resemble females. This hen-like appearance is called the eclipse plumage. The return to breeding coloration varies in species and individuals of each species. Blue-winged teal and shovelers may retain the eclipse plumage until well into the winter.

Wing feathers are shed only once a year; wing colors are always the same.

What to Look For

Differences in size, shape, plumage patterns and colors, wing beat, flocking behavior, voice, and habitat—all help to distinguish one species from another.

Flock maneuvers in the air are clues. Mallards, pintails, and wigeon form loose groups; teal and shovelers flash by in small, compact bunches; at a distance, canvasbacks shift from waving lines to temporary V's.

Closer up, individual silhouettes are important. Variations of head shapes and sizes, lengths of wings and tails, and fat bodies or slim can be seen.

Within shotgun range, color areas can be important. Light conditions might make them look different, but their size and location are positive keys. The sound of their wings can help as much as their calls. Flying goldeneyes make a whistling sound; wood ducks move with a swish; canvasbacks make a steady rushing sound. Not all ducks quack; many whistle, squeal, or grunt.

Although not a hard and fast rule, different species tend to use different types of habitat. Puddle ducks like shallow marshes and creeks while divers prefer larger, deeper, and more open waters.



Puddle Ducks

Puddle ducks are typically birds of fresh, shallow marshes and rivers rather than of large lakes and bays. They are good divers, but usually feed by dabbling or tipping rather than submerging.

The speculum, or colored wing patch, is generally iridescent and bright, and often a telltale field mark.

Any duck feeding in croplands will likely be a puddle duck, for most of this group are sure-footed and can walk and run well on land. Their diet is mostly vegetable, and grain-fed mallards or pintails or acorn-fattened wood ducks are highly regarded as food.



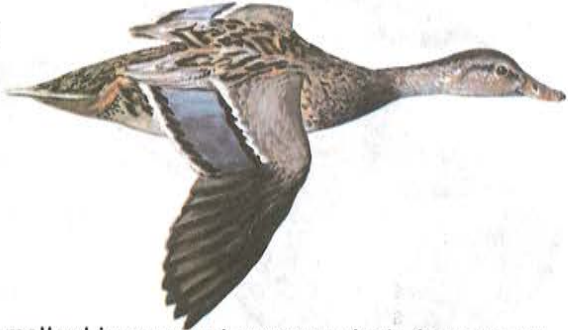
Mallard

Length—24"
Weight—2¾ lbs.

Eclipse Drake



Hen

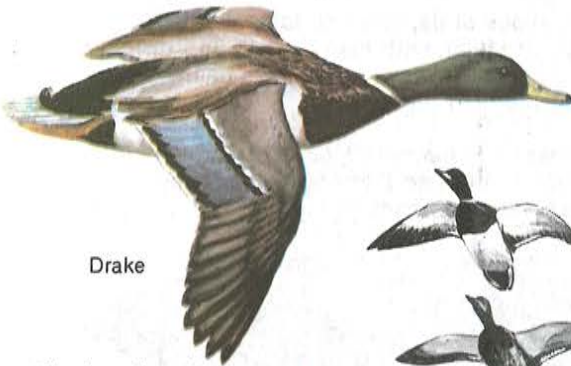


The mallard is our most common duck, found in all flyways. The males are often called "greenheads." The main wintering area is the lower Mississippi basin, and along the gulf coast, but many stay as far north as open waters permits.



Hen

Drake



Drake

Drake

Hen

Drake

Hen

Flocks often feed in early morning and late afternoon in nearby harvested fields, returning to marshes and creeks to spend the night.

The flight is not particularly rapid. Hens have a loud *quack*; the drake's voice is a low-pitched *kwek-kwek*.

Typical Flock Pattern



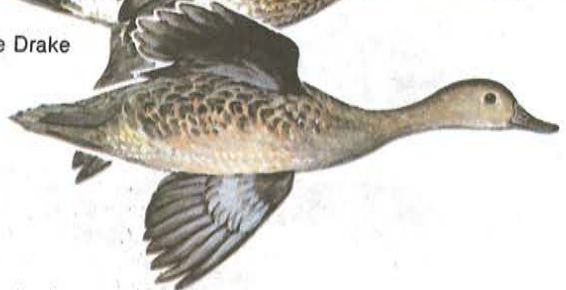
Pintail

Length—26"
Weight—1¾ lbs.

Eclipse Drake



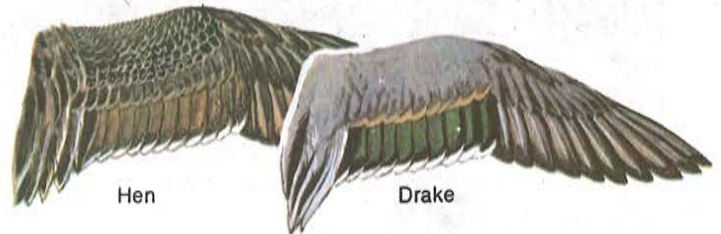
Hen



These ducks use all four flyways, but are most plentiful in the west.

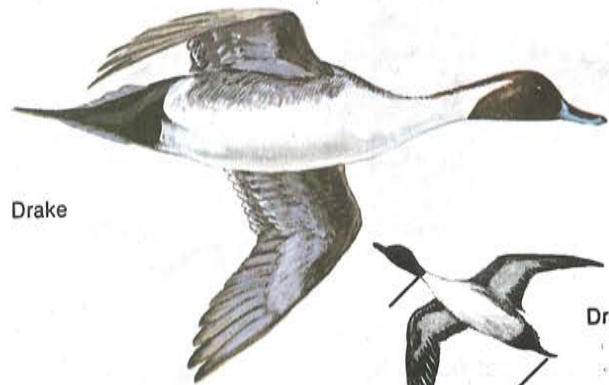
They are extremely graceful and fast fliers, fond of zig-zagging from great heights before leveling off to land.

The long neck and tail make them appear longer than mallards, but in body size and weight they are smaller.

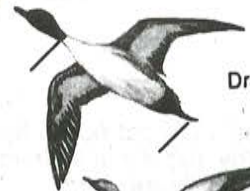


Hen

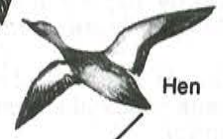
Drake



Drake



Drake



Hen



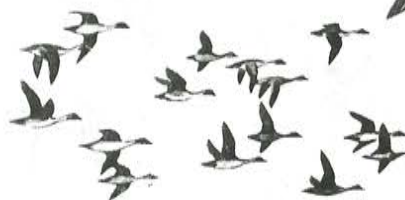
Drake



Hen

They are agile on land and often feed in grain fields. The drakes whistle; the hens have a coarse *quack*.

Typical Flock Pattern



Gadwall

Length—21"
Weight—2 lbs.

Eclipse Drake



Hen



Gadwalls are most numerous in the Central Flyway, but not too common anywhere. They are often called "gray mallards" or "gray ducks." They are one of the earliest migrants, seldom facing cold weather.

They are the only puddle ducks with a white speculum.



Hen

Drake



Drake



Hen



Drake



Hen

Small, compact flocks fly swiftly, usually in a direct line. Wingbeats are rapid.

Drakes whistle and *kack-kack*; hens *quack* like a mallard, but softer.

Typical Flock Pattern



Wigeon

Length—21"
Weight—1¾ lbs.

Eclipse Drake



Hen



Drake

These are nervous birds, quick to take alarm. Their flight is fast, irregular, with many twists and turns. In a bunched flock, their movements have been compared to those of pigeons.

When open water is handy, wigeons often raft up offshore until late afternoon when they move to marshes and ponds to feed.



Hen

Drake

The white belly and forewing are very showy in the air. Drakes whistle; hens have a loud *kaow* and a lower *qua-awk*.



Drake



Hen



Drake



Hen

Typical Flock Pattern



Shoveler

Length—19 1/2"
Weight—1 1/2 lbs.

Eclipse Drake

Hen



Shovelers, 'spoonbills' to many, are early migrants, moving out at the first frost. The largest numbers are in the Central and Pacific flyways.

The usual flight is steady and direct. When startled, the small flocks twist and turn in the air like teal.

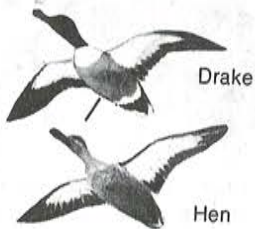


Hen

Drake



Drake



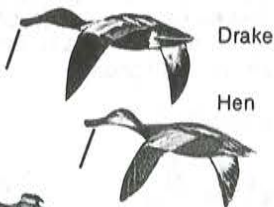
Drake

Hen

They are not highly regarded as table birds, because one third of the usual diet is animal matter.

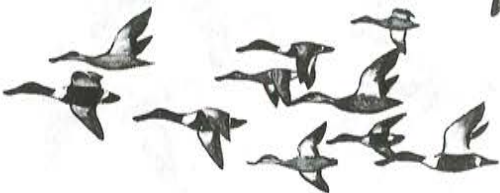
Drakes call *woh-woh* and *took-took*; the hen's *quack* is feeble.

Typical Flock Pattern



Drake

Hen



Blue-Winged Teal

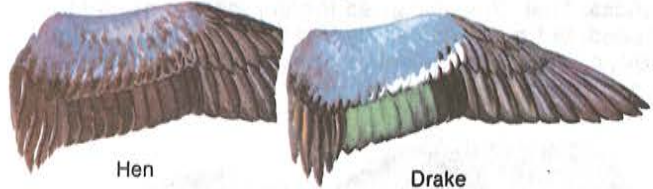
Length—16"
Weight—15 oz.

Eclipse Drake

Their small size and twisting turning flight gives the illusion of great speed. The small, compact flocks commonly fly low over the marshes, and often take the hunter by surprise.

They are more vocal than most ducks—their high-pitched peeping and nasal quacking is commonly heard in spring and to a lesser extent in fall.

These teal are among the first ducks to migrate each fall, and one of the last in the spring.

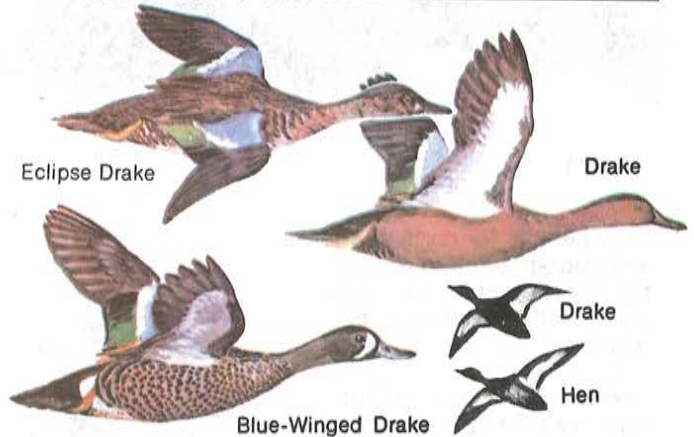


Hen

Drake

Cinnamon Teal

Eclipse Drake



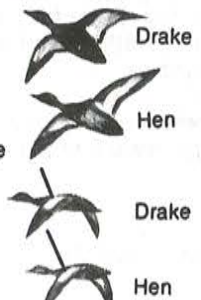
Drake

Blue-Winged Drake

In the Pacific Flyway, cinnamon teal are far more common than blue-wings. The hens look alike and the habits of both species are similar.

The pale blue forewing patch is the best field mark, as drakes are usually in eclipse until January or longer.

Drakes have a whistling *peep*; hens utter a low *quack*.



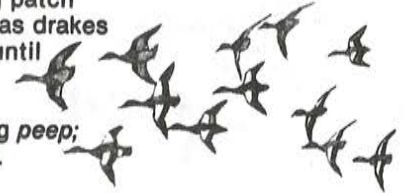
Drake

Hen

Drake

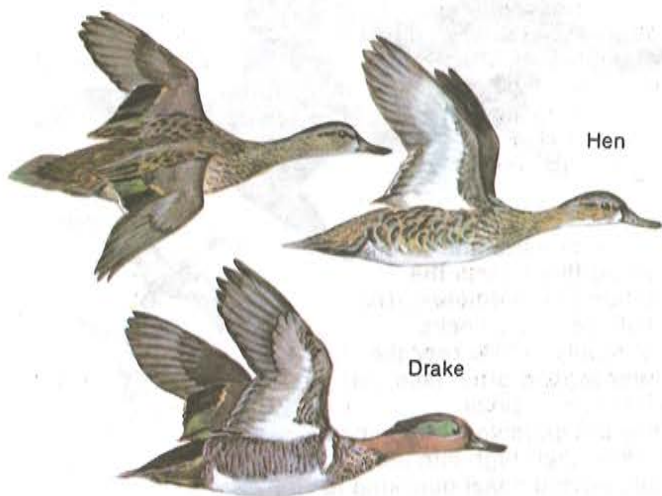
Hen

Typical Flock Pattern



Green-Winged Teal

Length—15 in.
Weight—14 oz.
Eclipse Drake



Quite hardy—some birds stay as far north as open water is found.

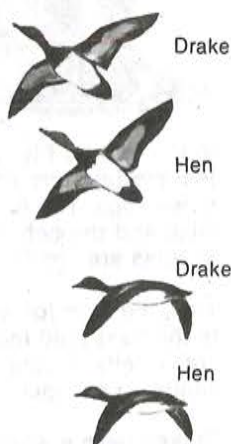
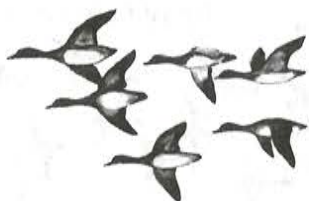
The smallest and one of the most common of our ducks. Their tiny size gives the impression of great speed, but mallards can fly faster. Their flight is often low, erratic, with the entire flock twisting and turning as one unit.



They nest as far north as Alaska, and migrate in all four flyways. Early fall drakes are usually still in full eclipse plumage.

Drakes whistle and twitter; hens have a slight quack.

Typical Flock Pattern



Wood Duck

Length—18 1/2 in.
Weight—1 1/2 lbs.

Eclipse Drake

Hen



Drake

Found in all flyways; most numerous in the Atlantic and Mississippi flyways and fewest in the Central. They are early migrants; most of them have left the northern States by mid-November.

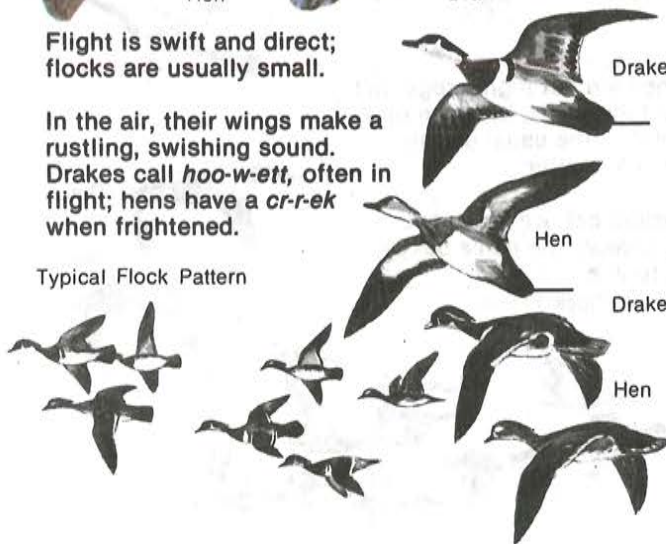
Frequents wooded streams and ponds; perches in trees. Flies through thick timber with speed and ease and often feeds on acorns, berries, and grapes on the forest floors.



Flight is swift and direct; flocks are usually small.

In the air, their wings make a rustling, swishing sound. Drakes call *hoo-w-ett*, often in flight; hens have a *cr-r-ek* when frightened.

Typical Flock Pattern



Black Duck

Length—24 in.
Weight—2¾ lbs.

Eclipse Drake

Hen

Drake

A bird of the eastern States, primarily the Atlantic Flyway and, to a lesser extent, the Mississippi.

Shy and wary, regarded as the wariest of all ducks.

Often seen in company of mallards, but along the Atlantic coast frequents the salt marshes and ocean much more than mallards.

Flight is swift, usually in small flocks.

White wing lining in contrast to very dark body plumage is a good identification clue.

The hen's *quack* and the drake's *kwek-kwek* are duplicates of the mallards.

Typical Flock Pattern



Hen

Drake

Canvasback

Length—22 in.
Weight—3 lbs.

Drake

Eclipse Drake

Hen



Normally late to start south, canvasbacks migrate in lines and irregular V's.

In feeding areas, compact flocks fly in indefinite formations. Their wingbeat is rapid and noisy; their speed is the swiftest of all our ducks.

Diving Ducks

Diving ducks frequent the larger, deeper lakes and rivers, and coastal bays and inlets.

The colored wing patches of these birds lack the brilliance of the speculums of puddle ducks. Since many of them have short tails, their huge, paddle feet may be used as rudders in flight, and are often visible on flying birds. When launching into flight, most of this group patter along the water before becoming airborne.

They feed by diving, often to considerable depths. To escape danger, they can travel great distances underwater, emerging only enough to show their head before submerging again.

Their diets of fish, shellfish, mollusks, and aquatic plants make them second choice, as a group, for sportsmen. Canvasbacks and redheads fattened on eel grass or wild celery are notable exceptions.

Since their wings are smaller in proportion to the size and weight of their bodies, they have a more rapid wingbeat than puddle ducks.



Feeding

Landing



Hen

Drake

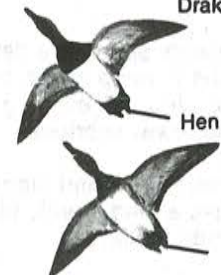
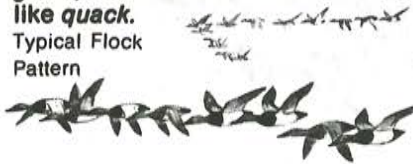
Drake

Feeding behavior is highly variable. In some areas they feed at night and spend the day rafted up in open waters; in other areas they feed inshore mornings and evenings.

On the water, body size and head shape distinguish them from scaups and redheads.

Drakes *croak*, *peep*, and *growl*; hens have a mallard-like *quack*.

Typical Flock Pattern



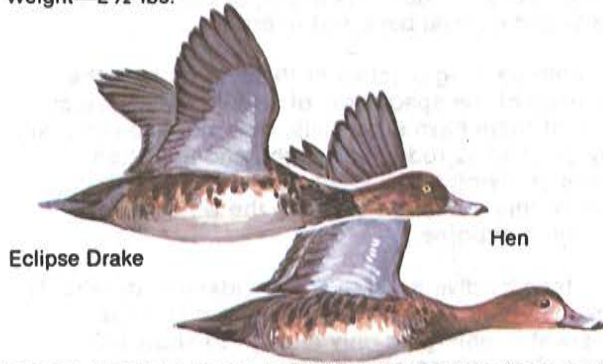
Hen

Drake

Hen

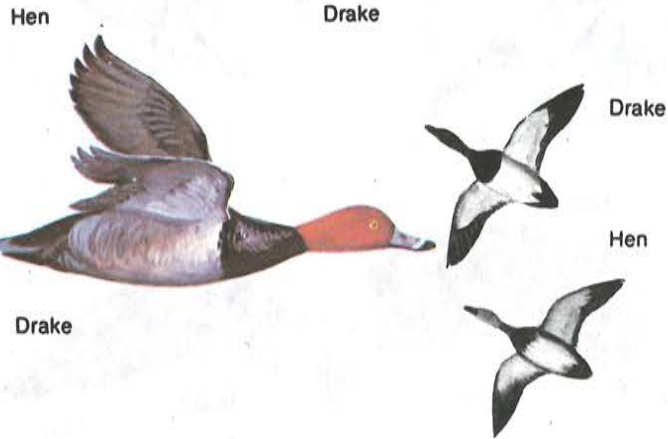
Redheads

Length—20 in.
Weight—2 ½ lbs.



Range coast to coast, with the largest numbers in the Central Flyway. Migratory flocks travel in V's; move in irregular formations over feeding areas. Often found associating with canvasback.

In the air, they give the impression of always being in a hurry.



Usually spend the day in large rafts in deep water; feed morning and evening in shallower sections.

Drakes *purr* and *meow*; hens have a loud *squak*, higher than a hen mallard's.

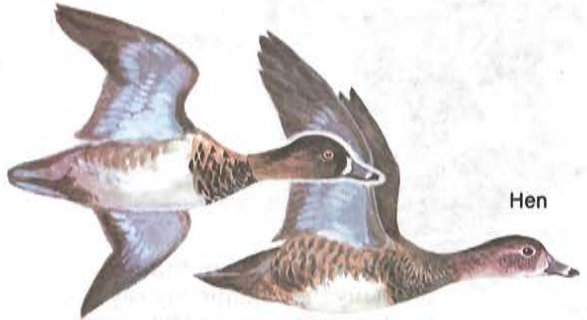
Typical Flock Pattern



Ringneck

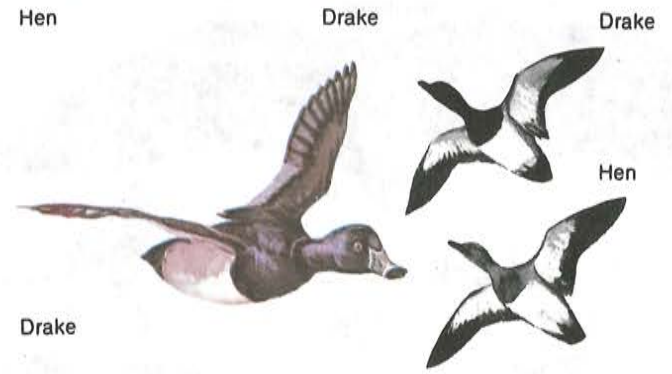
Length—17 in.
Weight—2 ½ lbs.

Eclipse Drake



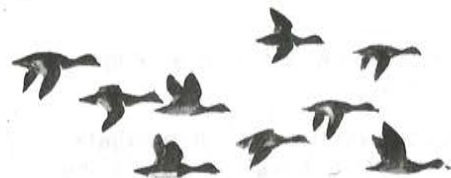
Similar in appearance to scaups, but more often found in fresh marshes and wooded ponds. In flight, the dark wings are different from the white-edged wings of scaup.

Faint brown ring on drake's neck never shows in the field; light bands at tip and base of bill are conspicuous.



Fly as small flocks in open formation; often land without circling. Drakes *purr*; hens are usually silent.

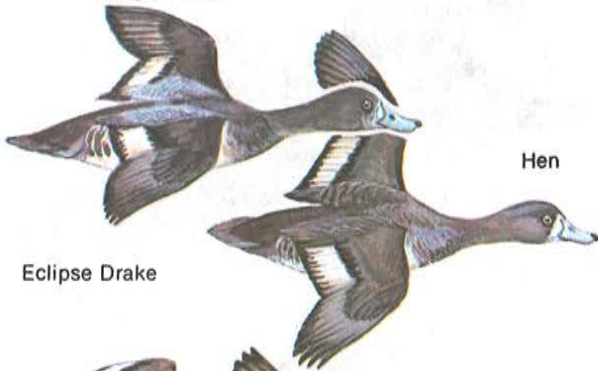
Typical Flock Pattern



Scaup

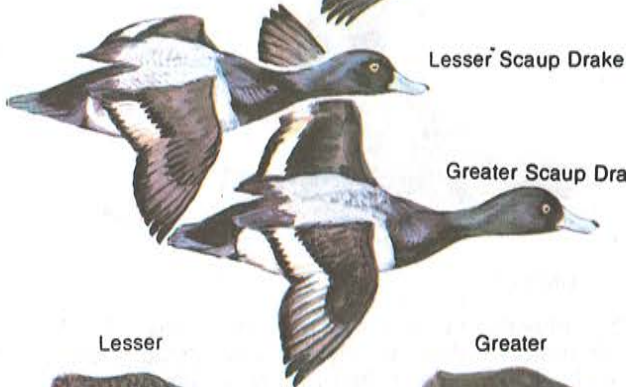
Greater—Length—18 1/2 in.
Weight—2 lbs.

Lesser—Length—17 in.
Weight—1 7/8



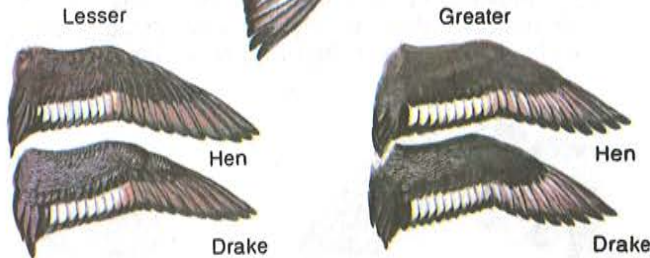
Hen

Eclipse Drake



Lesser Scaup Drake

Greater Scaup Drake



Lesser

Greater

Hen

Hen

Drake

Drake

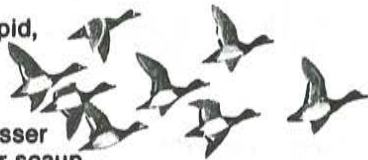
Except for the wing marks, greater and lesser scaup appear nearly identical in the field.

The light band near the trailing edges of the wings runs almost to the tip in the greater scaup, but only about half way in the lesser.

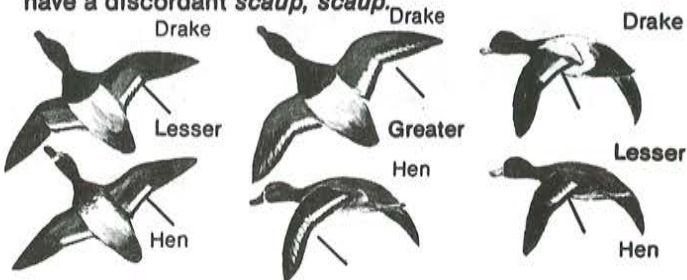
Greater scaup prefer large open water areas; lesser scaup often use marshes and ponds.

Both species migrate late, sometimes just before freezeup. Typical Flock Pattern

Flock movements are rapid, often erratic, usually in compact groups.



Hens are silent; drake lesser scaup *purr*; drake greater scaup have a discordant *scaup, scaup*.



Lesser

Greater

Lesser

Hen

Hen

Goldeneye

Common—Length—19 in.
Weight—2 1/4 lbs.

Barrow's—Length—19 in.
Weight—2 3/4 lbs.

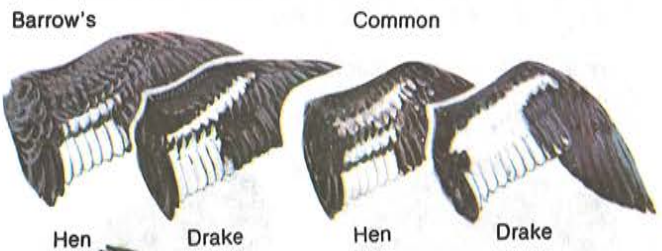


Hen Both Species

Common Eclipse Drake

These are active, strong-winged fliers moving singly or in small flocks, often high in the air. Distinctive wing-whistling sound in flight has earned the name of whistlers.

Goldeneyes generally move south late in the season; most of them winter on coastal waters and the Great Lakes. Inland, they like rapids and fast water.



Barrow's

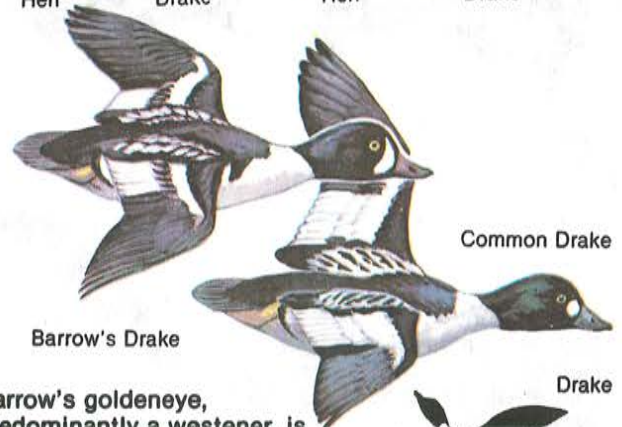
Common

Hen

Drake

Hen

Drake



Barrow's Drake

Common Drake

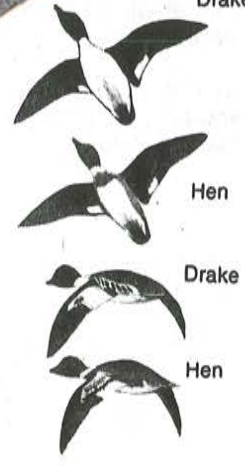
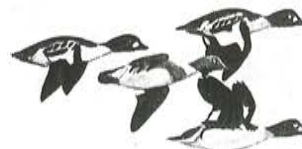
Drake

Barrow's goldeneye, predominantly a westerner, is less wary than the common goldeneye.

Hens of both species are look-alikes.

Drakes have a piercing *spee-spee*—hens a low *quack*. Both are usually quiet.

Typical Flock Pattern



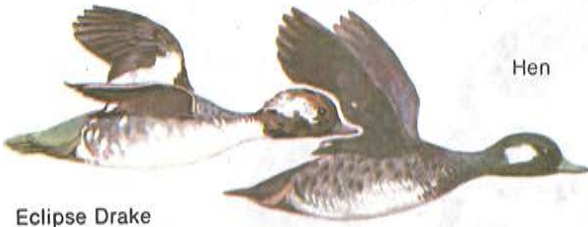
Hen

Drake

Hen

Bufflehead

Length—14 1/2 in
Weight—1 lb.



Hen

Eclipse Drake



Drake

Stragglers migrate south in mid-fall, but the largest numbers move just ahead of freezeup. Most flocks in feeding areas are small—5 or 6 birds, with more hens and immatures than adult drakes.

Very small size, bold black and white color pattern, and low, swift flight are field marks. Unlike most divers, they can fly straight up from a watery takeoff.



Hen

Drake

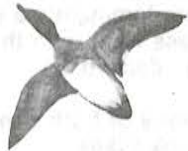
Drake

Largest concentrations are on both seacoasts and along the Gulf of Mexico. Inland, they will remain as far north as open water permits.

Usually silent. Drakes *squeak* and have a guttural note; hens *quack* weakly.



Hen



Drake

Typical Flock Pattern



Hen

Ruddy

Length—15 1/2 in.
Weight—1 1/3 lbs.



Winter Drake

Hen



Summer Drake

The ruddy duck often dives or swims away from danger rather than flying. When flying, their small wings stroke so fast they resemble bumblebees.



Sexes Similar



They are early to mid-fall migrants.

Drakes often cock their tails upright at an angle, the only species to habitually do so.

Both hens and drakes are silent in the fall.

Typical Flock Pattern



Drake

Hen

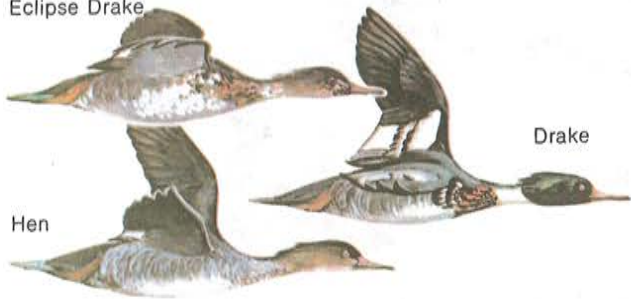
Drake

Hen

Red-Breasted Merganser

Length—23 in.
Weight—2 ½ lbs.

Eclipse Drake



Drake

Hen



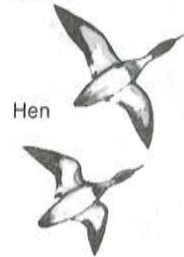
Hen
Drake

Drake

These birds winter most abundantly in coastal waters, including the Gulf of Mexico, and to a lesser extent, the Great Lakes.

Their flight, strong and direct, is usually low over the water. They are difficult to distinguish in flight from the common merganser.

Voice: Seldom heard.



Hen



Drake



Hen

Typical Flock Pattern



Hooded Merganser

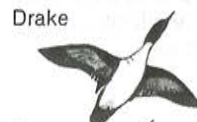
Length—18 in.
Weight—1 ½ lbs.

Eclipse Drake



Drake

Hen



Drake



Hen

Often seen in pairs, or very small flocks. Short rapid wingstrokes create an impression of great speed.



Drake

Winters in the inland waters of all coastal States; seldom goes to salt water.



Hen

Voice: Seldom heard in fall.



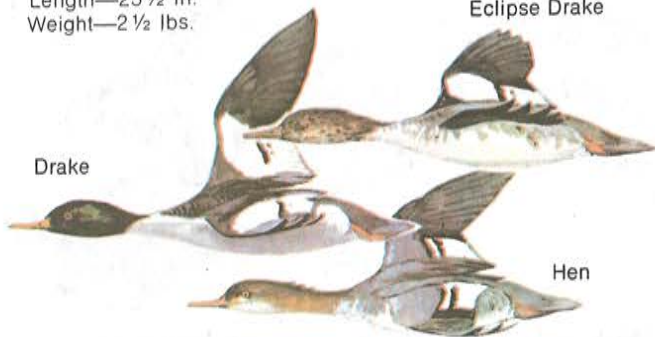
Hen

Drake

Common Merganser

Length—25 ½ in.
Weight—2 ½ lbs.

Eclipse Drake



Drake

Hen



Hen

Drake

This species is larger than the red-breasted merganser, and is one of the largest of our ducks. It is one of the last to migrate south, and is more common than the red-breasted merganser on inland waters.

Flocks move in "follow the leader" style, low over the water.

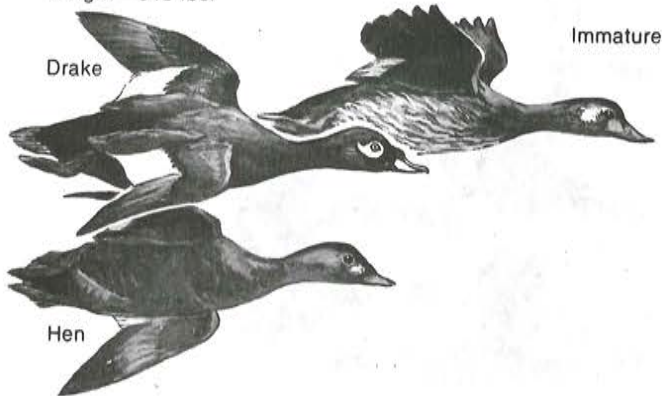
The only call seems to be a startled *croak*.

Typical Flock Pattern



White-Winged Scoter

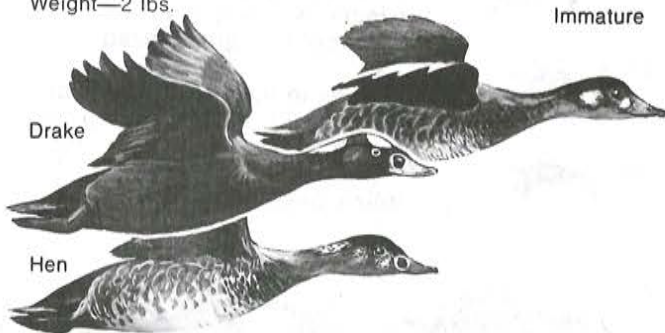
Length—21 ½ in.
Weight—3 ½ lbs.



The three scoters on these two pages are sea ducks, wintering on open coastal waters. White-wings are among the heaviest and largest of all ducks.

Surf Scoter

Length—19 ½ in.
Weight—2 lbs.

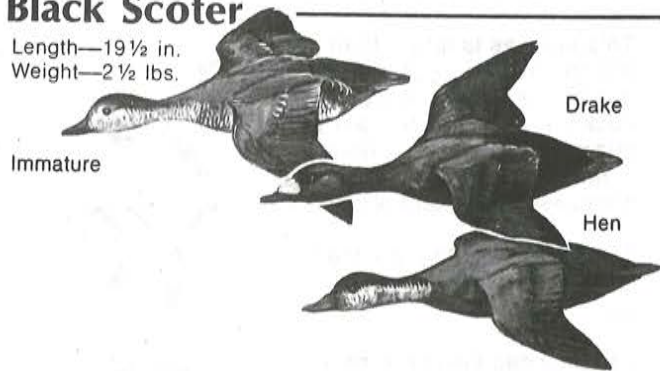


Like all scoters, these birds move along our coasts in loose flocks, stringing into irregular, wavy lines. Drakes can be distinguished from other scoters by two white patches on their head and the bright color of the bill.

Flight is strong, direct, usually close to the waves.

Black Scoter

Length—19 ½ in.
Weight—2 ½ lbs.

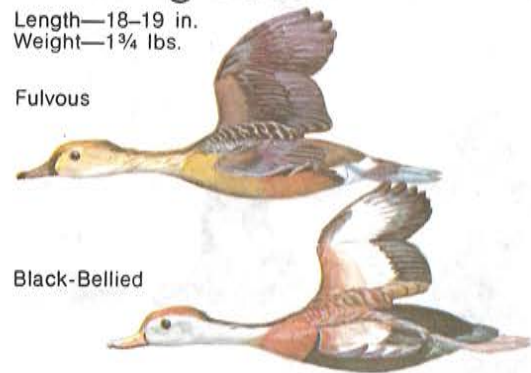


In flight, drakes appear all black except for the flash of the slight gray underwing and the bright yellow swelling at the base of the upper bill.

Scoters feed on mollusks, crabs, and some fish and very little vegetation. They are locally known as "coots."

Whistling Ducks

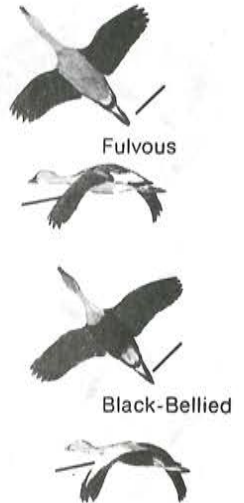
Length—18–19 in.
Weight—1 ¾ lbs.



The trailing legs and rounded wings of these slow flying ducks makes them look bigger than they are.

Both species are primarily Mexican. In the U.S., the black-bellied is found only in south Texas and Louisiana. The fulvous also occurs there and in Florida with occasional stragglers further north along both coasts and the Mississippi Valley. The fulvous is the more common of the two species in the United States.

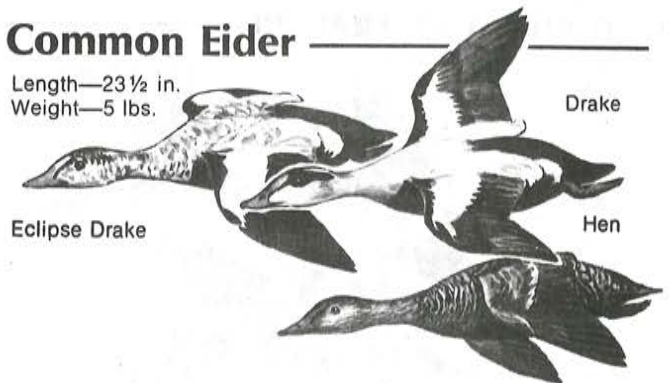
Sexes are alike. Both species have shrill whistling calls.



Fulvous Black-Bellied

Common Eider

Length—23 ½ in.
Weight—5 lbs.



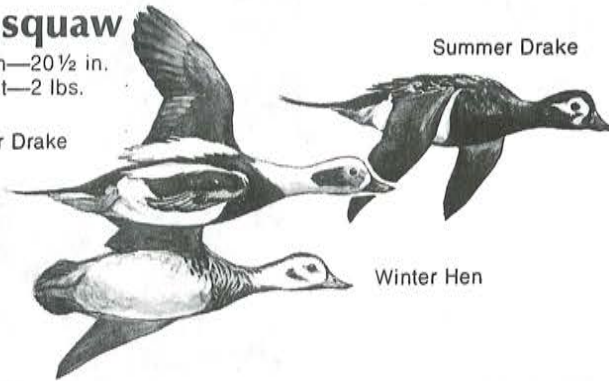
Thick-necked stocky birds, alternately flapping and sailing in flight; flocks string out in a line, close to the water. Occurs in the United States chiefly along New England coasts and occasionally south to New Jersey.

Other eiders—king, spectacled and Stellar's—occur in Alaska and are not pictured in this guide. King eiders occasionally are found in north Atlantic coastal waters.

Oldsquaw

Length—20½ in.
Weight—2 lbs.

Winter Drake



A slim, brightly plumaged sea duck. Smaller than the scoters or eiders.

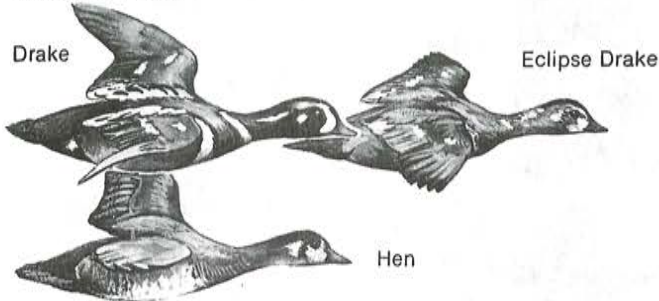
Flight is swift and low with constantly changing flock formations. Ranges along both coasts and the Great Lakes.

One of the most vocal of ducks; drakes have a loud pleasant *caloo, caloo*, constantly heard.

Harlequin

Length—17 in.
Weight—1½ lbs.

Drake

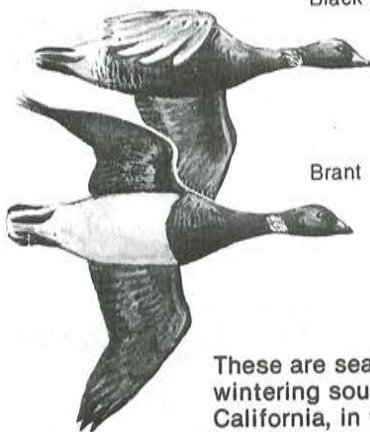


Glossy slate-blue plumage enlivened by white stripes and spots give the adult male harlequin a striking appearance. The female resembles a small female scoter. At a distance, both sexes look black. Flight is swift, with abrupt turns. Flocks are small and compact. Ranges both coasts, north from New Jersey and San Francisco. Uncommon.

Brant

Length—24–25 in.
Weight—3¼–3¾ lbs.

Black Brant



Brant

These are sea geese, the blacks wintering south to Baja, California, in the Pacific.

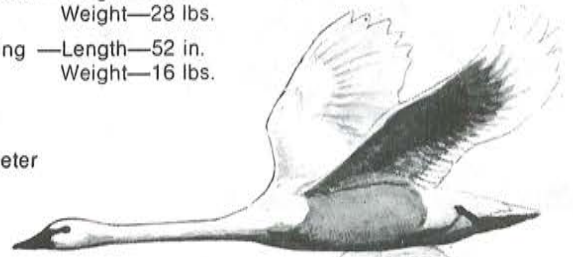
The Atlantic race winters from Virginia northward. Flight is swift, in irregular and changing flock patterns.

Swans

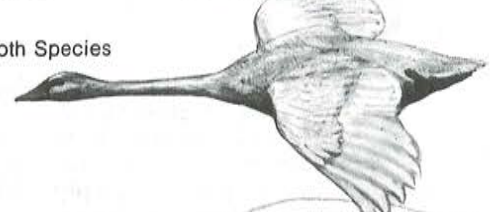
Trumpeter—Length—59 in.
Weight—28 lbs.

Whistling —Length—52 in.
Weight—16 lbs.

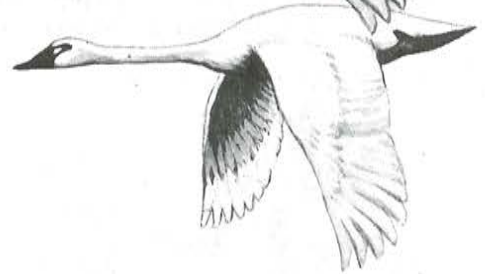
Trumpeter



Immature: Both Species



Whistling



Once thought to be rare, trumpeter swans are slowly increasing in Alaska and on western refuges and parks.

Whistling swans are common and increasing. They winter near Chesapeake Bay, San Francisco Bay, Puget Sound and Salton Sea. Occasionally found in fields.

Both species are large with pure white plumage.

White-Fronted Geese

Length—29 in.
Weight—6¼ lbs.

Immature



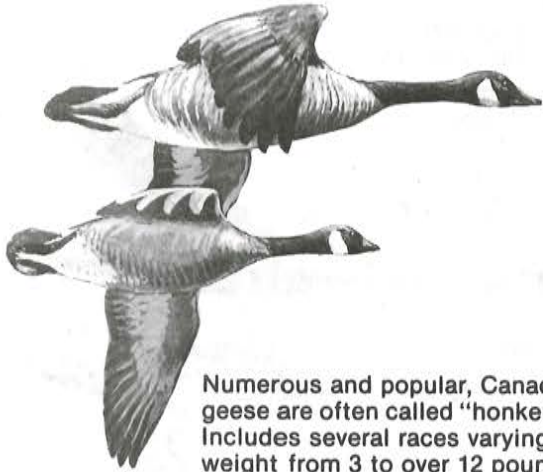
Adult



Migrates chiefly in the Central and Pacific flyways but also present in the Mississippi. Rare in the Atlantic Flyway. Appears brownish gray at a distance. Often called "specklebelly".

Most distinctive characteristic of the V-shaped flocks is the high pitched call *kow-kow-kow-kow*.

Canada Geese



Numerous and popular, Canada geese are often called "honkers." Includes several races varying in weight from 3 to over 12 pounds.

All have black heads and necks, white cheeks, similar habitats and voices. Sexes are identical.

Snow Geese

Length—29-31 in.
Weight—6 1/2-7 1/2 lbs.

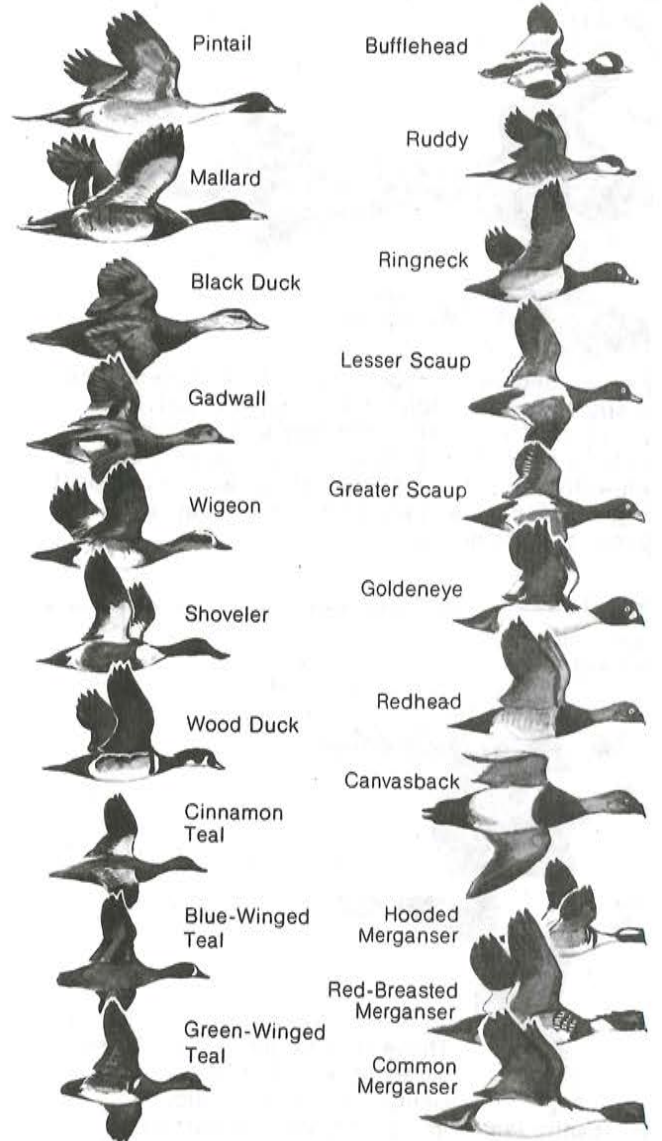


Two races of snow geese are recognized: greater snows along the Atlantic Coast, and lesser snows elsewhere on the continent. Blue geese are a color phase of the lesser snow.



COMPARATIVE SIZES OF WATERFOWL

All birds are drawn to the same scale.



Administrative Waterfowl Flyways

Wetlands Attract Wildlife

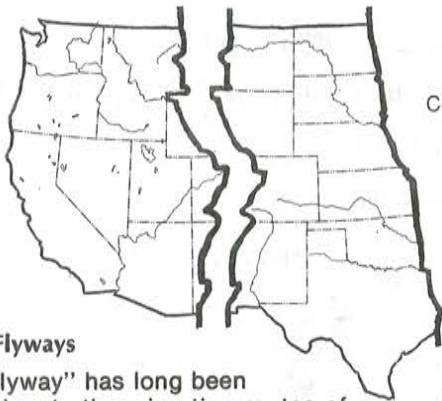
There's more than just ducks in our marshes. Knowing and identifying other birds and animals add to the enjoyment of being in a blind.

The same sources of food and shelter that draw waterfowl to ponds and marshes also attract other forms of wildlife.

Protected species are sometimes more numerous than ducks or geese.

Money from Duck Stamp sales is used exclusively to purchase wetlands, preserving areas for ducks, geese, and all wildlife for the enjoyment and pleasure of hunters and non-hunters alike.

Pacific



Central

Waterfowl Flyways

The term "flyway" has long been used to designate the migration routes of birds. For management purposes, four waterfowl flyways—Pacific, Central, Mississippi, and Atlantic—were established in the United States in 1948. To varying degrees the waterfowl populations using each of these flyways differ in abundance, species composition, migration pathways, and breeding ground origin. There are differences, also, in levels of shooting pressure and harvest.

For the most part flyway boundaries follow State lines. However, the boundary between the Pacific and the Central flyway general follows the Continental Divide.

There are some problems in matching waterfowl migration corridors with flyway boundaries because some species nest and winter in areas that do not occur along a north-south axis. These species cross flyway boundaries during migration. On balance, the present arrangement is useful in that it permits reasonable management of waterfowl. At some future time, it is possible that further rearrangement of boundaries may permit better management of the waterfowl resource.

Mississippi



Atlantic

Flyway Councils

In 1952, Flyway Councils were formed in each of the four flyways. The Council in each flyway is made up of representatives from the wildlife agencies of the States in that flyway—one representative from each State. The Councils study flyway problems, develop waterfowl management recommendations, and generally work closely with the U.S. Fish and Wildlife Service in implementing waterfowl management and research programs.





Puddle Ducks

by Chuck Fergus

Puddle ducks — also called dabbling ducks — are the largest and most widespread group of waterfowl in the world; they include the wild ducks most familiar to people. This Wildlife Note covers seven species commonly found in Pennsylvania (American black duck, gadwall, northern pintail, green- and blue-winged teal, wigeon, and northern shoveler); the mallard and wood duck are also puddle ducks, but they are featured individually in other Notes.

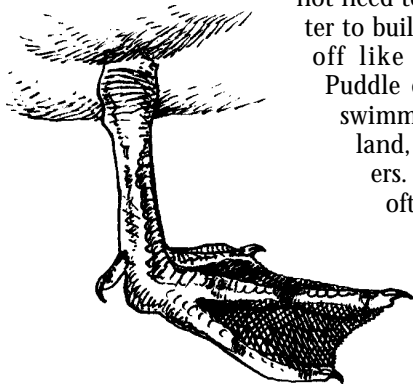
The two major duck groups, puddle and diving ducks, differ in several ways. Divers inhabit large deep lakes and rivers, and coastal bays and inlets; puddle ducks tend to stick to the shallows of lakes, rivers and freshwater marshes, although they frequent saltwater, especially during migration. Diving ducks are, as their name implies, adept at diving and obtain most of their food this way. Puddle ducks prefer to feed on the surface or close to it; often they stretch their heads underwater, feeding up-ended with their tails in the air. As a group, they are not accomplished divers, but adults dive occasionally and ducklings do so frequently.

Puddle ducks feed in the water along the fringes of islands and shorelines and on dry land. Their diet consists mainly of vegetable matter — seeds, grasses, leaves and stems of underwater plants, agricultural crops and nuts — along with mollusks, insects and fish.

These shallow-water ducks ride higher in the water than their diving cousins, and launch themselves directly upward when taking off; they do

not need to run across the water to build up speed for take-off like diving ducks do.

Puddle ducks are excellent swimmers, sure-footed on land, and swift agile fliers. On the wing, they often display a speculum, or wing patch — a bright, iridescent panel of feathering close to the body on the trailing edge



of each wing. Speculum color varies from species to species and may function as a flashing signal to help keep a flock together. To the human observer, the speculum is often a telltale field mark.

Within the species, males (called drakes) have bright, colorful plumage, while the females (hens) are drab. In fall, winter and spring, drakes are feathered in their normal bright coloration; in early summer, after breeding season, they molt into a drab “eclipse” plumage and resemble the hens for several months.

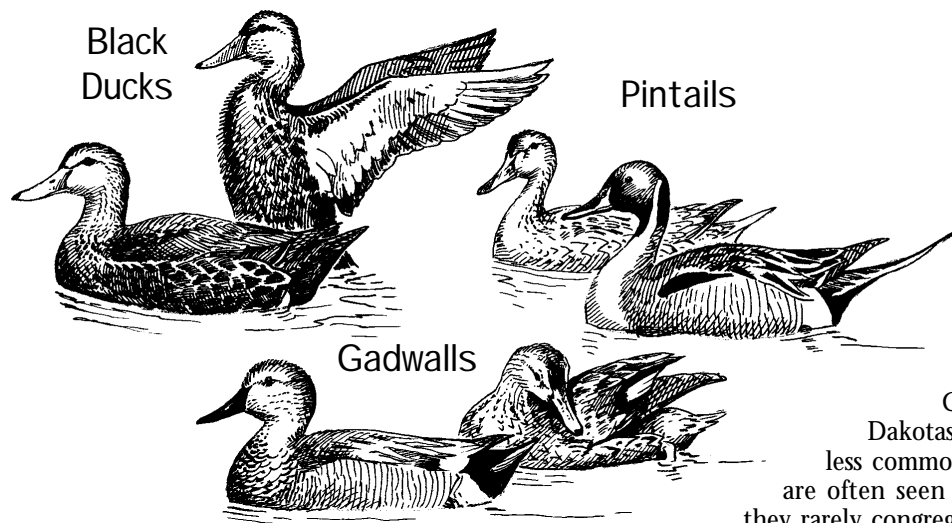
North American puddle ducks breed across the northern part of the continent; some species — mallards, black and wood ducks — nest in Pennsylvania. They generally mate for the first time when a year old. During courtship, drakes chase the hens and engage in fighting, ritualized movements, posturing and calling. After mating, the drake leaves immediately, or he stays with the hen while she is laying and then departs soon afterward. Pair bonds are weak, and a different mate will be courted each year. The hen lays a large clutch of eggs (7 to 13, depending on the species) in a nest built of grasses, leaves and reeds, hidden among vegetation. She incubates and cares for the brood by herself.

Ducklings are covered with down; they are a pale brownish color, streaked with darker lines to disguise their body outlines. Minutes after hatching, they can swim and feed themselves. They first fly at about two months of age.

In autumn puddle ducks fly south, along with diving ducks and geese. Waterfowl start migrating through Pennsylvania in late August; the movement peaks in October and ends in December. Some puddle ducks occasionally winter in Pennsylvania, but most spend the cold months across the southern United States and in Central America.

Raccoons, foxes, minks, hawks and owls prey upon ducks. Raccoons, skunks and crows eat the eggs; snapping turtles and fish take the young.

Taxonomists group puddle ducks in family Anatidae, subfamily Anatinae. The Anatinae form the largest and most diverse of the commonly recognized waterfowl subfamilies, with more than 40 species worldwide. Pennsylvania puddle ducks all belong to genus *Anas*.



American Black Duck — Length, 21 to 26 inches; average weight, 2.4 to 2.8 pounds. Also called “black mallard” or “red leg.” Plumage is a dark, mottled brown with white underwings and a violet-blue speculum. When visibility is good, the contrast between the light-brown head and the brown-black body is noticeable. This is our only puddle duck in which the plumages of both sexes are almost identical; the drake in nuptial plumage has a bright yellow bill, contrasting with the female’s olive-green bill. The voice of the hen is a loud *quack*; of the drake, a lower-pitched *kwek-kwek*.

Black ducks eat a variety of vegetable foods, including eelgrass, widgeon grass, and the seeds of sedges, bulrushes, wild rice, pondweeds, smartweeds and millets. On land they feed on acorns and waste corn, willingly flying up to 25 miles to a reliable source of the latter. Animal foods, more important in winter, include periwinkles, mussels and snails.

Black ducks breed in Pennsylvania, nesting in marshes, bogs, and lake and stream margins, and often in wooded uplands. They nest on the ground, on stumps and dead snags, and occasionally in tree cavities; eggs, 8 to 10, hatch in about 4 weeks.

Once the most popular duck in the waterfowl hunter’s bag, the black duck has dropped to third place, behind the mallard and wood duck. The black duck population declined steadily in the 1960s and ’70s. In 1982, harvest restrictions were implemented and the population appears to have stabilized, but is well below its historic numbers.

Gadwall — Length, 19 to 23 inches; average weight, 1.8 to 2.2 pounds. Sometimes called “gray duck.” Males in breeding plumage have brown heads, gray bodies and black tails. The female is similar, but more brown in color. The legs are yellow. This is the only puddle duck with white in its speculum. The drake whistles and sounds a *kack-kock*; the hen quacks like a mallard, but more rapidly and higher pitched.

Food is basically aquatic plants. On brackish or freshwater estuaries where they often winter, gadwalls concentrate on vegetation such as widgeon grass, eelgrass,

muskrass and pondweeds. In Pennsylvania, gadwalls are uncommon. They are considered non-breeding residents, although they have nested in Crawford and Butler counties. They breed mainly in the western United States, Canada and Alaska. Hens seek dense, dry weed cover, hiding the nest from above and all sides. They lay about 10 eggs, which hatch in 26 days.

Gadwall are most plentiful in the Dakotas and Canada’s prairie provinces, less common on the Atlantic Flyway. They are often seen with pintails and wigeons, but they rarely congregate in large flocks. The gadwall dives more often than any other puddle duck.

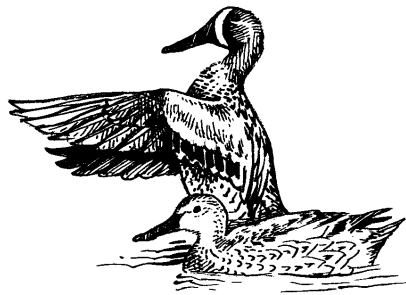
Northern Pintail — Length, 20 to 29 inches; average weight, 1.9 to 2.3 pounds; slender and trim. Also called “sprig.” Among the most beautifully marked of our ducks, a pintail male in breeding plumage has a brown head, white neck and breast, and a gray back and sides. Females are grayish brown. The speculum is metallic greenish-brown with a white rear border, but far more noticeable in flight is the male’s long, slender, pointed tail. Pintails are extremely graceful and fast fliers, fond of zigzagging from great heights before leveling off to land. Voice: the drake has a flute-like whistle, the hen a soft *quack*.

In summer and fall, pintails feed largely on seeds and vegetative parts of pondweeds and widgeon grass, and on the seeds of bulrushes and smartweeds. Nesting females eat more aquatic insects. Sometimes pintails land in harvested fields to glean waste corn. They breed mainly across Canada, the northwestern United States and in Alaska, also in the Eastern Hemisphere; in Pennsylvania, nests have been reported in Crawford County and the John Heinz National Wildlife Refuge at Tinicum near Philadelphia. Pintails often nest in dead herbaceous cover of the past year’s growth, which may offer little concealment; the site is usually within 100 yards of water, but may be up to a mile away. Females lay about 9 eggs; they hatch following a fairly short incubation period of 21 days. A few pintails winter in Pennsylvania, but most fly to the southern United States and Central America.

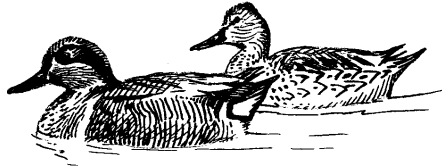
Green-winged Teal — Length, 13 to 16 inches; average weight, ½ to 1 pound; the smallest of our ducks, about the size of a pigeon. The male is beautifully colored with a dark, reddish-brown head, a green streak over the eye, and a vertical white stripe on the side. The female is primarily brown. The speculum shows green in both sexes. Green-winged teal fly swiftly, often in small, tight flocks. Drakes whistle and have a tittering call; hens sound a faint *quack*.

Green-winged teal prefer small and shallow, but permanent, freshwater ponds, with thick cover nearby. They feed on small seeds of grasses, bulrushes and smartweeds, and on the stems and leaves of pondweeds. They also eat

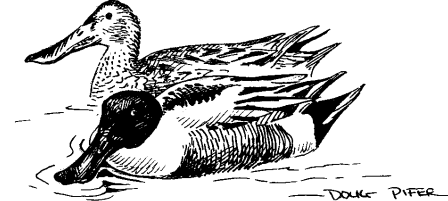
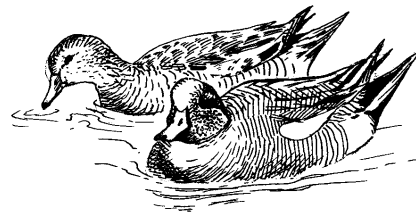
Blue-Winged
Teals



Green-
Winged Teals



American
Wigeons



Shovellers

tiny mollusks, snails and other crustaceans.

A few green-winged teal may be found nesting in Pennsylvania, although the duck's primary breeding range is farther north, across Canada, the northwestern United States, and Alaska. Courting birds engage in much whistling and posturing. Females hide their nests in dense patches of shrubs and weeds, or in tall grass at the edge of a lake or slough. They lay 8 to 10 eggs and incubate them 21 to 23 days; they vigorously defend their nest. Some green-winged teal occasionally winter in Pennsylvania, but most go farther south.

Blue-winged Teal — Length, 14 to 16 inches; average weight, $\frac{3}{4}$ to 1 pound. The drake has a brown body and a slate-gray head; in front of the eyes is a distinctive white crescent. The hen is primarily brown. Both sexes have a blue patch on the fore-wing and a green speculum, but patches are more prominent on the males. Blue-winged teal are shy, common waterfowl, found on ponds, marshes and protected bays, often with other puddle ducks. Their small, compact flocks fly swiftly, often low over the marsh, twisting and dodging around trees and bushes; the birds sound a twittering flight call. Additional calls: drakes have a whistling *tseet tseet tseet*, and hens a soft *quack*. Blue-wings are our earliest migrants; they head south in late August and September.

Food includes seeds and vegetation of aquatic plants, especially pondweeds, widgeon grass, duckweed and millet. They often feed near green-winged teal, the blue-wings consuming more animal matter.

Blue-winged teal occasionally nest in Pennsylvania, in borders of freshwater sloughs, swamps, ponds, and marshes. They lay 10 to 13 eggs in a basket-like nest built on dry ground. Surrounding vegetation usually arches over the nest, concealing it. Incubation is 23 to 24 days.

The blue-winged teal is a familiar, common duck of inland North America, although its numbers have been reduced through cultivation and habitat destruction in its primary breeding range, the prairie pothole region in mid North America.

American Wigeon — Length, 18 to 23 inches; average weight, 1½ to 2 pounds. Also called "baldpate." The

male has a cinnamon-red neck and head, with a white stripe from the forehead to the middle of the crown and an iridescent green patch coming back from the eye; the body is pinkish-brown, the speculum blackish with a hint of green. The female's coloration is similar, but duller. The species can best be identified in flight by the white belly and fore-wings. Wigeons are wary birds, quickly reacting to potential threats and disturbances; they fly swiftly in compact flocks, wheeling and turning in unison. Males have a 3-syllable whistle with the middle note the loudest; hens utter a loud *koow* and a lower *qua-awk*.

Wigeons feed on aquatic plants, sometimes coming ashore for shoots of grains and grasses. They breed in the northwestern United States, Canada and Alaska, nesting in dry, sedge-lined meadows around lakes and sloughs. The 7 to 9 eggs are incubated about 23 days. Wigeons migrate through Pennsylvania in September and October. Some occasionally winter here, but most go to the southern states and farther south.

Northern Shoveler — Length, 17 to 22 inches; weight, about 1½ pounds; size similar to the mallard, for which it is often mistaken. Also called "spoonbill" for its long, broad bill. The male has a green head, white breast and chestnut sides. The female is a mottled brown. The best field marks are the outsize bill, held downward as the bird rides in the water; and, in flight, blue upper-wing and white under-wing coloration. Females have a typical quacking call, males a *took-took*. Shovelers usually travel in small flocks of 5 to 10 birds.

Food: invertebrates (caddis fly larvae, dragonfly nymphs, beetles, bugs), duckweeds and seeds of pondweeds and bulrushes. In deep water, shovelers apparently feed on surface plankton, taking in a steady stream of water at the tip of the bill and expelling it at the base, straining out microscopic plants.

Shovelers breed in the northwestern United States, Canada and Alaska. Females nest in grassy cover, sometimes well away from water. The 10 eggs hatch in 3 to 4 weeks. Shovelers pass through Pennsylvania in March and April, and again in September and October. They winter along the southern United States coast and in western states and Central America.

Wildlife Notes

Allegheny Woodrat
Bats
Beaver
Black Bear
Blackbirds, Orioles, Cowbird and Starling
Blue Jay
Bobcat
Bobwhite Quail
Canada Goose
Chickadees, Nuthatches, Titmouse and Brown Creeper
Chimney Swift, Purple Martin and Swallows
Chipmunk
Common Nighthawk and Whip-Poor-Will
Cottontail Rabbit
Coyote
Crows and Ravens
Diving Ducks
Doves
Eagles and Ospreys
Elk
Finches and House Sparrow
Fisher
Flycatchers
Foxes (Red & Gray)
Gray Catbird, Northern Mockingbird and Brown Thrasher
Hérons
Kingfisher
Mallard
Mice and Voles
Minks & Muskrats
Northern Cardinal, Grosbeaks, Indigo Bunting and Dickcissel

Opossum
Otter
Owls
Porcupine
Puddle Ducks
Raccoon
Rails, Moorhen and Coot
Raptors
Ring-necked Pheasant
Ruby-throated Hummingbird
Ruffed Grouse
Shrews
Snowshoe Hare
Sparrows and Towhee
Squirrels
Striped Skunk
Tanagers
Thrushes
Vireos
Vultures
Weasels
White-tailed Deer
Wild Turkey
Woodchuck
Woodcock
Wood Duck
Woodpecker
Wood Warblers
Wrens

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Diving Ducks

by Chuck Fergus

Pennsylvania ducks may be grouped into two types: diving ducks and puddle ducks. Diving ducks spend much more of their time farther out from shore than puddle ducks. Both groups can be found on streams, rivers, lakes and marshes. This note covers 15 species commonly called diving ducks.

Diving ducks eat seeds and other parts of aquatic plants, fish, insects, mollusks, crustaceans and other invertebrates. They dive underwater to obtain much of their food. They have large broad feet, fully webbed and with strongly lobed hind toes, that act as paddles. Their legs are spaced widely apart and located well back on the body, improving diving efficiency but limiting agility on land. Their bodies are compact, and their wings have relatively small surface areas. While this arrangement helps their diving and swimming, it hinders their ability to become airborne. Instead of springing straight out of the water into flight, as puddle ducks do, diving

ducks must run across the water to build up speed before taking off.

Diving ducks, puddle ducks, geese and swans begin migrating north through Pennsylvania in late February. Each year there is a peak in migration, when ponds across the state are crowded with waterfowl. While this period varies from year to year, it often follows heavy nighttime rains in late March or early April.

Diving ducks nest in New England, Canada, Midwestern and prairie states, the Pacific Northwest and Alaska. Several species inhabit both the Eastern and Western hemispheres. Three species of mergansers (which, though not actually diving ducks, are usually grouped with them) breed in Pennsylvania's northern tier.

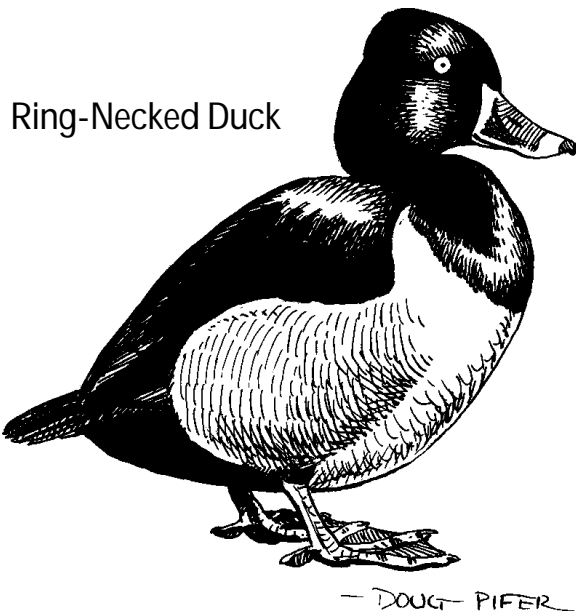
Beginning in winter and before heading north, and into spring, males in their brightly colored breeding plumage vie for females. Courtship may include ritualized drinking and preening movements, posturing and calling. Copulation takes place in the water. Males and females form monogamous pairs that last until the female begins incubating eggs; then, the male leaves the area and usually joins a band of other males.

Nesting habits and habitats vary from species to species. Generally, female diving ducks lay 5 to 15 eggs in vegetation, tree cavities, or rock crevices over or near the water. Because females do not start incubating a clutch until they lay their last egg, young develop simultaneously and all hatch at about the same time.

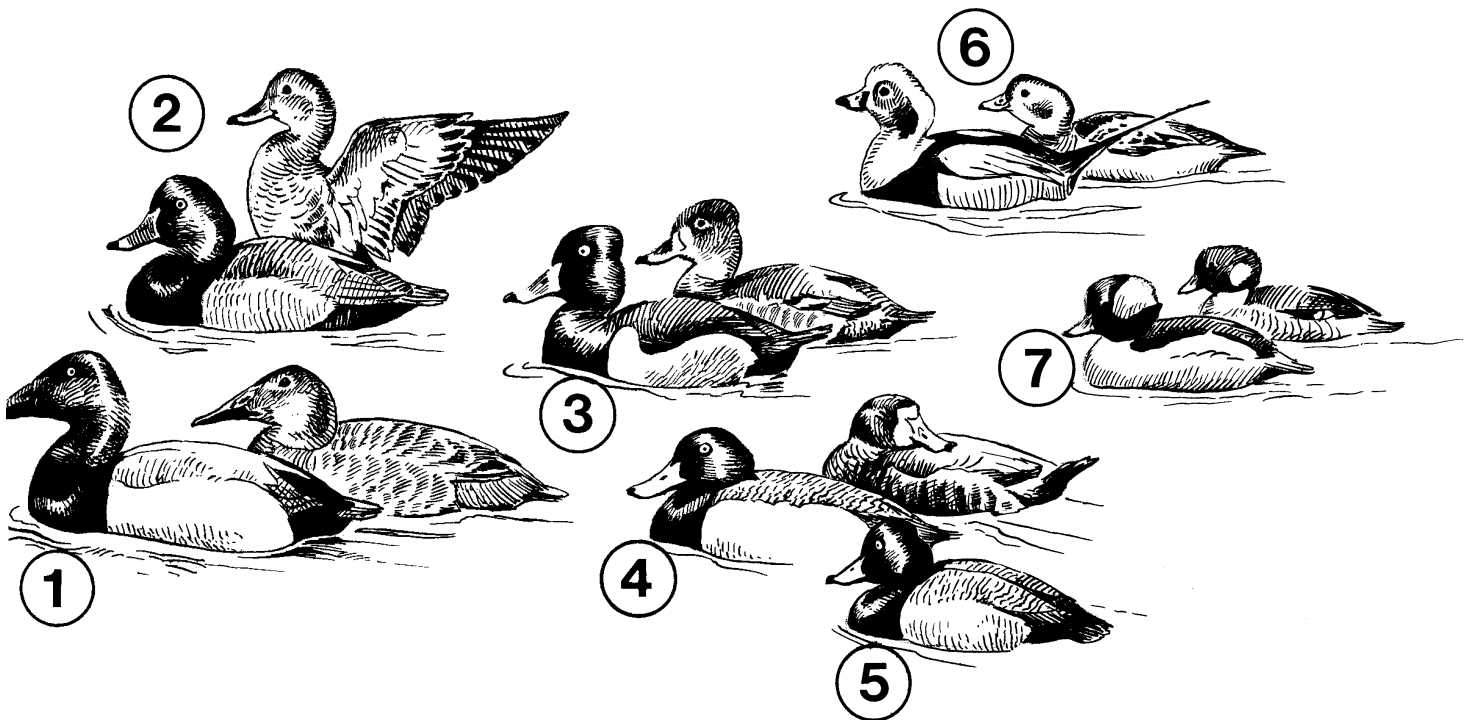
Ducklings are covered with down, patterned with shades of yellow or brown to break up their body outlines. Their eyes are open, and they can swim and feed themselves soon after hatching. The group, called a brood, remains together until the ducklings can fly, usually 8 to 10 weeks after hatching.

Adults undergo a post-breeding molt, growing a new set of feathers. Males molt first; in all species, the male's bright nuptial plumage is replaced by drabber, less-conspicuous feathering. While their flight feathers are growing, ducks cannot fly; they keep quiet and stay hidden during this period of vulnerability.

Ducks are preyed upon by raccoons, foxes, mink,



Ring-Necked Duck



1 - Canvasback, 2 - Redhead, 3 - Ring-Necked, 4 - Greater Scaup, 5 - Lesser Scaup, 6 - Oldsquaw, 7 - Bufflehead, 8 - Hooded Merganser, 9 - Common Merganser, 10 - Red-Breasted Merganser, 11 - Common Goldeneye, 12 - Black Scoter, 13 - Surf Scoter, 14 - White-Winged Scoter, 15 - Ruddy

hawks and owls; young are also taken by snapping turtles. Crows, raccoons and skunks eat the eggs.

In Pennsylvania, the fall migration of waterfowl begins in late August, peaks in October, and ends in December. Some ducks winter in our state, but most go farther south. Diving ducks winter along the Atlantic and Pacific coasts, across the southern states and in Mexico and Central America.

Habitat is of prime importance to ducks. Wetlands originally covered some 127 million acres in the U.S., but today more than half of those acres have been drained and converted to farmland, or developed for housing and industry. Drought periodically dries up parts of remaining wetlands, affecting duck reproduction. Ducks are vulnerable to oil spills on coastlines where they winter or breed. Pesticides, heavy metals and industrial pollution also harm them, either directly or by killing food plants or animals.

The Canadian prairie provinces — Manitoba, Saskatchewan and Alberta — form the single largest breeding habitat for many duck species. Alaskan and Canadian arctic wetlands are crucial to geese, swans and ducks. Our southern coastal states form an important wintering ground.

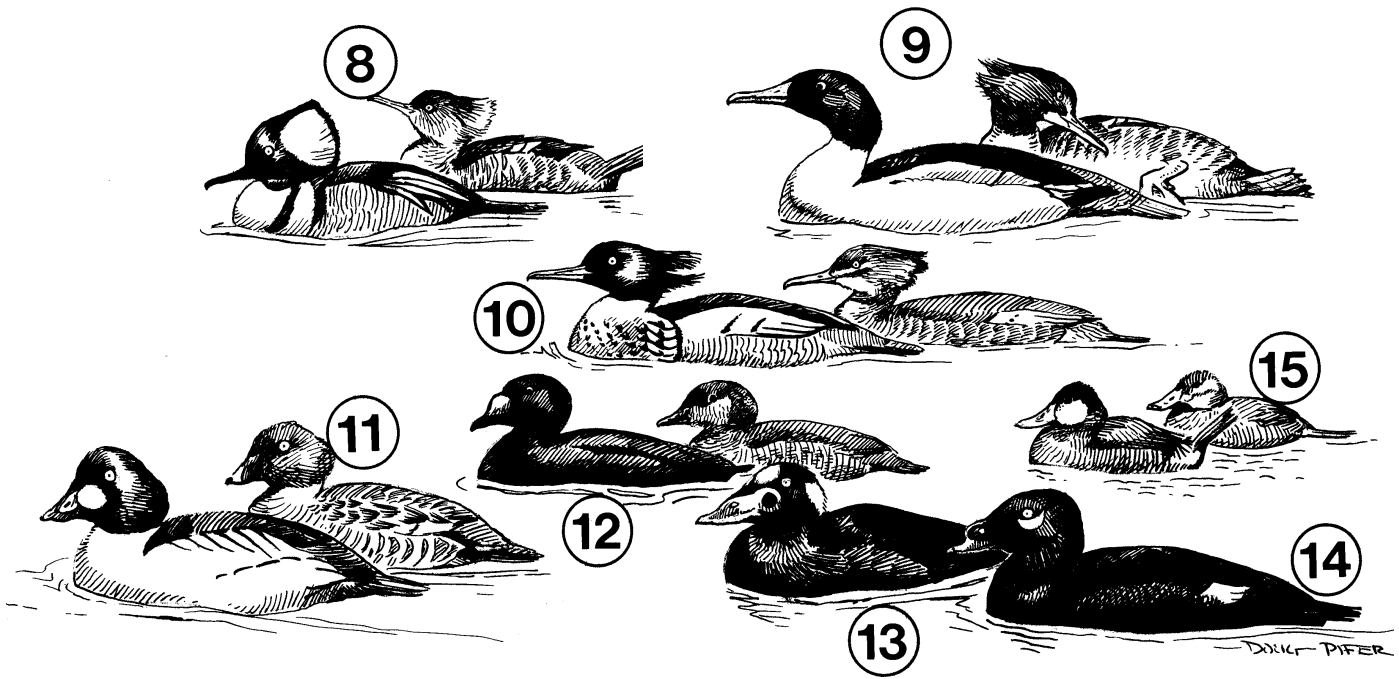
By the early 1900s, unregulated market killing had decimated duck populations along the Atlantic seaboard.

Today, waterfowl populations in the region are stable, thanks to law enforcement and modern habitat management and preservation. The U.S. Fish and Wildlife Service monitors waterfowl numbers. The service divides the United States into four administrative units called flyways (they correspond to four major migration corridors for waterfowl) and gives states within the flyways guidelines for setting hunting seasons and bag limits.

Duck hunting is a challenging, rewarding sport. To pursue waterfowl, today's hunter is required to buy a federal duck stamp and a Pennsylvania migratory game bird license; revenues are used to monitor waterfowl populations through surveys and to acquire wetland habitat. Many people other than hunters also enjoy waterfowl, observing and photographing these colorful, diverse birds.

Canvasback — Length, 20 to 21 inches; weight, 2½ to 2¾ pounds. Also called a “can.” Plumage is black and white; male has a red head, female, brown. Flight is swift (up to 70 mph in calm skies, faster with a tail wind), with little dipping and weaving; flocks number 5 to 30.

Canvasbacks eat seeds and other parts of pondweeds, wild celery, eelgrass, widgeongrass, other aquatic plants, mollusks and crustaceans. In Pennsylvania, the canvasback is an uncommon spring and fall migrant. It breeds in the prairie states, Rocky Mountains, Canada and Alaska. In the Atlantic Flyway, wintering canvasbacks concentrating on the Chesapeake Bay comprise almost half of the entire North American population. Hazards on the breeding range include drought (the canvasback does not adapt as readily to drought-related habitat changes as do other ducks); and loss of nesting habitat. The canvasback population, once greatly reduced by earlier market killing and consequently given periodic closed-season protection, has rebounded and is hunted.



Redhead — Length, 19 to 20 inches; weight, 2 to 2½ pounds. Plumage is black and gray; male has a red head, female, brown. Flies in singles, pairs and in flocks of 5 to 15. Redheads feed in shallower water than do other diving ducks, eating the seeds, tubers and leaves of plants, along with insect larvae and snails. In Pennsylvania, redheads are uncommon migrants in spring and fall. They breed mainly in the northern United States and southwestern Canada, and winter across the southern United States and in Mexico. Females often lay eggs in the nests of other ducks, and leave them to be incubated by the nest owners; they also desert their nests more readily than do hens of other species.

Ring-Necked Duck — Length 16 to 17 inches; weight, 1¼ to 2 pounds. Also called a “ring-bill.” Plumage is black and white for the male, brown and white for the female. The male has a faint brown ring around the neck (not easily seen in the field), and both sexes have a pale ring near the tip of the bill. They fly swiftly in flocks of up to 20. They feed in shallow waters on seeds and vegetative parts of pondweeds and other water plants, and on insects, mollusks and other aquatic animals. Common migrants through Pennsylvania during spring and fall, ring-necked ducks breed across southern Canada and the northern United States. Some occasionally winter in Pennsylvania, but most go to the coasts, the southern states and Mexico.

Greater and Lesser Scaup — These two nearly identical species are 16½ to 18 inches in length, and weigh 1½ to 2½ pounds. They are also called “broadbills” and “bluebills.” Males are black and white, females, brownish and white. The bill is blue for both species. Greater scaup inhabit large bays, sounds and inlets of both coasts, and

the Great Lakes. The lesser scaup is the one normally seen in Pennsylvania. It frequents the larger bodies of inland waters. Scaup eat mollusks, insects, crustaceans and aquatic plants. Common spring and fall migrants through Pennsylvania, they breed across Canada into Alaska. They winter along the coasts.

Oldsquaw — Length, 16 to 20 inches; weight, 1¼ to 2 pounds. Also called a “long-tailed duck.” Plumage, a striking mix of black and white, shows much seasonal variation when found in the state. Food: crustaceans, mollusks, insects and fish. Oldsquaws may dive to 100 feet when foraging. They are uncommon spring and fall migrants. Occasionally they winter in the state, but more often along the coasts and on the Great Lakes. They breed in Canada, the Pacific Northwest and Alaska.

Bufflehead — Length, 13 to 15 inches; weight, about 1 pound. Also called a “butterball.” Plumage is mostly black and white on the male, and brown and white on the female; the male has a large white patch on its head. Buffleheads are fast fliers with rapid wing-beats. They eat aquatic insects, snails, fish and other animal foods. Buffleheads are common spring and fall migrants, breeding in northern Canada and Alaska, and wintering along the coasts and in the southern states.

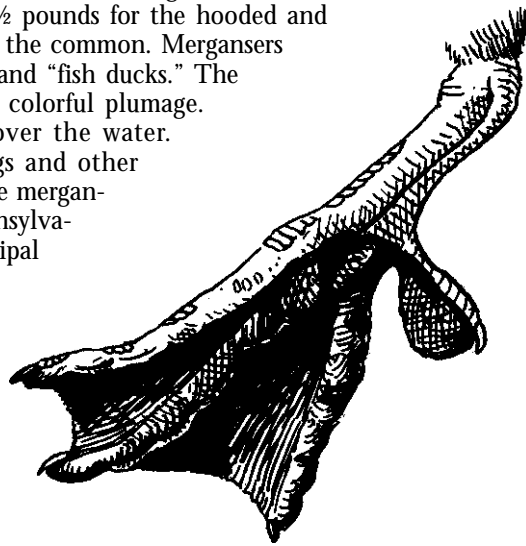
Common Goldeneye — Length, 17 to 19 inches; weight, about 2 pounds. Also called a “whistler” for the sound of its wing-beats. Plumage is black and white on the male, brown and white on the female. Goldeneyes dive for crustaceans, insects, mollusks and fish. Common spring and fall migrants, they breed across Canada and in Alaska, and winter in Pennsylvania and across the continental United States.

Ruddy Duck — Length, about 15 inches; weight, about 1 pound. Small and stubby, the ruddy duck has a short, thick neck, an upturned tail, and white cheek patches under a dark cap. It prefers to dive — rather than fly away — from danger. In flight, ruddy ducks skim low over the water in compact flocks. Food is primarily vegetation (widgeon grass, pondweeds, bulrush seeds), midge larvae and mollusks. Juveniles eat a larger proportion of energy-rich animal food than do adults. Ruddy ducks are common spring and fall migrants across Pennsylvania. They breed mainly in southwestern Canada, and winter along the United States coasts and in Mexico.

Hooded, Red-Breasted and Common Mergansers — Hooded and red-breasted mergansers average 16 to 18 inches in length, while the common merganser is 23 to 25 inches. Weight, about 1½ pounds for the hooded and red-breasted, 2½ to 4 for the common. Mergansers are known as “sawbills” and “fish ducks.” The species have distinctive, colorful plumage. They fly fast and low over the water. Food: fish and their eggs and other aquatic animals. All three merganser species breed in Pennsylvania, although their principal

range is farther north. Breeding habitat is heavy timber around lakes, ponds, rivers and streams. Hooded and common mergansers usually nest in tree cavities, while the red-breasted nests on the ground, usually in thick cover. Eggs: 6 to 17. Incubation is by the female and takes about four weeks. Hooded and red-breasted mergansers winter along the coasts and in the southern United States; the common merganser winters in Pennsylvania, on the Great Lakes, and across the continent where the water remains open.

Black, Surf and White-Winged Scoters — Length, 18½ to 22 inches; weight, 2 to 3½ pounds. All three scoter species are basically black, with varying amounts of white in the plumage. These sea ducks fly in long, undulating lines, in irregular groups, or in V-shaped flocks. They eat mollusks, crustaceans, aquatic insects and plants. They are rare to uncommon migrants over Pennsylvania, passing through the state in March and April, and again in October and November. Scoters breed in Canada and Alaska. They winter on the Great Lakes and along the Atlantic and Pacific coasts.



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Mallard

by Chuck Fergus

The mallard, *Anas platyrhynchos*, is the most common duck in the United States, North America and the Northern Hemisphere. It is among the best known and most widely recognized of all wildlife. The species possesses the largest breeding range of any bird on the continent, nesting across Canada and Alaska south to California, New Mexico, Kansas, Ohio and Virginia. Taxonomists recognize seven races. The mallard may have been the first domesticated bird, and from it have sprung all domestic duck breeds except the barnyard muscovy.

The mallard is known as a “puddle” or “dabbling” duck. This means it frequents shallow, marshy habitats, where it obtains plant and animal food on and near the water surface, feeding by dabbling with its bill in the shallows and by tipping up — hoisting its tail in the air and stretching its neck and head underwater. Like all puddle ducks, the mallard can spring directly into the air when taking off; it does not have to run across the water surface to build up speed like diving ducks do.

Biology

Length: adult male, about 24½ inches; adult female, 23 inches.

Weight: adult male, 2¾ pounds; female, 2½ pounds. The male, or drake, is easily recognized by his dark green head, the narrow white ring around his neck, and the dark chestnut breast. His rump is black, the outer tail feathers white, the underparts whitish, the sides gray, and the back brownish. The female, or hen, has a buff-colored head and a straw-brown body streaked or mottled with many shades of brown. The speculum (a brightly colored patch of feathers on the trailing edge of the wing and close to the body) is violet-blue bordered with white stripes on both edges. The male’s bill is yellow, his legs and feet are orange-red. The female’s bill is orange with dark spots, her feet orange.

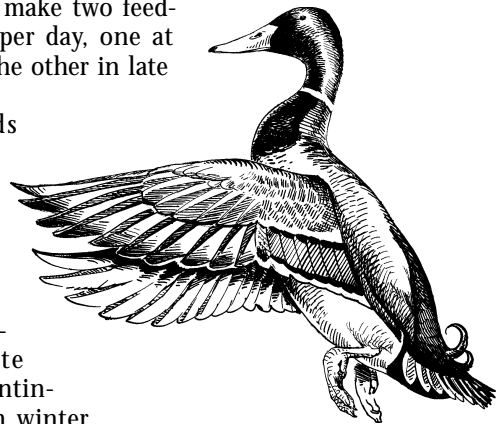
Mallards are among the most vocal of waterfowl. The hen makes a variety of quacks. The drake utters reedy quacking sounds and, during mating season, a sharp single

or double-noted whistle. Mallards fly in small groups or in V- or U-shaped flocks, usually with 10 to 20 members but sometimes with as many as several hundred. The mallard’s broad wings and relatively short tail may create the impression that the wings are set farther back than on most ducks. Mallards are swift fliers and excellent swimmers. They may feed and rest in the company of other puddle ducks, including northern pintails and black ducks.

Mallards eat a variety of natural and human-produced foods. Natural items include seeds of bulrushes, pondweeds, millet, sedges, smartweed and wild rice; stems and leaves of many aquatic plants; and acorns. Ducklings feed mainly on insects, particularly mosquito larvae, and also on crustaceans in addition to plant parts. The mallard’s bill has a serrated edge — the duck picks up food in the bill, forces water out through the serrations, and ends up with a mouthful of edibles and grit.

When natural foods are plentiful and available, mallards prefer them, but when ice closes up marshes, lakes and ponds, they head for dry land and corn. Perhaps more than any other duck, however, mallards are notorious for feeding in farm fields where they search for grain in the remaining stubble of corn and sorghum fields. Mallards travel up to 25 miles for food. Often they make two feeding flights per day, one at dawn and the other in late afternoon.

Mallards mature sexually in their first year. A period of social display begins in late fall and continues through winter



into spring. Males grunt and whistle, swim, pump their heads and preen in front of the females. The hens stimulate the courtship with calls and their own stylized body movements. Most pair-forming activities occur on the water, although chase flights in spring are prominent courtship rituals.

Most hens have chosen their future mates by the time mallards arrive on the northern breeding grounds in spring. The male selects a home breeding range that he defends against other mallard pairs; the female selects the actual nest site. Mallards primarily nest around freshwater lakes, ponds, marshes and reservoirs across Pennsylvania, but it's not uncommon to find them nesting in agricultural fields and in residential areas.

The hen typically nests within 100 yards of water, on the ground in a depression lined with reeds and grasses, with soft down added from her breast. She conceals the nest in tall grass, dead reeds, alfalfa or clover. A few individuals nest in stumps, tree cavities or in the crotches of trees.

Eggs, from 6 to 15 but usually 8 to 12, are laid one per day. Shells are smooth, light greenish or grayish buff, sometimes nearly white. A hen occasionally will lay eggs in the nests of other ducks. Incubation is by the hen alone (the male deserts his mate at this time), beginning with the laying of the last egg so that all hatch at about the same time. Incubation takes 23 to 29 days.

Within about 12 hours of their hatching, the hen leads her young to water. Mallards normally raise one brood a year, but if a skunk, crow, raccoon, opossum or other predator destroys her first clutch, a hen may try again. Re-nesting attempts average fewer eggs (6 to 8). Nests are also lost to plowing, hayfield mowing and flooding. In addition to the predators mentioned above, snakes, foxes, largemouth bass, muskellunge and snapping turtles also take ducklings. The young can fly after 7 to 8 weeks.

After the drakes leave their mates (May to June), they fly to more secluded areas where they undergo their annual eclipse molt. This replacing of feathers demands considerable energy, and the birds seek out food-rich areas. A complete, simultaneous wing molt leaves them temporarily flightless; at this time they are in a drab "eclipse" plumage, which resembles the female's coloration and provides protection against predators. Hens undergo a similar molt after their ducklings mature. The wing feathers grow back in 2 to 3 weeks.

In fall and winter, mallards fly south when ice and snow cover their feeding and resting areas. Among puddle ducks, the mallard and the closely-related black duck are the latest fall migrants, often remaining as far north as open water prevails. Many of the mallards found here in the fall are from breeding grounds in Ontario, Quebec and the Lake States. The mallard is one of the earliest ducks to return north in the spring. In Pennsylvania mallards are common migrants in late February, March and early April.

The life span of the mallard is 7 to 9 years, although more than half die before they reach two years of age. Ducks die from predation, accidents, hunting and diseases — botulism, fowl cholera, duck virus enteritis, aspergillosis and others.

Population

In North America, the densest population of mallards is in the northern prairies of the Great Plains (Montana, North Dakota and the Canadian provinces of Saskatchewan, Alberta and Manitoba), with nearly half of the continent's mallards breeding there. Mallards winter throughout most of the United States, with heavy concentrations in the Mississippi Flyway. In the Atlantic Flyway they concentrate in South Carolina and on the Chesapeake Bay. They also winter in parts of Canada, Alaska, Mexico and Central America.

Compared to most species of wildlife, the mallard population has fared relatively well during man's changing of the environment over the past century. Waste grain left by mechanical harvesting equipment provides important winter food, and the construction of many ponds and reservoirs has created a good interspersed water and suitable land habitat for them. Mallards, more adaptive than other wild ducks, quickly exploit these chances, even in suburban areas.

In the Northeast, the mallard was considered a rare migrant at the turn of the century. Today it is the region's most common duck. In 1969, hunters for the first time bagged more mallards than black ducks in the Atlantic Flyway, a trend that continues today. The black duck, *Anas rubripes*, is a close relative of the mallard, and the two species hybridize readily. In the last several decades, the black duck's population has declined. Many scientists attribute the decline to, among other reasons, increased interbreeding with the mallard, and to the mallard's range expansion into formerly exclusive black duck habitats. Mallards currently comprise 50 percent of Pennsylvania's duck harvest.

Habitat

Mallard breeding habitat combines shallow-water foraging sites and thick vegetation for nesting. The species prefers open country to woodlands. Ponds, edges of freshwater lakes, sloughs, reservoirs and marshes are ideal. Mallards often use man-made nesting structures placed over water. They winter on marshes, lakes, and the open waters of rivers and bays. They feed in these places and croplands.

Most waterfowl moves away from areas frequented by humans, and consequently have been driven from suitable habitat by expanding towns and cities, rural development and vacation homes. The mallard and the Canada goose, less wary of humans, are occupying much of this altered habitat.

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Wood Duck

by Chuck Fergus

The wood duck is our most brilliantly colored duck. Its scientific name, *Aix sponsa*, can be loosely translated as “a waterfowl in wedding dress.” This shy, retiring bird inhabits ponds and sluggish streams surrounded by woodlands. Nicknames include Carolina duck, squealer, summer duck and woodie. Most authorities place the species with the puddle or dabbling ducks, a group distinguished by its habit of feeding on and near the surface of shallow waters, rather than diving for food.

Wood ducks range from the Mississippi River east to the Atlantic coast, and from the Great Lakes Region south to the Gulf of Mexico. Most of them winter from the Carolinas south to the Gulf and west to eastern Texas. A small population of wood ducks also inhabits the Pacific Northwest. In Pennsylvania, woodies are common migrants in March and April; summer breeding residents; common migrants in September, October and early November; and occasional winter residents in the southeast and southwest corners of the state.

Biology

An adult wood duck is 18 to 20 inches long, has a 24-inch wingspan, and weighs 1½ pounds. The male is called a drake, the female a hen. The drake’s coloration is nothing short of exotic. His head is iridescent green, shading into blue and purple, with a slicked-back crest of feathers and a white chin-bib. His eyes are bright red, his bill reddish-orange, his legs yellow. His chest, a rich chestnut, is separated from his golden-yellow sides by vertical bars of white and black. The hen’s plumage is drab, a combination of gray, white and brown. She has a small head crest and a circle of white surrounding each eye.

Wood ducks do not quack. The hen, more vocal and louder than her mate, squeals a shrill warning call, *hoo-eek hoo-eek*. The drake whistles an ascend-

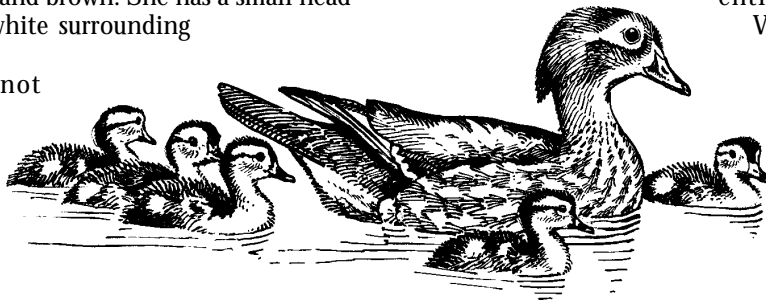
ing, finch-like *twee twee*. Woodies are excellent swimmers and fast, agile fliers. Above open terrain they can wing along at up to 50 mph; in woodlands they twist and turn between the trees, moving their heads almost constantly in flight.

The wood duck feeds along shores of woodland streams and ponds. A dabbler, it tips its head into shallow water and probes the bottom for vegetative parts and seeds of pondweeds, wild rice and water lilies. It also eats grapes, berries, and nuts — acorns, hickory nuts and beech-nuts — which are swallowed whole and crushed, inside the gizzard, into digestible bits. Insects and spiders comprise about 10 percent of the adult’s diet, while the duckling eats a larger percentage of these high-protein animal foods. In winter, wood ducks may turn to waste corn if natural foods are scarce.

Breeding occurs in late March and April, extending into May in the north. Most pairs form on the wintering range, following an intense courtship. The male preens behind his wings, spreading them to show off their iridescent sheen, he tucks in his chin, erects his crest, and fans his tail. He swims at the hen then circles her.

When the birds migrate north, the hen homes in on last year’s nest tree or, if she is a yearling, on the same general locale in which she was hatched. The male sets up no actual territorial boundaries, but will defend his mate from the attentions of other males. Several breeding pairs may share the same pond. Nesting concentrations are largely determined by the availability of nest sites. The mated hen seeks out a cavity in a tree; the male follows her on these search flights, but the hen apparently picks the exact spot.

Wood ducks prefer to nest in trees standing over water, but sometimes will settle for sites up to a mile away. They normally use natural cavities with entrances too small for raccoons to enter, often choosing excava-



tions made by pileated woodpeckers. They also nest readily in man-made boxes.

The hen lays 8 to 15 eggs (one per day) in the bottom of the cavity, on accumulated wood chips covered with down from her breast. The eggs are dull-white and unmarked. Incubation, by the female alone, starts with the last egg and takes about a month. Unlike most other male ducks, the drake woody stays with his mate well into her incubation. He has usually left the scene, though, by the time the eggs hatch.

All the eggs hatch on the same day. The hen usually keeps her brood in the nest overnight, and then in the morning she flies out and lands on the ground or water below, where she begins calling softly. The day-old ducklings leap out of the nest to join her. They tumble down perhaps 60 feet, sailing like cotton puffs and usually landing unharmed. The hen leads them to safety along a lake or a stream.

If a raccoon, snake or squirrel destroys her first clutch, the female may lay a second. A few hens raise two broods, but the vast majority raise only one.

Ducklings — and adults — are preyed upon by minks, otters, raccoons, hawks and owls. In Maryland, scientists found that half of the young were killed in their first month. The brood begins to break up after six weeks or so, and the young can fly when two months old.

After leaving his incubating mate, the drake woody joins other male wood ducks in the dense cover of a swamp or wooded pond. Here he molts into eclipse plumage: dull feathers resembling the drab plumage of a hen. During part of the annual summer molt, wood ducks — both drakes and, later, hens — lose their wing feathers and cannot fly. In late summer or early fall, a second molt begins, restoring the normal plumage.

Wood ducks migrate south for the winter. Some seek out common roosting and feeding sites, grouping in flocks of less than a hundred to several thousand. Pennsylvania band surveys show most of our home-grown woodies winter in the Carolinas, Georgia and Florida.

Population

In the early 1900s, the wood duck was nearing extinction. Many woodland ponds, the species' favorite habitat, had been drained. Widespread logging had removed the mature trees needed for nesting. And for years the woody had been hunted hard for its good-tasting flesh.

In 1913, wood duck hunting was banned for five years by the U.S. Department of Agriculture to spur a population recovery. That effort was followed by the ratification of the Migratory Bird Treaty Act between the United States and Canada, which established the framework needed to manage waterfowl on a broader scale than with

inconsistent state plans. The wood duck was also aided by Pennsylvania's beaver reintroduction program, which began in 1917, and the construction and placement of thousands of wood duck nest boxes by conservation organizations.

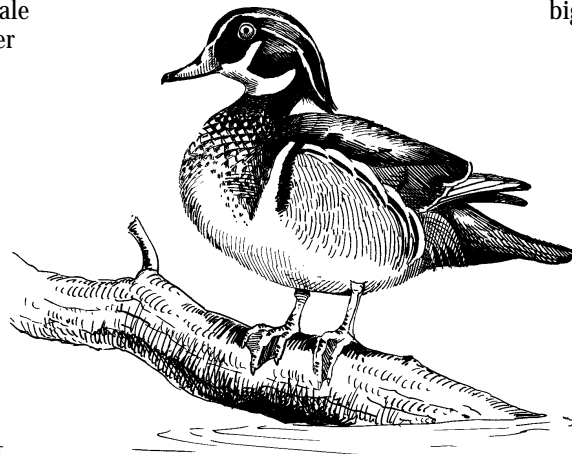
The wood duck population grew steadily. In 1941, hunting was again permitted. In 1976, waterfowl scientist Frank Bellrose reviewed many local studies and concluded that the adult population of wood ducks is about 1 million before each year's breeding. Others have estimated the annual post breeding population at 2½ to 3½ million.

Today the wood duck has reclaimed most of the Atlantic Flyway and a large part of the Mississippi drainage. The greatest concentration of woodies lies in Ontario.

Habitat

Wood ducks inhabit slow-moving creeks, woodland ponds, lakes, swamps, marshes and beaver ponds. They rest in thick growths of water lilies, smartweeds and other emergent plants; hens hide their ducklings in vegetation, under overhanging banks and among fallen, partly submerged trees.

Woodies nest in cavities of mature sycamore, maple, oak, basswood, elm and gum trees. Where big trees are scarce, they will use man-made nest houses. Artificial nests should be made predator-proof, as they attract raccoons, squirrels and other predators looking for a meal. Place nest boxes on poles over water; attach metal shields partway up the poles, and make sure the boxes' entrances are small enough to exclude raccoons. Studies in Pennsylvania show that hens and broods having to travel more than a mile from their nest box to brood-rearing wetlands experience the highest mortality. That's why it's a good idea to place nest boxes near suitable wetlands. Wood duck boxes also provide nesting space for American kestrels, common screech owls, mergansers, squirrels and occasionally, wrens and tree swallows. Plans for the boxes can be obtained by writing: Pennsylvania Game Commission, Dept. MS, 2001 Elmerton Avenue, Harrisburg, PA 17110-9797.



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Canada Goose



The lines and vees of geese come south from the tundra. The birds pass over Pennsylvania each fall, some traveling by day others winging across night skies. Their flight can be high — so high that their incessant calls do not reach earth — or low enough that the honking carries clear as church bells on

a frosty morning. The lines and vees may be long and undulating, or tight, strong and symmetrical. They are following long established migratory highways to their wintering grounds — an ancient rite of autumn that will be reversed in spring.

Biology

The Canada goose (*Branta canadensis*) is a member of Order Anseriformes, Family Anatidae, a large group comprising all North American waterfowl. Waterfowl are further divided into seven subfamilies, one each for swans and geese, and five for ducks.

Canada geese belong to subfamily Anserinae. They are closely related to emperor, snow, blue, Ross's and white-fronted geese, and brants. There are two species of Canada geese — the small, tundra-breeding cackling Canada goose, *Branta hutchinsii*, and the larger-bodied *Branta canadensis*, which has seven recognized subspecies. As a group, Canada geese are often referred to as “honkers.”

Three distinct Canada goose subspecies occur in Pennsylvania. Two are migrants that breed in Canada; the third breeds here. The migrants comprise geese from the Southern James Bay population (*B. c. interior*), which fly over western-most Pennsylvania, and the Atlantic population (*B. c. canadensis*), which migrate over eastern Pennsylvania. Our resident geese are giant Canada geese (*B. c. maxima*). Resident geese are largely non-migratory; they nest and winter here. The growth of this population has been phenomenal. Prior to 1935, no Canada geese nested anywhere in Pennsylvania. Today they are found in every county.

Geese are large, plump birds with long necks, short wings, a broad, round-tipped bill and short legs. Their legs are set farther forward than those of ducks or swans; this adaptation permits them to walk and graze on dry land. The feet are webbed between the three front toes. Adult males or ganders of the interior race average 36 inches in length and weigh approximately 9 pounds. Females and immatures are a bit smaller and lighter.

Both sexes of Canada geese look alike. The bill, head, neck, legs, feet and tail are black. There is a broad white cheek-and-chin patch; the upper body is gray-brown. Flanks and underwings are a lighter gray, as are the breast and belly, which are also faintly barred. Geese have large amounts of down — fluffy feathers close to the body which create insulating dead air space — to keep them warm in cold weather.

Grazing birds, geese feed on wild and cultivated plants. They eat rhizomes, roots, shoots, stems, blades and seeds. Foods include widgeon grass, pondweed, eelgrass, spike rush, American bulrush, cordgrass, glasswort, algae, grass, clover, wheat, millet, corn, barley and rye. They can damage cultivated crops, particularly young shoots of fall-planted wheat. Animal matter isn't a major part of their diet, although they sometimes eat insects, crustaceans and snails.

When feeding in shallow water, geese tip their bodies, dip their heads under and pull up vegetation. On land, they feed in groups — and at least one member of the party always has its head up, looking for danger. Geese generally move in patterns to feed. Each day at about dawn, they leave the water — river, pond, lake, impoundment, or other body of water — fly to feeding areas, and feed for two or three hours. Then they return to the water, rest and fly out to feed again in the evening. On such forays they fly distances of as little as a few hundred yards to more than 20 miles, depending on availability of food.

Geese are intelligent and wary. Their vision is sharp and their hearing keen. These senses are multiplied when the birds are in flocks. In regions where they are hunted, they quickly learn locations and boundaries of refuges where they are protected.

A honker usually runs along the surface of the water or ground to gain lift for takeoff, though when surprised it can jump into flight as puddle ducks do. Once aloft, its flight may appear slow and labored — perhaps because of the bird's slow, deep wingbeats and large size — but actually it can reach 45 to 60 mph. In flight, geese sound their distinctive “honking” calls. When feeding, they make a gabbling sound and, when angry, they hiss.

In spring, honkers are among the first waterfowl to breed. Unmated males fight for females. The males approach each other with necks lowered and extended, hissing loudly, pecking and flailing with their powerful wings. Individuals of both sexes usually mate for the first time in their second or third year. The pair stays together as long as both are alive and healthy; if either dies, the other usually looks for a new mate.

Geese nest in a wide variety of habitats. They like sites that afford an open view. These include islands in rivers and lakes, the tops of muskrat houses in large marshes, rocky cliffs, abandoned osprey and heron nests, artificial nesting structures and grassy fields near water. The female usually selects the site and builds the nest. Nests are typically ground depressions lined with sticks, cattails, reeds and grasses. A central cup may be lined with down, which the female plucks from her breast. Outside dimensions of nests vary from 17 to 48 inches, with 25 inches the average. Inside diameter of the central cup is 9 to 11 inches, and the nest may be 3 to 6 inches deep.

The female lays four to 10 eggs (usually five or six). Geese nesting for the first time generally lay fewer eggs than older birds. The eggs are creamy white and unmarked at first, and are either smooth or have a slightly rough texture. As time passes, they become stained. Incubation averages about 28 days. The gander does not sit on the eggs, but always is nearby, guarding and defending the nest and surrounding territory. To avoid detection on the nest, a goose will crouch, extend her neck, and remain still. Although geese are gregarious from late summer through winter, nesting adults dislike crowding.

Goslings are precocial. Their eyes are open, they are covered with a fine, brown fuzz, and they're able to walk and swim soon after they hatch. They leave the nest from several to 24 hours after hatching. Both parents stay with the goslings, and the female broods them nightly for about a week, and then less often.

Canada geese are highly successful in raising broods, but those nesting in northern Canada are highly susceptible to weather conditions. Late spring snowstorms and cold weather can severely impact nesting and brood-raising. Flooding and predation can also cause nest failure. In Pennsylvania, crows, bald eagles, coyotes, raccoons, opossums and skunks destroy eggs; coyotes, foxes, bald eagles and owls prey on goslings. In northern Canada, red and arctic fox and large gulls are the most important predators of nests and goslings.

Because they're big, strong and aggressive, adult geese are less subject to predation than most other

waterfowl with coyotes, bald eagles and large owls removing unhealthy individuals from the population. Disease, parasites and accidents also take their toll.


When young are half-grown, their parents begin to molt. Adults lose their flight feathers and are grounded for about three weeks. During this time, the goslings are growing their own flight feathers, so parents and young are able to fly at about the same time.

As autumn approaches, geese prepare to migrate. Family groups gather in small flocks, leave their subarctic breeding grounds and fly leisurely to staging areas along the route south. Migrating geese travel by day or night, flying until tired and then landing to feed and rest.

Honkers fly in vees or occasionally in single, diagonal lines. A trailing goose encounters less air resistance, thus uses less energy, because of the turbulence set up by the bird flying just ahead.

Flight altitudes vary with weather conditions, distance to be flown and time of year. In heavy overcast, honkers might fly only a few hundred





feet off the ground. Under fair skies, they tower up almost a mile. An average derived from airplane pilots' reports is 2,000 feet, with 64 percent flying between 750 and 3,500 feet (this is for fall migration; during spring, altitudes average a bit lower). Geese fly high over long distances, lower for short hops.

Population

The range of the Canada goose blankets the United States and most of Canada. There probably are more honkers on the continent today than when the Pilgrims landed; like certain other wildlife species — blackbirds, crows, woodchucks, and white-tailed deer — honkers have benefited from increased agricultural production. Geese feed abundantly on grains and cereal crops on their migration and wintering grounds. Geese on the Atlantic Flyway now rely more on crops than on aquatic plants.

Early during the 20th century, the Canada goose population had dropped dangerously as a result of unrestricted market hunting on the species' wintering grounds and migration routes. Fortunately, strict law enforcement, wildlife-management practices and increased farming have reversed this trend. The resulting increase in the goose population rivals the comebacks of the wild turkey and white-tailed deer.

Geese are migratory birds and fall under the jurisdiction of the federal government's U.S. Fish & Wildlife Service. This agency cooperatively manages all waterfowl with the states and Canadian provinces. This work includes monitoring populations and habitat, conducting research and setting annual seasons and bag limits.

Habitat

Landowners interested in attracting migrating geese can leave portions of crops unharvested. Good foods are oats, barley, wheat, rye, grasses and corn. In feeding studies, fields of corn and small grains

attracted most geese. Geese generally will not land close to fencerows, woodlots, houses or barns. Strips of corn alternating with wide grass fields often will draw flights.

Geese are quite mobile — willing and able to fly great distances to find food and resting areas. Grazing birds, they generally are more land-based than ducks, especially when goslings are growing.

Breeding habitat is tremendously variable; they do well in open fields near water, and on islands, rocky cliffs, and other locations. Artificial nesting structures — tubs secured to trees, old tractor tires placed on islands, or platforms built over water — often attract resident honkers. Geese raise families in city parks, reservoirs and farm ponds, although the vast majority of them breed in the far north.

Migratory geese of the Atlantic Flyway winter primarily in Chesapeake Bay and Delmarva region. Smaller numbers winter from as far north as New York and coastal New England to southeastern Pennsylvania and New Jersey.

In spring, honkers retrace their routes to ancestral breeding grounds. Migrating flocks are composed of several family units, parents and offspring of the previous year, but the yearlings leave their parents shortly after arrival. Adults usually nest in the same locale year after year, some even using the same nest foundation.

In Pennsylvania, geese are common spring migrants in late February, March and early April, with stragglers into May. In spring, resident flocks breed here. Strong concentrations exist within the Game Commission waterfowl areas such as Pymatuning and Middle Creek, as well as other suitable habitat in the state. In fall, honkers are common September-December migrants. If the winter is mild, some stop in the southeastern portion of the state, although most go farther south.



Wildlife Note — 62
Ldr1204

Snow Goose

By Chuck Fergus

The snow goose, *Chen caerulescens*, is one of the world's most abundant waterfowl species. Snow geese breed in the arctic and subarctic regions of North America during spring and summer, then migrate south to spend the winter in inland and coastal areas, including Pennsylvania. They feed voraciously on vegetation, and recent population increases have led to serious damage of the species' habitat, mainly on its breeding range, but also in some wintering areas.

Biology

A medium-size goose, the snow goose is 27 to 33 inches long, with a wingspread of about 54 inches. It has a chunky body and weighs from 3.5 to 7 pounds, with males slightly heavier than females.

Chen caerulescens has two distinct subspecies, the greater snow goose and the lesser snow goose. The lesser snow goose is dimorphic, meaning it comes in two color phases, white and blue. The white phase is all white with the exception of black primary wing feathers. On the blue phase, the head and front of the neck are white, and the body is gray-brown, with white or gray underparts. Intermediate color forms also occur. All snow geese have, in addition to black primaries, a black patch on the edge of the bill, suggesting a grin when viewed from the side. The eyes are dark, the bill is pink, and the legs are dark pink. White individuals sometimes show rust-colored stains on the head and neck, caused by the birds' grubbing for food in muddy ground.

It is primarily the greater snow goose that winters in Pennsylvania. The lesser snow goose's U.S. wintering range has traditionally been a column sweeping from north to south through the Midwest part of the country, not reaching as far east as Pennsylvania. As the range of the lesser snow goose expands, however, blue phase geese are being seen infrequently on Pennsylvania wintering grounds.

Snow geese are good swimmers. They do not normally dive to find food, but can submerge to evade predators. They walk readily on land, and run swiftly. They sleep floating on the water, or on land, sitting down or standing on one leg; the head is held low or tucked partway beneath one wing. Strong fliers, snow geese can reach speeds of 50 miles per hour. *Chen caerulescens* is extremely vocal. Individuals sound a *whouk* or *kowk*, given repeatedly in flight and on the ground and resembling the shrill barking of a dog. When feeding, snow geese make quieter *gah* notes. Parent birds utter *uh-uh-uh* vocalizations to their goslings.

Snow geese feed in shallow water and on the ground, typically in saturated soil. On their breeding grounds they



eat leafy parts of grasses, sedges, rushes and other aquatic plants, and grub out the roots and tubers of a variety of land plants and shrubs. En route to and on the southern wintering grounds, they dine on aquatic grasses, sedges and rushes; berries; corn, wheat, barley and other grains gleaned from harvested fields; and pasture grasses and leafy stems of crops such as winter wheat and rice. In winter, snow geese feed from two to more than seven hours per day. In spring, when building up fat reserves for migration, they may feed more than 12 hours daily.

Males and females establish lifelong pair bonds. Most snow geese choose mates having the same color as the family in which they themselves were reared. Individuals pair up during their second winter or on their second northward migration, when they are almost two years old; generally they first breed successfully at age three. During courtship, the male puffs up his body and stands in an exaggeratedly straight and tall posture. Males and females display to each other by raising the head and neck, calling vociferously and flapping their wings. Mating takes place in shallow water and on land.

Snow geese nest on arctic tundra, near river mouths and on islands, usually within five miles of the coast. They gather in colonies varying greatly in number and density of pairs. A pair defends an area around its nest, where both partners feed heavily. The female builds a shallow nest out of plant material and down plucked from her body; she may reuse her previous year's nest. Nests are often sited on low ridges or hummocks offering good visibility over the surrounding terrain. A female typically lays three to five creamy white eggs, sometimes as many as seven. Incubation is by the female alone, with the male remaining close to the nest. Sometimes one pair may trespass in another pair's territory; while the resident male is occupied in driving off the intruding male, the intruding female tries to lay an egg in or near the resident female's nest. Because unattended eggs attract predators, a female will usually roll a deserted egg into her own nest, which can lead to her rearing another female's young. Biologists describe this phenomenon as "nest parasitism."

Main nest predators are foxes, gulls and parasitic jaegers. Bears, wolves and ravens also take some eggs. Eggs hatch after 22 to 23 days of incubation. The goslings emerge wet, but dry within four hours beneath the brooding female. Goslings are able to walk, swim, dive and feed soon after they leave the nest, usually within hours of hatching.

Both parents help raise the young. A family may walk

more than two miles per day between food sources and up to 45 miles during the brood-rearing season. Goslings graze on vegetation, and also eat some insects. They grow rapidly, gaining around 5.5 ounces per day. Goslings are taken by gulls, foxes and snowy owls; adults are occasionally preyed on by foxes, wolves, bears and eagles.

The young begin to fly 42 to 50 days after hatching. They stay with their parents while migrating south for their first winter. The family remains intact through the winter and during the migratory journey north again in spring. After arriving on the breeding grounds, the family breaks up and the adults begin rearing another brood.

During migration, snow geese fly both by day and night. In fall, they often travel in large flocks with more than 1,000 members; spring flocks vary in size from a few dozen to a few hundred individuals. Usually they migrate along fairly narrow corridors, with traditional stopping points along the way. Migrating snow geese take advantage of following winds, good visibility and periods of no precipitation. They fly in long, diagonal lines and in V-formations, at altitudes of up to 7,500 feet. When preparing to land, they may tumble to lose height in what has been described as a "falling-leaf" maneuver.

The species' breeding range extends from Alaska east to western Greenland. Biologists recognize three separate populations. The western population breeds in Alaska and Canada's Yukon, Northwest and Nunavut territories and winters from Oregon south to Mexico, with concentrations in the central valleys of California. The midcontinent population breeds from Nunavut Territory east to Hudson Bay and winters in the U.S. Midwest south to Louisiana and Texas. The eastern population breeds on islands in the High Arctic, including Ellesmere and Baffin then winters along the Atlantic Coast from Massachusetts to South Carolina, with concentrations in southeastern Pennsylvania, New Jersey, Delaware, Maryland, Virginia and North Carolina. In winter, snow geese are highly gregarious and often feed in flocks numbering thousands of individuals.

Migrants follow all four major North American flyways.

Migration north from wintering areas takes place from February to May. In autumn,

snow geese depart from the northern breeding areas in

September and arrive in wintering habitats in November and December.

In Pennsylvania, snow geese are seen more frequently in spring than in fall.

They pass through the state from about the third week of February to the first week of April, with a peak in early to mid-March; an excellent place to view migrating snow



geese is the Game Commission's Middle Creek Wildlife Management Area in Lancaster County, where up to 150,000 birds have been seen. In autumn, the greatest numbers of snow geese pass through Pennsylvania in November. Each year, weather conditions and food availability influence migration dates.

Snow geese can live beyond 26 years. Individuals perish from avian cholera, hitting power lines in flight, hunting and predators. Predators on the wintering range include coyotes, foxes and eagles.

Habitat

In summer, snow geese nest along braided river mouths, on islands and in sections of arctic tundra studded with ponds. Many of the greater snow geese that winter in Pennsylvania nest in the eastern high arctic, with Baffin and Bylot islands containing the largest colonies. They favor areas that become clear of snow early in the year and do not flood during the spring thaw. Parents lead their goslings to food-rich areas — damp meadows, edges of freshwater lakes and ponds and tidal marshes. During migrations, snow geese frequent freshwater and brackish marshes, slow-moving rivers, lakes, ponds and farm fields. Winter habitats include coastal marshes, wet grasslands and agricultural fields. Pennsylvania is attractive to snow geese because of the large number of agricultural fields. Waste grain left after harvesting allows birds to recharge fat reserves needed for spring migration and nesting and, thus, has been implicated in increasing survival rates. At times, snow geese can be destructive feeders, pulling stems and roots of plants out of the ground. This grubbing behavior is largely responsible for extensive habitat damage of marsh habitats on both breeding and wintering areas.

Population

Around 1900, the population of *Chen caerulescens* had ebbed to only 2,000 to 3,000 birds. During the 20th century and into the 21st century, the population has burgeoned as snow geese have begun taking advantage of farm crops, including waste grain, along migration routes and in wintering areas. In some areas, populations have increased as much as 9 percent per year. Biologists estimate that there are now 5 to 6 million snow geese in North America, a population that may be too large to be environmentally sustainable.

Each year, wintering populations vary in abundance, depending on nesting conditions in the arctic (cold, wet weather may drastically lower breeding success); the availability of food on breeding grounds, staging areas and stop-over points along migration corridors; and hunting pressure. Harvest estimates since 1998 indicate that from 1 to 1.5 million birds are harvested annually. Recent conservation hunts implemented in Canada and the U.S. have been successful in doubling the harvest rates of snow geese and bringing down the populations of both lesser and greater snow geese. When snow geese populations are too large, the birds' feeding can destroy their own habitat, which is also used by other species.

Wildlife Notes are available from the
Pennsylvania Game Commission
Dept. MS, 2001 Elmerton Avenue
Harrisburg, PA 17110-9797

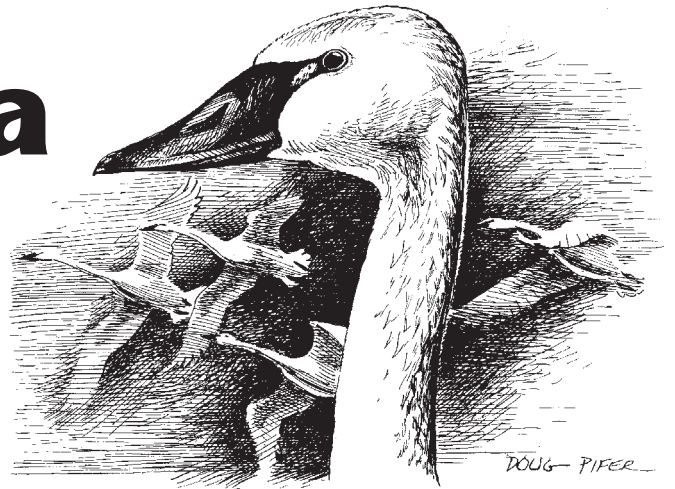
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Wildlife Note — 61
Ldr1204

Tundra Swan

By Chuck Fergus



Have you hiked along a lake or river in early spring and seen flocks of white, long-necked swans resting or feeding in the shallows? Chances are good that those graceful, majestic birds were tundra swans. The tundra swan (*Cygnus columbianus*), formerly known as the whistling swan, breeds in northern Alaska and Canada and migrates south to winter along and near the Pacific and Atlantic coasts. Tundra swans fly across Pennsylvania in spring and fall, and some winter in the southeastern part of the state. Our only other swan is the mute swan (*Cygnus olor*), originally imported from Europe and now here in domestic and feral populations.

Biology

The tundra swan — 4 to 5 feet long and with a wingspan of about 66 inches — is markedly smaller than the mute swan. Adult tundra swans weigh 10 to over 18 pounds, with males somewhat larger than females. The plumage is white, and the sexes look alike. The bill and the front portion of the face are black (the mute swan has an orange bill with black knobs at the base). Most adult tundra swans have a yellow spot in front of the eye. The legs are black. The neck is held straight up most of the time (the mute swan, in contrast, usually keeps its neck in a curved position).

Whether taking off from water or land, before a tundra swan can become airborne it must take many running steps. Individuals can fly up to 50 miles per hour. The flight call consists of one to three syllables, usually described as variations of the sounds *ou*, *oh*, and *oo*; the voice of a tundra swan sounds similar to that of a Canada goose. Parents and young make softer *kuk kuk* sounds to communicate at close range.

Tundra swans are good swimmers, propelling themselves with their webbed feet. They are able to dive beneath the water if necessary.

As their name implies, tundra swans breed in the treeless tundra of northern Alaska and Canada's Northwest Territories, Nunavut, northeastern Manitoba, northern Ontario, and northwestern Quebec. The highest breeding concentrations occur in the river deltas of Alaska and the Northwest Territories. Swans that breed east of Point Hope in northern Alaska winter on the Atlantic coast, while birds breeding from Point Hope south winter along the Pacific.

On their northern breeding range, tundra swans eat a variety of plants, including sedges, pondweed, pendant grass, arrowleaf, and algae, consuming seeds, stems, roots, tubers and some invertebrates. While floating on the water, tundra

swans feed by dabbling with their bills. They also tip their tails up, submerge their heads, and extend their necks to nip off vegetation as deep as 3 feet below the surface.

Males and females form life-long pair bonds. On the breeding range, a pair maintains a territory in which they feed, nest and rear young. The territory usually includes part of a large body of water, used for feeding and escaping from predators. A typical territory covers an area of about half a square mile. Young pairs may establish home areas a year or more before breeding. Each year, a pair will use the same territory, defending it against other tundra swans and waterfowl including Canada geese, white-fronted geese, snow geese and oldsquaws. When it encounters a competitor, a swan may hiss, stare, raise its wings and, using the wrist portion of its wings, deliver blows to the intruder.

The male and the female build a nest out of grasses, sedges, lichens and mosses, on the ground, usually on an island or a low ridge or some other spot providing good visibility. The mound-shaped nest is 1 to 2 feet across, with a depression in the center. A pair may reuse the same nest in successive years. Tundra swans court by facing each other, spreading and quivering their wings, and calling loudly. Mating takes place in the water. The female lays three to five (rarely as many as seven) creamy white eggs. She broods her clutch the majority of the time; the male broods only when she is absent. After 31 to 32 days, the eggs hatch. Pairs produce only one clutch per season; if the nest fails, the adults do not lay a second clutch.

Young swans, called cygnets, are light gray in color. Their eyes are open when they pip the shell. Their downy feathers dry out a few hours after hatching, and they begin walking about near the nest. Around 12 hours after the last egg hatches, the parents lead the cygnets to water. With the young swimming along behind, the adults use their feet to kick loose and churn up plants on which the cygnets feed. For about a week after hatching, the parents may brood the young. Tundra swans sleep almost exclusively on land during the breeding season; they stand or sit and may rest their head on their back or tuck it partway under a wing.

On the breeding grounds arctic foxes, red foxes, bears, wolves, eagles, jaegers, gulls and ravens prey on eggs and cygnets. Parents defend their eggs and young against smaller predators and usually flee their nest when a large predator,

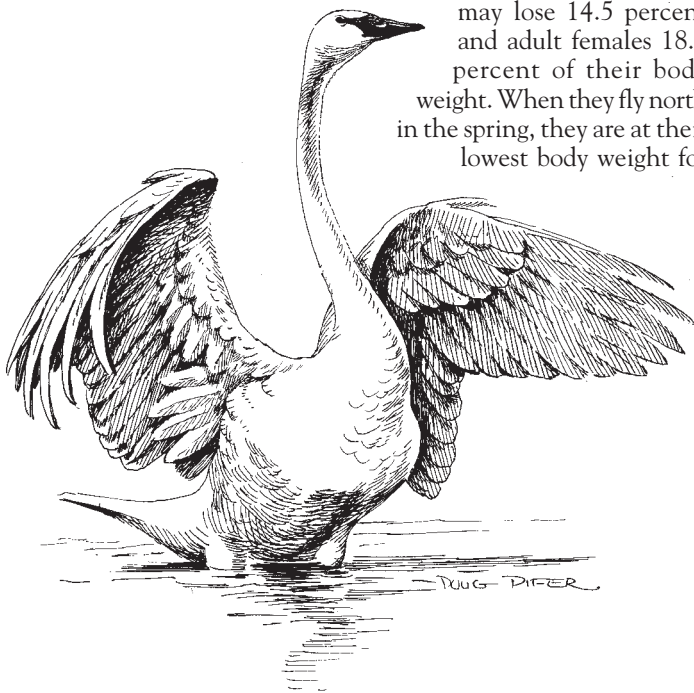
such as a bear or a human, is several hundred yards away; this strategy may make the nest harder to find. Adults molt their flight feathers during late summer. While molting, they cannot fly and, if threatened by a predator, will walk or run to a large pond or lake and swim out to the center.

Cygnets are able to fly after two to three months. As the northern summer dwindles, family groups vacate their home territories and fly to staging areas, mainly along brackish shores of river deltas, which remain free of ice longer than other arctic wetlands. In late September, flocks begin heading south. Flocks are composed of multiple family groups and can number more than 100 individuals. The swans fly in V-formations at altitudes of 1,800 to 4,500 feet and higher.

Flocks follow traditional inland migratory routes. The Eastern wintering population arrives in early October in the Devils Lake area of North Dakota and the upper Mississippi River in Minnesota. Later, flying by day and night, they make a nonstop migration of almost a thousand miles to wintering areas in coastal New Jersey, the Susquehanna River Valley in southern Pennsylvania, the Chesapeake Bay region, and coastal North Carolina. Some birds winter in the Great Lakes region. Tundra swans arrive at the wintering grounds from mid-November to mid-December. Banding studies indicate that individuals often return to the same wintering area year after year.

Tundra swans winter on shallow tidal estuaries and on freshwater lakes, ponds and rivers. In the past, tundra swans fed largely on submerged aquatic vegetation, as well as a small amount of animal matter, including clams. As aquatic plants have dwindled, due to the destruction of wetlands, wintering swans have shifted to feeding on land. They forage mainly in farm fields, picking up waste corn and soybeans left after the harvest, and eating crops such as winter wheat, rye, and barley. In winter, tundra swans spend the night floating and sleeping on the water. During the full moon, flocks may feed at night. They fly back and forth between resting and feeding areas.

Individual birds tend to lose weight over winter. Studies have shown that adult males may lose 14.5 percent and adult females 18.7 percent of their body weight. When they fly north in the spring, they are at their lowest body weight for



the year. Flocks leave wintering areas in mid-March and head north by stages. As much as 25 percent of the Eastern population stops in the Susquehanna River Valley, where they feed heavily and accumulate energy reserves for migration and breeding. They depart from the area in late March and move on to the next staging area in southern Ontario. They migrate through Wisconsin, Minnesota and North Dakota in April, and arrive on the arctic breeding grounds by mid-May. Although family groups depart from wintering areas together, parent birds arrive unaccompanied by their young.

Tundra swans are long-lived. The oldest known individual was a banded bird that lived at least 21 years. Scientists estimate that 92 percent of adults, 81 percent of juvenile males, and 52 percent of juvenile females survive each year. One study found a 52 percent survival rate for young eastern tundra swans during their first migration.

Habitat

During spring and fall migrations, tundra swans stop to rest and feed in estuaries, shallow ponds, lakes and marshes fringing rivers. They also set down in harvested fields and those in which winter grains are growing. The Arctic breeding habitat includes many lakes, ponds, pools and wetlands.

Wildlife biologists believe that migratory staging areas are important late winter and early spring habitats in which swans feed heavily and accumulate energy reserves for the coming breeding season. In Pennsylvania, most tundra swans winter along the lower Susquehanna River and at the Game Commission's Middle Creek Wildlife Management Area in Lancaster County. Many swans in the Eastern wintering population stage in these areas.

Population

During the late 1800s, the tundra swan population was at an ebb, probably because of unregulated shooting by market hunters. Following the 1918 Migratory Bird Treaty, numbers increased. *Cygnus columbianus* was thought to have been extirpated from breeding areas in the southern Hudson Bay region, but the species has recently begun nesting there again, along the coasts of Manitoba, Ontario and Quebec. Since the late 1960s, as aquatic plants have declined and mute swans (which compete for preferred habitats) have increased in number in the Chesapeake Bay, the number of tundra swans wintering on the Chesapeake has fallen. A greater percentage of the population now winters in North Carolina, where flocks feed extensively in agricultural fields.

Since 1984, some states have allowed a limited hunting season on tundra swans. In the East, North Carolina, and Virginia issue permits for hunting swans. At this time, no swans may be legally hunted in Pennsylvania. The U.S. Fish and Wildlife Service, which monitors populations of migratory birds, has established target population sizes of 80,000 tundra swans in the East and 60,000 in the West. Today the population of *Cygnus columbianus* is considered stable.

Wildlife Notes are available from the
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Wetland Wonders



This booklet was produced in conjunction with The National Association for Interpretation, Region 4 newsletter.
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What's Inside:

	Page 2
Wetland Bugs	
	Page 3
Ideas to Try Out	
	Page 4
Songs	
	Page 5
Crafts & Projects	
	Page 6 & 7
Fantastic Dragonfly & Damselfly	
	Page 8
Find the Mama Duck & Pour-A-Pond	
	Page 9
Scavenger Hunt	
	Pages 10 & 11
Dabbling & Diving Ducks	
	Page 12
Rain Drop Game & Know Your Watershed	
	Page 13
Get Your Ducks in a Row!	
	Page 14
Overturing a Lake	
	Page 15
Focus on Bogs!	
Back Cover	
References	

What is a Wetland?

Submitted by John Rockenbaugh

If you answered, **wet land** - you would be correct. However, there are many types of wetlands and definitions.

- **Marsh:** Usually permanent shallow water (typically less than 4') with emergent plants in open landscape settings.
- **Wet Meadow:** A type of marsh with non-permanent seasonal water and a variety of wet-tolerant plants.
- **Swamp:** Usually a wooded area with standing water.
- **Vernal Pool:** A temporary forest pool that provides crucial amphibian habitat from late winter through late spring.
- **Bog:** A wet area that gets its water from precipitation, not surface runoff. It is low in nutrients and often very acidic. Lichen and moss die-offs form an accumulation of spongy peat. Locally, bogs are uncommon and often treeless.
- **Fen:** Usually treeless wet areas that receive surface runoff and are more nutrient-rich than a bog. Fens can become bogs. Uncommon.
- **Slough:** Often a form of a swamp or shallow lake. It usually has trees present. Slough has many "descriptions".
- **Pond:** Deeper water and that is present all year.

Dabbling & Diving Ducks:

An exploration in buoyancy and density Submitted by Sarah Dalton

Background information:

Water is the most common stuff on the earth's surface. It makes our form of life possible, affects our lives through weather and landscape features, and is such an important part of our bodies that we can die very quickly without drinking some every few hours.

Physically, water is weird. Other substances get denser as they get colder. At some point the molecules just cannot get any closer and the substance becomes solid. Because of the forces operating within a water molecule, water "spreads out" (gets less dense) when it freezes. So... it bursts or deforms bottles and it floats on top of unfrozen water. It's lucky for fish that this happens, otherwise our lakes would freeze from the bottom up and all the fish would die. Aquatic life would not be possible in climates where water froze regularly in this way.

Many living things are found within bodies of water; lakes, rivers, streams, oceans, etc. They must be able to cope with the physical properties of water - its weight, density, temperature, and phase changes to live in it.

One type of duck, the dabbling ducks include familiar birds like mallards and the common white domestic ducks. Dabbling ducks obtain their plant and animal diet by "up-ending" themselves in shallow water. This undignified pose allows them to stretch their long necks down to the bottom to sieve out invertebrates and pull up rooted water plants.

Dabbling ducks have many adaptations. They are lighter-boned than other ducks - their bones are mostly hollow and they tend to be larger than other ducks. Their legs are centered under their bodies and they are good walkers out of the water. These adaptations make it easy to identify them. Dabblers are the ducks that swim high in the water and are able to "jump" into flight from the water's surface without a take-off run. Their flapping rate is fairly slow and they are good gliders. Dabbling ducks can be compared to boats.

Another type of duck, the diving ducks are less familiar to our visitors but include birds like ring-necked ducks and buffleheads. Diving ducks obtain their plant and animal diet by surface-diving beneath the water, chasing down fish, and pulling up plants from deeper water areas. Some diving ducks appear to engage in cooperative hunting of fish.

Diving ducks are heavier-boned than other ducks - their bones are nearly solid rather than hollow. Their legs are at the back of their bodies like propellers, making walking difficult for them. Their tails are short and sturdy to act as a rudder. Their body build can be compared to submarines. To get their heavier bodies aloft, they do lengthy splashy take-off runs across the water's surface. Their wings are proportionately smaller than those of dabblers so they flap very fast when they fly and are poor gliders.

Objective:

Children will create appropriately weighted "diving" and "dabbling" ducks from filmcans and a uniform weight (pennies).

Children may create a duck with neutral buoyancy.

Props:

Taxidermy mounts or pictures of diving and dabbling ducks

Bird bones and mammal bones

Film cans (2-3 per child) (get at a photo store - usually free)

LOTS of pennies (15 pennies per film can)

Serving spoons (1 per child)

5-gallon buckets or dishpans, filled partway with warm water (1 bucket per 3-4 children)

Plastic pony beads

Rules:

Children may work in small groups or partnered or work singly.

Explain that drinking or playing in the water is not the intent of the activity.

All film cans must have at least one penny in them. Film cans should NOT be filled with water. You can use plastic pony beads for fine-tuning the balance if you wish.

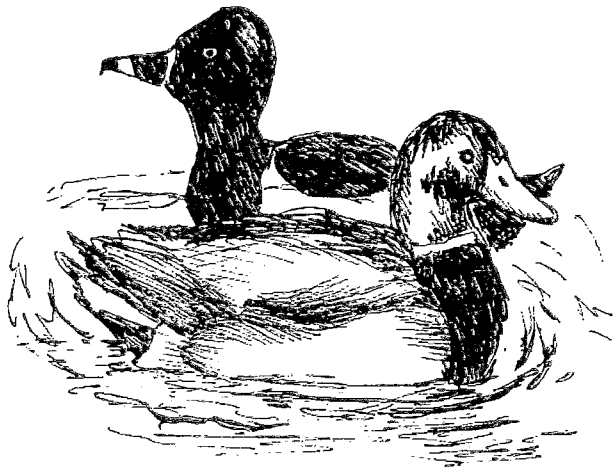
A dabbling duck film can must float but should also be able to be held under the water when pushed down with a spoon. (I picked a spoon to do this with so there is an element of challenge/skill/coordination to pushing the film can under. It is more difficult to keep the lighter film cans balanced under the spoon. Children will be able to perceive this and draw the conclusion that a very light duck would have difficulty staying under the water.)

A diving duck film can must go to the bottom quickly but must be able to return to the surface when the water is stirred up (tornadoed) around it with the spoon. (This simulates the duck's effort of swimming to the surface.)

Children will produce one dabbling duck film can and one diving duck film can. They should note how many pennies they have in each film can. Older children may wish to try to produce one with neutral buoyancy. (The magic number is between 10-12 pennies!)



Continued on next page...



Processing:

When children are done with the activity, gather them together and get their impressions of what they just did. Questions to prompt them might be:

How many pennies did you put in your dabbling duck?
How did it behave?

How many pennies did you use for your diving duck?
How did it behave?

Note how many pennies were used to produce each type of duck film can.

You could make a graph showing the number of pennies used in each film can. (If you use data from both dabblers and divers, you will probably get a neat double "bell curve" (two-humped). Is there an optimum "range" for each type of duck film can?

Discussion:

Would a very light dabbling duck be able to dive to the bottom?

Why might he need to dive to the bottom? (To escape predators such as eagles)

Would a very heavy diving duck be able to get to the surface?

Why would he need to get to the surface? (to breathe!)

Conclusion:

Wind up by reminding them that the properties of water are important to all organisms, not just ducks. What other kinds of animals live in the water? Do they have similar adaptations?

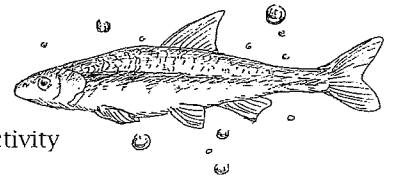
How does the human body behave in the water? How does your particular body behave? (Fat people float, densely muscled people may sink.)

Extension:

Ducks are, of course, not made of filmcans and pennies. What other materials could be used to simulate the ducks? (Meat, fat, bone, etc.) How do these materials behave when placed in water? (Fat floats....) Could these materials have other properties that are useful to the ducks? (Fat is an insulator.) You may wish to explore some of these other substances.

Wetland / Pond Play Area Submitted by Carly Martin

This activity was done in a 20X20 tent at a big event, but it could certainly be adapted to a classroom or picnic shelter.



Purpose: To have a play area for young children that replicates all the wonderful life and activity around a pond or wetland. Allow children to imagine that they are part of a pond-world.

Materials, Use & Set-up:

- Several *Cabin Critter* brand plush fish. They are realistic looking and come in several local species. Attach 3—5 feet of elastic cording to them and hang them from the rafters / ceiling all around and at different lengths. You can attach the cording by using a large yarn sewing needle. The children will pull on them and they will swing and bobble in the air to give an underwater feel. Leave several of them loose, too! Make sure the cords are short enough to not tangle the kids.
- Dog-house style camouflage hunting tent. It's a beaver lodge of course! You'll need some plush beavers to put inside and around. Set it up in the corner of your area.
- Swimming pool noodle toys. Cut them in various lengths and paint them brown. Beaver logs!
- Plastic dragonflies, plush ducks, rubber frogs and any other pond-life creature you can find. Hang them up like the fish, but maybe a taller heights and leave them around for more play.
- Play tunnels—ours are from *Pacific Play Tents* from Amazon.com. These were the only entrances / exits for children from our pond play area. We put Velcro on the inside so kids could stick the plush fish in the tunnels, too.
- Plastic garden fencing. We enclosed the tent with this. Parents could step over it to get their children, but also could feel like their kids couldn't just run out the other side unattended.
- Pond soundtrack. Make sure to have plenty of wetland noises playing in the background.
- Silk pond plants, or just cut down some phragmite leaves (don't transport the seed heads) to decorate the posts around the edges of the area.
- Anything that needed to be securely attached, we used zip-ties. They are fast and you can cut them off for quick clean-up.



Get Your Ducks in a Row!

Submitted by Andrzea Haslagz & Sarah Dalton

Here's a fun, interactive way to get children and adults to learn to identify waterfowl.

Cut, paint, and fasten: Cut out as many standard duck shapes out of plywood as needed. Some ducks with special shapes (canvasback, wood duck, etc.) may need to be altered. Paint one side of the plywood shapes to represent different duck species. (We penciled in where specific colors needed to go, and had volunteers paint the ducks - almost like paint-by-number!) Fasten the ducks to metal or wood stakes any way you can. Remember to put a small sign with the duck's name on each stake as well.

Have a ball! Some of the ducks will be used in active games. Put these ducks out in your activity space with plenty of room for the games.

Ball Toss: blue-winged teal, green-winged teal, black duck

Put loop Velcro on or around the wing speculum, and toss ping pong balls covered with hook Velcro toward the wings. Paint the ping pong balls or find colored Velcro to match the correct speculum colors.

Ring Toss: Canada goose, mallard, ring-necked duck

Cut the middle of a cheap Frisbee out to make rings. Paint rings white for the mallard, brown for the ring-necked duck, and paint the final ring like a goose research collar (to bring up migration and life studies!) Try to get the rings around the duck necks!

Clothespin Drop: scaup

Stand up straight over a tall, thin container (Pringles can or water bottle). Hold the clothespin (find a blue plastic one, since scaup are sometimes called "Bluebills") near your nose and try to drop it in the container. It's not as easy as it seems!

Pin the Tail: pintail, gadwall

Have the participant close his/her eyes and try to pin a long feather near the tail of these ducks. The feather represents the long tail of the pintail and the black patch of rump feathers on the gadwall.

Meet your Match! Other ducks will be used in a matching game, where participants will match items in a bag to the correct duck, with poem clues at each duck to help them. Post the poems on the stake with the duck. Line all the ducks up, then see if the participants can match the items to the correct duck. You can even put Velcro on the ducks and the items so they stay on the ducks.

Bufflehead item: picture of a buffalo head

*The largest mammal in the U.S. is a buffalo
Which has nothing to do with a duck, you know?
Their heads are real big it's been said
Mine is too, that's why I'm a BUFFLEHEAD*

Hooded Merganser item: fold-out fan

*HOODED MERGANSER is my name
Diving for fish is my favorite game
The girls have spiky hair, but I'm a merganser man
The back of my head pops up like a fan!*

Wood Duck item: stick or small log

*The prettiest duck in Ohio - that's me
I can be found high up in a tree
On the ground you're out of luck
I nest up high because I'm a WOOD DUCK*

American Widgeon item: small white hat covered with white feathers

*If there's one thing I hate
It's when people call me "baldpate"
Put some feathers on my white head
To make me a WIDGEON instead!*

Ruddy Duck item: toy boat

*Black and white color my head
The rest of my body is almost all red
I'm a RUDDY DUCK, on the water I float
My tail helps me swim and turn like a boat!*

Canvasback item: canvas bag

*I have a long, sloping beak
And put my head underwater for a peek
Over me, please drape a sack
To turn me into a CANVASBACK*

Goldeneye item: Gold button or disk

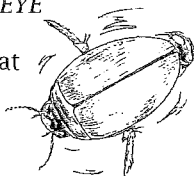
*My head sometimes looks dark green
The white on my cheek can always be seen
You'll know I like you as I swim by
'Cause I'll wink at you with my GOLDENEYE*

Northern Shoveler item: toy shovel

*In the water I spin and putter
But my name is NORTHERN SHOVELER
Plants and insects are my daily fill
That's why I have a shovel on my bill.*

Redhead item: red beret or any small red hat

*I don't wear a hat
I'd look silly like that
Make me look like my name said
And put on my small REDHEAD*



Take your time making the ducks and getting all of the needed game and matching items. Be patient, it does take a while. The effort and time will be well worth it, though - your program participants will have a "ducky" time learning about their local waterfowl!

References:

Stuff to look up, read, buy, order, research
& try out!



Check out tons of great material in:

Project WILD
Project WILD Aquatic
Project WET
WOW! The Wonders of Wetlands

Recommended websites:

www.epa.gov/owow/wetlands/education
www.idahoptv.org/dialogue4kids/wetlands/classroom
www.mwpubco.com - check out wetland products
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Enviroscape Models

Enviroscape models can be expensive but they work well, are educational, fun and can last for years! If you have the resources to buy one, the space to store it and some set-up and clean-up time before and after programs, this is a prop you'll really love.

Check out www.enviroscares.com for more information.

Leapfrogging through Wetlands is an activity guide packed full of wetland activities and information. It even comes with a great set of wetland stickers (also available without the guide). Contact Nancy Field from Dog-Eared Publications for more information. She can be reached at:

PO Box 620863
Middleton, WI 53562
1-888-DOG-EARS
www.dog-eared.com

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