



Hellbender

Cryptobranchus alleganiensis

The hellbender is one of only three giant salamanders found in the world. North Carolina is home to at least 48 species of salamanders, with our mountain counties the most productive with at least 35 species. The hellbender is one of the largest salamanders found in North Carolina and the United States. Only the amphiuma, a salamander shaped like an eel, is longer.

The hellbender is a nocturnal animal with poor vision; consequently it relies on touch and smell to catch food. Because it lacks gills, the hellbender spends nearly all of its time in fast-moving water where dissolved oxygen is plentiful.

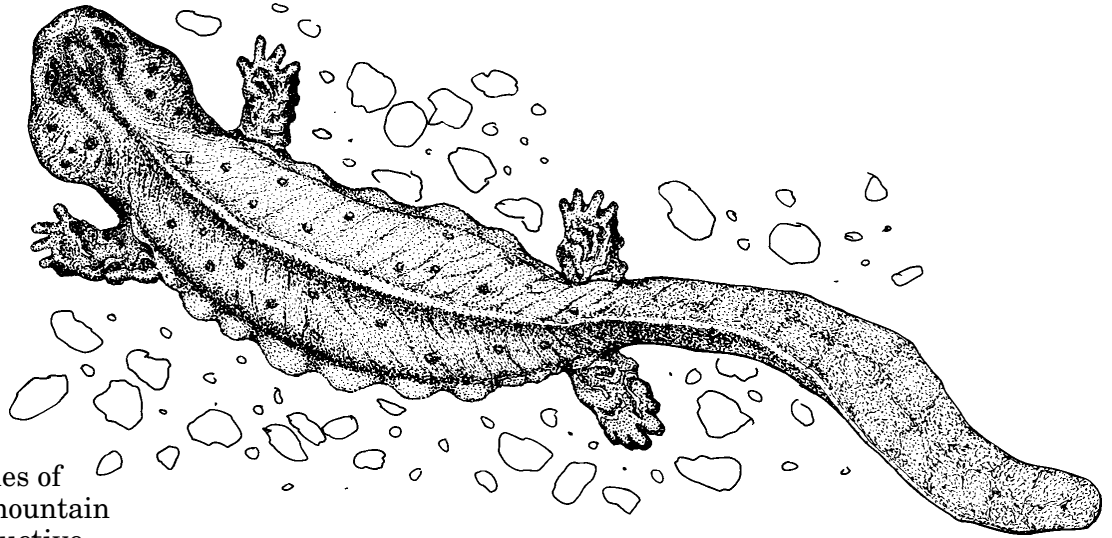
History and Status

This giant salamander was once common throughout the mid-eastern portion of the United States but it has disappeared from many streams because of declining water quality.

North Carolina is fortunate that national forests protect many of the hellbender's mountain watersheds, yet development in some mountain watersheds threatens its habitat. The N.C. Wildlife Resources Commission has designated the hellbender as a species of Special Concern. This designation prohibits the taking and sale of hellbenders.

Description

Hellbenders are 16 to 17 inches long on the average, although one grew to 29 inches and weighed



over 2 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 is capable of changing colors, especially when captured. As with most salamanders, younger specimens are more brightly colored than older specimens.

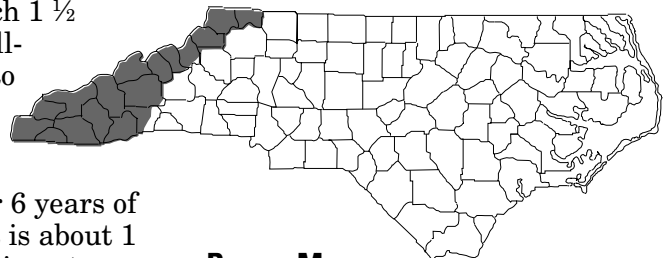
The body of the hellbender has a flattened look. The head is round and flat with a pair of small, poorly developed eyes. The hellbender absorbs dissolved oxygen found in fast-running water into its lungs through its skin. A loose fold of skin called a "frill" runs from the base of the neck down to the tail. The frill increases the surface area of the skin, helping the hellbender to get oxygen.

Young hellbenders are born with gills. Gill slits located at the base of the throat replace the gills when the young reach 1 ½ years. The young hellbender is then able to absorb oxygen through its skin. The hellbender is mature at about 5 or 6 years of age, at which time it is about 1 foot long. It will continue to grow for many years to come.

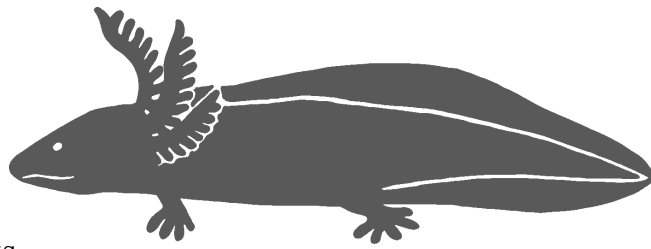
Habitat and Habits

Hellbenders breed from September to early November. The males defend territories before the breeding season begins. They dig out a large saucer-shaped nest into which females lay from 200 to 500 eggs in two strands 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 fluid. All the giant salamanders fertilize their eggs in this way. The male hellbender guards the nest from predators and other hellbenders, although sometimes they may eat the eggs themselves.

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 young hellbenders. The eggs hatch into lar-



Range Map:
Occupied range ■



vae in 10 to 12 weeks.

Young hellbenders grow rapidly, 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 and provide safety from predators. Where rocks are lacking, they sometimes live in holes in stream banks. While hellbenders are present in our mountain counties, they usually live below 2,500 feet in elevation.

Range and Distribution

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 down to northern Georgia and Alabama. The hellbender's distribution also extends west to Missouri in isolated areas. It also occurs in Pennsylvania, West Virginia, Ohio, Kentucky, western Virginia and North Carolina, Tennessee, and southern Indiana and Illinois.

In North Carolina, the hellbender occurs in fast-moving and clean mountain streams that drain toward the Ohio and Tennessee River systems. Streams noted for their hellbender populations include New River, Watauga River, South Toe River, Mills River and Davidson River. The hellbender lives in other North Carolina mountain streams, too.

People Interactions

The sight of a hellbender's large body and slimy skin frightens

hellbender larva

many people. Local names for hellbenders are water dog, devil-dog or Alleghany alligator. Some think this large salamander is poisonous, though it is not. While it is large and slimy, the hellbender is harmless.

Stream sediment and pollution have caused a persistent decline in water quality in the hellbender's habitat that will likely take its toll on hellbender populations. Increased dam construction also affects hellbender populations. Dams slow down running water and cause dissolved oxygen levels to drop, thus making habitat unsuitable for the hellbender.

Reference

Behler, John L. and F. Wayne King. *The Audubon Society Field Guide to North American Reptiles and Amphibians* (New York, N.Y.: Chanticleer Press, 1979).

Duellman, William E. and Linda Trueb. *Biology of Amphibians* (New York, N.Y.: McGraw-Hill Book Co., 1986).

Huheey, James A. and Arthur Stupka. *Amphibians and Reptiles of the Great Smoky Mountains National Park* (Knoxville, Tenn.: Univ. of Tenn. Press, 1967).

Martof, Bernard S. and others. *Amphibians and Reptiles of the Carolinas and Virginia* (Chapel Hill: University of North Carolina Press, 1980).

Credits

Written by Theron Jackson and Allen Boynton.

Illustrated by J.T. Newman.

Produced January 1994 by the Division of Conservation Education, N.C. Wildlife Resources Commission.

The Wildlife Resources Commission is an Equal Opportunity Employer and all wildlife programs are administered for the benefit of all North Carolina citizens without prejudice toward age, sex, race, religion or national origin. Violations of this pledge may be reported to the Equal Employment Officer, N.C. Wildlife Resources Commission, 512 N. Salisbury St., Raleigh, N.C. 27604-1188. (919) 733-2241.

WILD Facts

HELLBENDER

Classification

Class: Amphibia

Order: Caudata (Urodela)

Average Size

Length: 16 to 17 in.

Weight: 4 ounces

Food

Crayfish, snails, worms, mollusks, insect larvae and fish eggs.

Breeding

Nests in cavities beneath large, flat rocks or submerged logs. Breeds from September through early November. Female lays 200 to 500 yellowish eggs in long, tangled masses. Males guard nests.

Young

Hellbender larvae hatch in 2 to 3 months after eggs are laid. They average a little more than 1 inch in length. Takes at least 5 years before they reach sexual maturity, sometimes longer.

Life Expectancy

Almost 30 years in captivity.