



Eastern Hellbender

North Carolina Wildlife Profiles



Photo by Lori Williams

Eastern Hellbender

(*Cryptobranchus a. alleganiensis*)

The Eastern Hellbender is one of only three giant salamanders found in the world. North Carolina is home to more than 65 species of salamanders, with over 50 species in the mountain region alone. The Eastern Hellbender (*Cryptobranchus a. alleganiensis*) is one of the largest salamanders found in North Carolina and the United States. Only the Greater Siren and the Two-toed Amphiuma, both large eel-like salamanders, are longer.

Description

Hellbenders are 16 to 17 inches long on average, but they can grow to be more than 2 feet long and weigh more than 3 pounds. The hellbender's skin on its back ranges in color from grayish brown to reddish brown. Darker spots or mottled patches may also be present on the back. The belly is usually one color and generally lighter than the back. The hellbender's head and body are flattened, with a rounded snout and a pair of small, poorly developed eyes. The hellbender is mostly nocturnal, and relies on touch and smell to catch food, although it does see relatively well. The hellbender absorbs dissolved oxygen found in fast-running waters through its skin. A loose fold of skin called a "frill" runs from the base of the neck down to the tail on each side of its body. The frill increases the surface area of the skin, helping the hellbender breathe. Hatchling and 1-to-2 year hellbenders have external gills. Gill slits located at the base of the throat replace external gills when the young reach 1½ to 2 years. The young hellbender is then able to absorb oxygen through its skin. The hellbender is mature at about 6 to 8 years of age, at which time it is about 1 foot long. It will continue to grow for many years to come.

History and Status

Local names for hellbenders include water dog, mud puppy, devil dog, snot otter, or Alleghany alligator. They're also known by other names such as grampus, mud dog, hell cat, thunder lizard and ol' lasagna sides. Although they are large and slimy, hellbenders are harmless and not poisonous or venomous, contrary to popular belief. Many people are frightened at the sight of a hellbender and consequently often kill them out of fear or ignorance. A common misconception is that hellbenders negatively impact trout or other fish populations. Hellbenders may occasionally munch on a fish on a line if the opportunity presents itself, or scavenge for dead fish, discarded bait or other dead animals; however, their main source of food is crayfish. In fact, fish can be bigger predators on young or larval

The scary-looking "snot otter" is harmless, non-poisonous and non-venomous



Photo by TR Russ

Range and Distribution

Eastern Hellbenders were once common to the Great Lakes tributaries, but pollution and poor water conditions have made this habitat unsuitable. The current distribution extends from southwestern New York, westward to southern Indiana and Illinois, and southward through the mid-Atlantic states to northern Alabama and northeastern Mississippi. A subspecies of hellbender, called the Ozark hellbender, is found in a separate population in Missouri and Arkansas. In North Carolina, the hellbender occurs in fast-moving, clean mountain streams in the Ohio and Tennessee drainages.

Range Map



Eastern Hellbender

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History and Status (continue)

hellbenders than hellbenders are on fish. The N.C. Wildlife Resources Commission has designated the Eastern Hellbender as a species of Special Concern. Because hellbenders are a protected species, it is illegal to kill, harm, collect, harass or sell them. The hellbender also is a Species of Greatest Conservation Need in the [Wildlife Action Plan](#).

Once common throughout the mid-eastern United States, this giant salamander has disappeared from many streams due to declining water quality. Because hellbenders are so sensitive to silt, sediment and other pollution in their habitat, they are considered to be a biological indicator of water quality. In other words, if there is a healthy hellbender population in a stream, there is clean water.

North Carolina is fortunate that national forests protect many of the hellbender's mountain watersheds, yet development in some areas threatens its habitat. Sediment and other types of pollution cause a persistent decline in water quality in the hellbender's habitat that could negatively impact hellbender populations. Increased dam construction is another factor that could harm hellbenders. Dams slow down running water and cause dissolved oxygen levels to drop, thus making habitat unsuitable for hellbenders.

Habitats and Habits

Hellbenders breed from late-August through September. The males defend territories before the breeding season begins. Males are aptly called denmasters because they dig out a large saucer-shaped nest. Females lay from 200 to 500 eggs in this nest. The eggs are laid in strands that are held together by a sticky substance that hardens when it meets water. This keeps the eggs close together in the nest. The male fertilizes the eggs by spraying them with a milky, semen-filled fluid called milt. The male hellbender guards the nest from predators and other hellbenders, although sometimes they may eat the eggs themselves, if in need of food or to cull diseased or inviable eggs from the rest of the clutch. The eggs are about 6 millimeters — or a quarter of an inch — in diameter. They are larger than those of any North American salamander. Mortality is high, however. A nest with 400 eggs may produce only about 90 or fewer young hellbenders. The eggs hatch into larvae in 10 or 12 weeks. Young hellbenders grow approximately 3 inches in length each year.

Hellbenders live in rivers and large streams with clean, clear water. Fast-moving water creates more dissolved oxygen when it mixes with the air. Hellbenders need large, flat rocks and submerged trees to make nest sites that provide safety from predators. Where rocks are lacking, they sometimes live in holes in stream banks. While hellbenders are present in North Carolina's mountain counties, they usually live below 3,000 feet in elevation.

Wild Facts

Classification

Class: Amphibia

Order: Urodela

Family: Cryptobranchidae

Average Size

Adult total length 16 to 17 inches long

Food

A common misconception is that hellbenders negatively impact trout or other fish populations. While hellbenders may occasionally munch on a fish or a baited hook, their main source of food is crayfish and they do not harm fish populations. In fact, fish can be bigger predators on young or larval hellbenders than hellbenders are on fish.

Breeding

Hellbenders breed from late-August through September. Females lay from 200 to 500 eggs in strands held together by a sticky substance that hardens in water. The male fertilizes the eggs by spraying them with a milky fluid called milt.

Young

Eggs hatch into larvae in 10 to 12 weeks. Young hellbenders grow rapidly, approximately 3 inches in length. Mortality rate of hellbenders is high — a nest with 400 eggs may produce only about 90 or fewer young hellbenders.

Life Expectancy

At least 30 years in the wild or in captivity



Hellbender eggs (Photo by Lori Williams)

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NCWRC Interaction: How You Can Help

NCWRC Wildlife Diversity Program biologists, along with project partners (e.g., other agencies, volunteers, universities, etc.), began a long-term inventory and monitoring project for hellbenders in 2007. Biologists' goals are to study hellbender populations in the state, revisit historical locations, discover new locations, monitor increasing threats to habitats and educate the public on hellbender conservation. The public can help biologists in their efforts by informing them of where they are observing hellbenders. People who wish to share their hellbender observations with the NCWRC can contact agency staff directly or submit their observations to:

(919) 707-0050 or lori.williams@ncwildlife.org



Wildlife Diversity Program biologist Lori Williams holds an Eastern hellbender. (Photo by John Groves)

Q&A

1. What do hellbenders eat?

Hellbenders eat mostly crayfish

2. Are hellbenders venomous?

No, they are harmless.

3. Where do hellbenders live?

Hellbenders live in clean streams under flat rocks.

4. How do hellbenders breathe?

Hellbenders breathe through their skin.

5. What can you do to help conserve hellbender populations?

To help conserve hellbender populations, people should not collect or harm them, they should not disturb rock habitats, and they should keep streams clean for all aquatic wildlife.



Hellbender larva with external gills
(Photo by Lori Williams)

Sources

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Credits

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