Photo by JD Willson

# Marbled Salamander

Ambystoma opacum

Back to Salamanders of North Carolina Back to Herps of North Carolina

The shaded region represents the range of the marbled salamander in North Carolina.

Description: The marbled salamander is a stocky, medium sized salamander. Marbled salamanders reach an adult size of 3.5 to 5 inches in length. They are gray to black in color with silvery white cross bands on males and grayish cross bands on females. The cross bands can vary dramatically between individuals with some individuals being striped or uniformly black. All marbled salamanders have black undersides. Recently metamorphosed individuals are brown or gray with light speckles. The larvae are dark brown or black with bushy gills and light spots the form a line on each side. They have a long dorsal fin from the tail to just behind the front arms.

Habitat/Range: Marbled salamanders range from the northeast United States down through Georgia and across the Gulf states to Texas. They are also found northward in Tennessee, Kentucky, and Indiana. They live in woodlands near vernal pools where larvae develop. They may be inactive and underground during the hot summer months.

Diet: The marbled salamander feeds primarily on terrestrial invertebrates such as worms, spiders, snails, centipedes, and a variety of insects.

Reproduction: Mating takes place on land, and then the females will move to dried vernal pools or other soon-to-be flooded areas to lay eggs. The females guards the eggs in a nest under a log, leaf litter or other debris until the area fills with water and the larvae emerge from their eggs.

Photo by Jeff Hall

Like many other salamander species, large numbers of marbled salamanders may be captured if sampled during the breeding season.
Photo by JD Willson

Photo by D Stevenson

Photo D Stevenson

A marbled salamander larvae.
Photo by JD Willson

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http://www.herpsofnc.org/herps_of_NC/salamanders/Ambopa/Amb_opa.html

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# Northern Bobwhite

*North Carolina Wildlife Profiles*

## *Northern Bobwhite*

***Colinus virginianus***

Most people know the Northern bobwhite by the name bobwhite quail, or just quail for short. Partridge is the old fashion name. The males whistle a clear, loud mating call in late spring and summer. The calls, as frequent as 2–3 per minute, sound like the bird is whistling "bob-white."

### Description

Quail are related to turkeys and chickens, and to some people, they look like a small, plump chicken. They walk upright on short legs, with a pushed out chest. Males and females can be distinguished by the feather coloration on the head. The male has a white patch under his neck and a white line that runs above his eye. On the female, those feathers are light brown. The body feathers of both sexes are a beautiful but subtle combination of brown and black and buff and white. Their coloring provides effective camouflage.

### History and Status

Before the arrival of Europeans in this country, bobwhites were probably most numerous in fields and woods burned frequently by Native Americans. Europeans cleared additional forests for fields and pastures. Quail thrived on North Carolina farms through the 1950s and 1960s. However, by the mid 1980s, biologists recognized the birds were declining as former fields reverted to forests, and urban development converted old farms to new subdivisions. Quail remain common in portions of North Carolina, but not at their former numbers.

### Habitat and Habits

Quail live on the ground, both day and night. At night, they hide under weeds and bushes. By day, they walk about, pecking for seeds and fruit and insects. When danger approaches, such as a fox or snake, they freeze in place and let the predator pass, or they try to out-run it; but if need be, they leap into flight. Wing beats are fast, furious, and loud—a quail unexpectedly taking flight from under foot is startling. An average flight lasts 5 seconds and covers 150 feet, after which the bird returns to ground.

Bobwhites do best in weedy fields and meadows, clear cuts and open woods dense with native grasses. They do poorly in towns, in dense forests, and in cattle pastures planted with fescue, Bermuda, or bahia grass.

Quail nest 1-3 times per summer, laying on average 12-14 eggs per clutch. Nests are hidden under weeds or grass clumps. The hen may incubate the eggs herself and raise the young, but this job may also be done by the male; in

*In the South, "bobwhite" is a comforting sound and reminiscent of home and tradition.*

*Northern bobwhite male*

### Range and Distribution

Bobwhites occur in eastern North America, from southern Canada to Mexico. In North Carolina, they are most plentiful in the eastern portion of the state and spotty but widespread in the Piedmont (found commonly near clear cuts and farm fields.) But anywhere suitable habitat exists, quail are abundant—even in the mountains.

### Range Map

Northern bobwhites are found statewide.

which case, the female is free to find another male for a new nest. Incubation lasts 23 days. Hatchlings weigh ¼ ounce, yet they are able to walk and follow their parent within an hour of hatching. They look like walking, downy fuzz balls. They first fly when 2 weeks old and reach adult size in 3–4 months. During the breeding season, quail live alone or with their chicks. But once breeding is over, generally by September, quail unite into small flocks with 3-20 members. We call the flocks "coveys". Membership in the covey is not fixed and some individuals move from covey to covey. A covey roosts at night with members in a circle, shoulder to shoulder, facing outwards towards danger. Coveys communicate with other coveys using a special whistle call. The covey call is given about 15 minutes before daylight. Great habitat supports about one bird/acre, and from a well-positioned listening spot, a person can sometimes distinguish 10 coveys speaking to each other in the predawn hour. Quail live short lives: fewer than 20 percent live to be a year old. A three year old quail is well past middle age, and a 5-year-old quail is truly ancient. Predation is the leading cause of death. Cooper's hawks relish the big breasted adults. Even the eggs are sought after by predators. Large rat snakes can swallow every egg in a nest, and the parent quail too, if caught by the snake. Quail are highly productive breeders, which is nature's way of handling the high predation.

This hen protects her hatchlings under her wings.

## People Interactions

Bobwhites are classified as a game bird in North Carolina. Cooked quail have excellent flavor, and are delicacies at the dinner table. The hunting season begins in October and ends in February. A typical hunt lasts about 4 hours, during which 2 coveys are found, and 2 quail are bagged. Quail are hunted with a bird dog. The dog travels ahead of the hunter, and upon finding a covey, it freezes in place, telling the hunter, "Here they are!" When the hunter approaches, the birds explode into flight, and the hunter shoots with a shotgun. Landowners can manage their property to increase quail populations, if not for hunting, then just for the pleasure of seeing the birds, and especially, hearing the male whistle "bobwhite." The call means that summer is here and all that comes with it—tomato sandwiches, blackberry cobbler, watermelon. The call promises quail hunters memorable days a field in the company of hard working bird dogs. To many Southerners, quail are the south's greatest bird, and hearing "bobwhite" is a comforting sound reminiscent of home and tradition.

## Wild Facts

### Classification
Class: Bird
Order: Galliformes

### Average Size
Length: 10 in.
Wingspan: 9-11 in.
Weight: 5-8 oz.

### Food
Small seeds, fruit, tender leaves and insects.

### Breeding
1-3 clutches per year with 12-14 eggs per clutch. Predators destroy about ½ of the nests.

### Behavior
Do not migrate. Live in small flocks called coveys.

### Life Expectancy
Maximum of 5 years; 80% die before they are 12-months old; most deaths due to predation.

Northern Bobwhite
*Wildlife Profiles—North Carolina Wildlife Resources Commission*

## NCWRC Interaction

The North Carolina Wildlife Resources Commission has several projects involving Northern bobwhite. We measure hunting effort and harvest once every three years at the statewide level. NC State University performed this work for the Commission in 2008. The Commission works with the University on several quail research projects.

We collect similar data annually, using a select group of hunters who participate in our Avid Quail-hunter Survey. We measure breeding quail abundance annually, by listening for calls at selected listening stations. One such station is located in the grassland project in the western Piedmont. Bobwhite are just one of several grassland bird species under study.

## Q&A

1. **Why have Northern bobwhite quail populations declined in North Carolina?**

   Quail were extremely common in North Carolina through the 1950s and 1960s. However, by the mid-1980s, the birds began to decline as former fields (habitat) reverted to forests and urban development converted old farms to new subdivisions. Quail remain common in portions of North Carolina, but not at their former numbers.

2. **Where do bobwhites live?**

   Many birds live in trees, but not quail. They live on the ground. At night, they roost on the ground, hidden in a shrub thicket. They walk about during the day, pecking for seeds, fruit and insects. When predators approach, they may freeze in place, outrun the predator, or explode in flight. Flights are short, both in time (about five seconds) and distance (150 feet).

3. **What kind of habitat is best for bobwhite?**

   Bobwhite do best in weedy fields and meadows. They also thrive in clear cuts and open woods where plenty of sunlight hits the ground and lush stands of wildflowers, native grasses and shrubs grow. The plants offer protection from predators. The best quail habitat is rich with food sources, thick enough to hide the birds, yet easy for them to travel under.

## Links

Check out Northern bobwhite quail calls at http://www.enature.com/birding/audio.asp.

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# Eastern Wild Turkey

*North Carolina Wildlife Profiles*

## *Eastern Wild Turkey*

***Meleagris gallopavo***

Wild turkeys were important both to American Indians and early Europeans in America. For Plains and Eastern Indians, turkeys were an important food source and provided feathers for head dressings and arrows. Indians also used turkey spurs to make arrow points and other sharp utensils. Early Europeans used wild turkeys as a food source. However, believe it or not, historians are unsure if wild turkeys were served to the Pilgrims on our country's first Thanksgiving. Ben Franklin considered the wild turkey a better symbol for the United States than the bald eagle because he felt the wild turkey was a more respectable bird.

Two species of wild turkeys are found in North America: *Meleagris gallopavo* and *Meleagris ocellata* (the ocellated turkey). Only Meleagris gallopavo is found in the United States. The Osceola, Gould's, Rio Grande, Merriam's and eastern wild turkeys are all subspecies of this species. The eastern wild turkey is the only subspecies found in North Carolina.

### History and Status

When early European settlers arrived in America turkeys were plentiful in North Carolina and were probably found throughout the entire state. By the turn of the century, however, few turkeys remained.

The decline was primarily due to unregulated and heavy market hunting, rapid deforestation and habitat destruction throughout the state. This decline continued into the 1960s. Turkeys are once again common in North Carolina, thanks to a restoration program implemented by the N.C. Wildlife Resources Commission that involved live-trapping and relocating wild turkeys from sites in North Carolina and other states to areas in the state where the bird had previously disappeared. From the 1950s through 2005, over 6,000 wild turkeys were trapped and relocated to 358 release sites across the state. Since restoration efforts have begun, North Carolina's population has jumped from 2,000 birds in 1970 to over 150,000 in 2009. Wild turkey populations are still growing in many portions of the state.

### Description

The wild turkey is omnivorous, feeding primarily on nuts, berries, acorns, grasses, seeds and insects. The turkey will also eat almost any small creature it encounters, such as lizards or grubs.

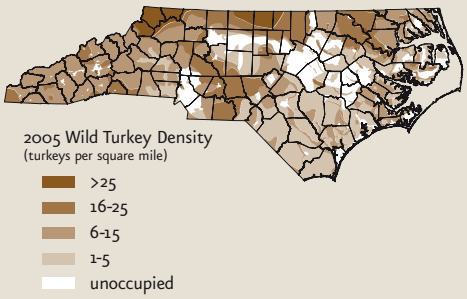
The male eastern wild turkey has dark plumage with striking bronze, copper and green iridescent colors. On the inside of their legs, males have pointed growths known as spurs that they use when battling other males for mates.

*Flies at speeds up to 55 mph.*

### Range and Distribution

The wild turkey is found in 49 of the United States, in Mexico, and in parts of Canada. Only Alaska has no wild turkeys. North Carolina's turkey restoration program was a monumental success, and turkeys are now found throughout North Carolina from the mountains to the coast. The range of the wild turkey continues to expand as remaining areas with suitable habitat are occupied by dispersing turkey populations. Note that it is illegal to release pen-raised turkeys in the wild because of the danger of introducing diseases to healthy wild birds.

### Range Map



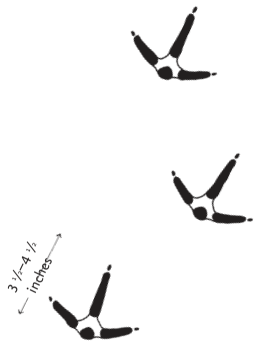
Males also have a growth of bristle-like feathers known as the "beard" that extends from the chest. It is not uncommon, however, to find females with a beard. The head and neck of adult males is largely bare and varies in color from red to blue to white, depending on the bird's mood. Females are usually duller in color than males, which help camouflage them while they are nesting. Turkeys primarily rely on their eyesight and hearing for protection from predators. Their excellent eyesight is their best defense during the daytime, but they don't see well at night. As with most birds, turkeys have little or no sense of smell. Turkeys are highly mobile and can run up to 25 mph and fly up to 55 mph.

## Habitat and Habits

The eastern wild turkey thrives best in areas with a mix of forested and open land habitats. Forested areas are used for cover, foraging, and for roosting in trees at night. Open land areas are used for foraging, mating, and brood rearing. Turkeys nest on the ground with clutches of 10-14 eggs being laid from mid-April through mid-May in North Carolina. Turkeys are very vocal birds, and they communicate by means of a variety of calls. During the spring mating season, gobblers use their booming gobble to attract hens.

## People Interactions

The wild turkey remains a favorite game animal for recreational hunters. Its meat is quite lean and delicious, though sometimes tough in older birds. Although commercial and unregulated hunting were problems in the past, hunters were the main group that helped restore turkey populations by funding restocking and relocating programs and by contributing to groups that conserve habitat such as the National Wild Turkey Federation.




## Wild Facts

### Classification

Class: Aves
Order: Galliformes

### Average Size

Height: 3-4 ft.
Wingspread: 4-5 ft.
Weight: Female 10.0 lbs; male 17.5 lbs.

### Food

Seeds, grasses, acorns, nuts, berries, insects.

### Breeding

Males are called gobblers or toms; females are called hens. Males attract females by gobbling and strutting.

### Young

Very young turkeys are called poults. Juvenile females are called jennies; juvenile males are jakes.

Wild turkeys lay eggs beginning in April. Average clutch size is about 8–15 eggs. Average of one clutch per year, but females will renest if the first clutch fails. Young are sexually mature in one year.

### Life Expectancy

Two years, although some birds have lived up to 10 years.

Eastern Wild Turkey
*Wildlife Profiles—North Carolina Wildlife Resources Commission*

## NCWRC Interaction: How You Can Help

A wild turkey brood survey is conducted each summer to gain insight into wild turkey productivity across the state and to evaluate gobbler harvest levels from the previous spring hunting season. Participants in the survey primarily consist of N. C. Wildlife Resources Commission employees and avid hunters. Participation in the survey simply involves keeping track of wild turkey observations during the course of routine, daily activities from July 1 through August 31. In you are a licensed hunter and would like to participate in the summer turkey brood survey, submit the WRC # from your hunting license and your name, mailing address and date of birth to:

NCWRC
Division of Wildlife Management
1722 Mail Service Center
Raleigh, NC 27699-1722.

## Q&A

1. Why did Ben Franklin think the wild turkey should be the national bird?

   He thought the wild turkey was a more respectable bird than the bald eagle.

2. What does the wild turkey eat?

   The wild turkey is omnivorous and primarily feeds on nuts, berries, acorns, grasses, seeds, insects, and will also eat small creatures such as lizards or grubs.

3. Where are wild turkeys found in North Carolina?

   The wild turkey is found from the mountains to the coast.

## Link

See wild turkeys in action at: http://www.video.nationalgeographic.com/video/index.html

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# SEA TURTLE

NORTH CAROLINA WILDLIFE RESOURCES COMMISSION *fact sheet, 2005*

There are only seven species of sea turtles worldwide, and six are listed as threatened or endangered in the United States. Although the most common species in North Carolina is the loggerhead sea turtle, five sea turtle species regularly visit North Carolina waters: the loggerhead, Kemp's ridley, leatherback, green and hawksbill. Only loggerhead, green and leatherback sea turtles lay their eggs on North Carolina beaches.

Each species specializes according to its "ecological niche." For instance, leatherbacks have long flippers to help travel great distances across oceans during feeding and reproductive migrations. Loggerheads have big heads and jaws to help them crush whelks and other mollusks that they feed on. Green turtles have a serrated beak to help them cut seagrass and algae, their principal food.

## NESTING ACTIVITY

When in reproductive condition, female sea turtles will migrate to beaches in the same region where they were born. In the ocean waters close to nesting beaches, females mate with one or more males, and roughly one month later are ready to lay their eggs. Females nest several times in a single season, but will nest only every second or third year. Sea turtles generally emerge from the ocean at night to lay their eggs as a way to avoid daytime predators and the drying effect of the hot sun. Once on the beach, the female may take an hour or more to carefully dig her nest 18 inches deep in the sand. She will lay about 120 leathery eggs in this vase-shaped cavity, cover them with sand and then return to the ocean, leaving the eggs to incubate on the beach.

Following approximately 60 days of incubation, the hatchlings will emerge from the nest and immediately scramble to the ocean where they remain for 15 to 30 years before they reach sexual maturity and are ready to mate. Although sea turtles can live to be over 50 years old, they have a very low survival rate. Only about one in 1,000 hatchlings will live to reproduce.

A rehabilitated sea turtle makes its way back to the ocean.

## POPULATION DECLINE

Many sea turtle populations worldwide are declining. The existing seven species face different dangers, both on nesting beaches and in the ocean. Some of the threats that turtles face in North Carolina include

- development and heavy traffic on beaches that can disrupt adults or destroy incubating eggs;
- indirect capture by fishing nets, which can lead to injury or death;
- accidental collisions with boats;
- beach renourishment activities that can uncover or compact sea turtle nests; and
- general ocean pollution.

## A HELPING HAND

The N.C. Wildlife Resources Commission has been lending a helping hand to the sea turtles nesting in our state since 1983. The Commission

### ECOLOGICAL NICHE

The concept of an ecological niche for each species helps us to understand how different species of animals and plants interact with each other. Each species requires a different set of environmental conditions under which it can take in food, reproduce and avoid predators. Those conditions determine where it can live and how abundant the population can become. Likewise, during its life cycle, each species makes use of the resources within its environment in a particular way based on its biological needs and characteristics.

created the North Carolina Sea Turtle Protection Program to monitor sea turtle nesting activity in North Carolina, document reproductive success and mortality, and protect beach habitat along the North Carolina coast for sea turtle nesting. Commission biologists coordinate hundreds of volunteers who participate in the year-round monitoring of sea turtle activities in North Carolina. During the nesting season (May through September), biologists and volunteers mark and observe nests during incubation and also document all cases of sea turtle mortality.

## A COLLABORATIVE EFFORT

Sea turtle conservation in North Carolina involves collaborative effort. The Commission works with many different organizations to help protect sea turtles and their nesting habitat. Commission biologists work with the U.S. Army Corps of Engineers to coordinate dredging efforts to prevent sea turtle nests from being destroyed. They also provide important information to public and private property owners along the coast about sea turtle conservation, which helps to minimize potential negative impacts to sea turtles. The Commission heads up a "Stranding and Salvage" network that responds to all cases of injured or sick turtles. A collaborative effort among the Commission, the North Carolina Aquariums, and the Karen Beasley Sea Turtle Rescue and Rehabilitation Center on Topsail Island ensures that dozens of turtles are rehabilitated and released back to the wild each year.

A researcher measures a turtle's carapace for the health assessment study.

Commission biologists are also involved in research projects that will help benefit future management. In collaboration with the NCSU School of Veterinary Medicine and the National Marine Fisheries Service, Commission biologists currently are conducting a "Health Assessment" study that will characterize the physiological state of juvenile loggerhead sea turtles inhabiting our inshore waters. The information gained will be extremely useful in improving rehabilitation techniques and serve as a baseline for future studies. By working together, the Commission and other conservation organizations can effectively protect sea turtle nesting habitat along the North Carolina coast and conserve the sea turtle populations that nest on our beaches.

Wildlife Commission biologists work hands-on with the turtles.

## HOW YOU CAN HELP

1. Use red filters on flashlights when walking on the beach at night.
2. Do not disturb nesting sea turtles.
3. Turn off all outside lights facing the beach front during the nesting season.
4. Keep dogs on a leash.
5. Reduce beach traffic around sea turtle nests to prevent nest compaction.
6. Dispose of trash in an appropriate manner.
7. Be careful when navigating watercraft to prevent turtle collisions and injuries.
8. Volunteer with the Commission, Topsail Island Sea Turtle Hospital or beach clean-up crews.
9. Join a conservation organization to remain updated on current sea turtle conservation efforts.
10. Donate to the N.C. Nongame and Endangered Wildlife Fund.

**NORTH CAROLINA WILDLIFE RESOURCES COMMISSION**
1722 Mail Service Center
Raleigh, N.C. 27699-1722
(919) 707-0050
*www.ncwildlife.org*

# Clapper Rail

*North Carolina Wildlife Profiles*

## *Clapper Rail*

***Rallus longirostris***

A raucous chock-chock-chock… or a fleeting glimpse of a gray and brown bird slinking through marsh grass is sometimes all you will experience of the secretive clapper rail. This bird is normally found in the coastal salt marshes of North Carolina's easternmost counties. Hen-like in appearance, the clapper rail is locally known as the marsh hen. The saying "thin as a rail" comes from the bird's lean body, a characteristic that enables it to slip easily through marsh grass when walking or trying to escape predators. The clapper rail is one of six rail species found in North Carolina. The others include the sora, Virginia, king, black and yellow rail. Even with this variety of rail species, the clapper rail is likely only to be confused with the king rail, a slightly larger bird that prefers freshwater marshes. The clapper rail is listed as a game bird and can be hunted in North Carolina.

### Description

The clapper rail is one of the largest rail species, 13 to 16 inches in length. They can be distinguished by their chicken-like appearance, long unwebbed toes, long decurved bill and frequent upturned tail with white under tail covert feathers. Clapper rails are olive-brown or gray-brown, with vertical gray-white barred flanks and buff or rust-colored breasts. The subspecies found along the Atlantic Coast generally has a paler appearance than other populations. Males are slightly larger than females but similar in coloration. Juveniles are generally more uniformly colored than adults. Clapper rails produce an astounding variety of calls, the most notable being kek-kek-kek or chock-chock-chock. Regardless of the interpretation, the primary call is loud and clattering in a series of 20 to 25 notes, lowering in pitch and increasing in tempo. Females have been heard to give a "purr" call.

### History and Status

Clapper rails were once abundant; however, egg collecting and market hunting in the 1800s and early 1900s reduced rail populations significantly. There are accounts of more than 120 eggs being collected in a day by a single person. Now, thanks to modern game laws, eggs cannot be collected and light hunting pressure appears to have no permanent effect on rail populations. Instead, population size is most affected on a year-to-year basis by the flooding of nests from high tides in spring. The long-term population trend of the bird will be most severely affected by water pollution and the destruction of coastal marsh habitat. Due to the rail's secretive nature, the difficulty of working in marsh environments, and a lack of funding for rail research, basic information regarding life history and yearly population status is still somewhat limited.

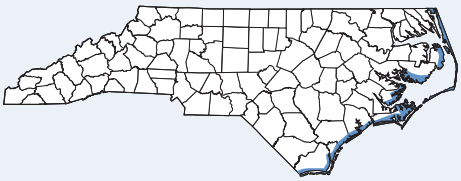
*The saying "thin as a rail" comes from the bird's lean body.*

### Range and Distribution

The range of the clapper rail includes the Atlantic, Gulf and California coasts, Central America, the Caribbean, and coastal South America. In North Carolina, clapper rails are found exclusively in coastal salt marshes.

In winter, North Carolina has both a year-round resident population and a migrant population made up of birds from northern locations. Rails usually migrate at night, flying south along the coast. Recent analysis of observations indicate that highest densities occur from Florida to southern North Carolina.

### Range Map



Occupied

## Habitat and Habits

Clapper rails are found almost exclusively in coastal saltwater marshes. Observing clapper rails can be difficult because the birds prefer to run through thick marsh grass rather than fly. When they do take to the air, clapper rails are considered weak flyers and generally settle down shortly after taking flight. The nesting season occurs from April to June. Nests, built mostly by males, are clumps of vegetation and are often found where ditches or creeks cause the occurrence of tall and short grasses. Common nesting materials are rushes, sedges and cordgrass. Generally, nine to 12 eggs are laid. Some rails may produce second clutches. Incubation averages 20 days, and it's probably performed by both sexes. The young are semi-precocial and are able to feed independently shortly after leaving the nest. Young rails are able to fly in nine to 10 weeks. Clapper rails prefer more of an animal-based diet than other rail species.

## People Interactions

Though their chattering call is often heard, rails are not often seen except by avid bird-watchers or hunters. Best viewing opportunities occur at dawn and dusk as the birds leave the thick marsh grass and feed on open mud flats. Rail season opens in early September but hunting pressure and harvest is minimal. Human-related activities that have the most negative impact on rail populations are development and pollution of coastal marsh habitats. Clapper rail populations can best be protected by preserving these key areas.

*Clapper rail with chicks.*

## Wild Facts

**Classification**
Class: Aves
Order: Gruiformes

**Average Length**
13 in.–16 in.

**Food**
Crayfish, small crabs, small fish, frogs, slugs, snails, aquatic insects, grasshoppers and seeds of weeds and woody plants. At least 79% of the year-round diet is animal-based.

**Breeding**
Monogamous: Pairs are established or reestablished each year. Nesting season runs from April to June. Incubation period is 20 days with a possibility of 2 clutches in a nesting season.

**Young**
From 6–14 young, usually 9–12. Chicks are precocial; fed regurgitated pellets shortly after hatching, later collecting own food. Adult plumage acquired in October of first year.

**Life Expectancy**
Not well documented.

Clapper Rail
*Wildlife Profiles—North Carolina Wildlife Resources Commission*

## NCWRC Interaction

Although definitive population data for clapper rails is limited, populations along the east coast appear stable. However, development of coastal habitats and resulting pollution presents the greatest long-term threat facing this secretive species. The key to the long-term conservation of clapper rails (and other rail species) is protection of coastal marsh habitat through the strong support of effective wetland protection laws. Currently, researchers are testing the ability to monitor rail populations with call-back surveys. The survey involves playing a pre-recorded call of a particular rail species and then listening for "call-backs." The survey has promise to determine presence/absence of the species and long-term population trends.

## Q&A—Resources for Teachers

1. **What does "semi-precocial" mean?**
   This term refers to chicks that are well developed when they hatch. Their eyes are open and they are covered with down. They are capable of leaving the nest shortly after hatching, but stay with adults who feed and care for them until they can fly.

2. **What are the primary threats over the long-term to populations of clapper rails?**
   Long-term threats are destruction of coastal marsh habitat and pollution.

3. **What is a clapper rail's favorite food?**
   Crustaceans such as crabs and crayfish are among the rail's favorites.

4. **What are the three distinguishing characteristics of a clapper rail?**
   Rails are cryptically colored with long decurved bills, short tails and white under tail coverts.

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