Eastern Newt

Notophthalmus viridescens

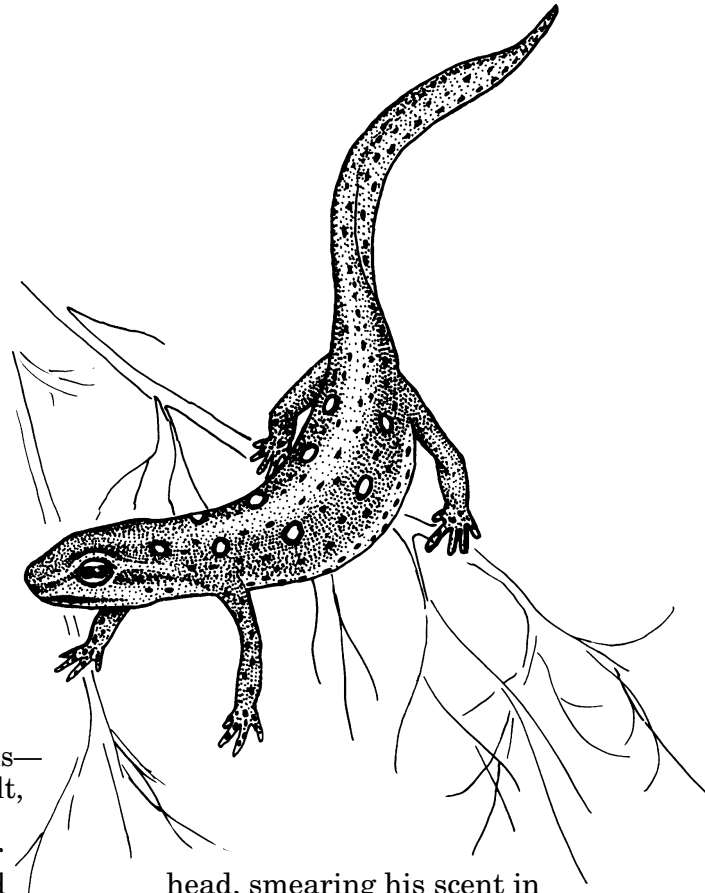
The newt is a salamander, the only member of the family Salamandridae in North Carolina. Most of North Carolina's salamanders are in the family Plethodontidae. Newts are popular among young people who like to capture these salamanders in their early red eft stage, when they are brightly colored.

History and Status

Fossil records from Florida show that newts have crawled on Earth since the Pleistocene era some 1 million years ago. Today, about 40 species of newts are found worldwide; six occur in North America and one in North Carolina. Newt populations remain strong, especially in North Carolina where millions occur. Newts are resilient creatures and their populations are healthy enough to withstand local droughts and even large-scale collecting.

Description

Two subspecies of newts occur in North Carolina—the red-spotted newt and the broken-striped newt. As an adult, the red-spotted newt stretches 4 to 5 inches long. It has smooth skin and a yellow belly. Its back is olive green or yellowish brown, with two rows of orange-red, black-bordered spots. The adult broken-striped newt is smaller, about 3 ½ inches long. Olive green and yellow in color, as well, the broken-striped newt gets its name from a broken red stripe edged in black that extends from the back of the head to the base of the tail on each side.

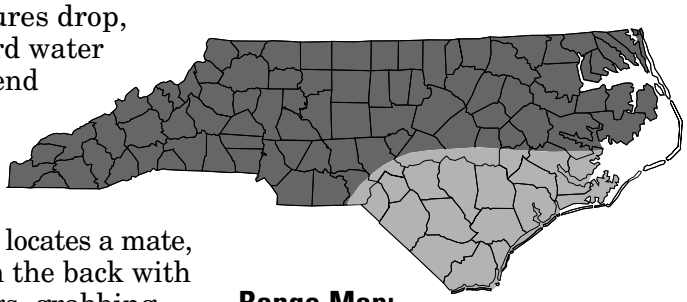


Habitat and Habits

The newt is an unusual member of the Salamandridae family because it undergoes two transformations during its lifetime, rather than one experienced by many other amphibians. Most salamanders have two forms—larval and juvenile/adult, where the juvenile and adult stages are similar in their appearance and choice of habitat. Newts typically pass through three stages—the larval stage, in water; the eft stage, on land; and the adult stage in which the newt returns to water again.

Newts can survive in a wide variety of aquatic habitats. Unlike some salamanders, newts can adapt to permanent ponds with fish. Newts' favorite habitat, however, is temporary, or ephemeral, ponds that fill and dry out in cycles. Ephemeral ponds filled six to eight months out of the year host the most numerous newt populations.

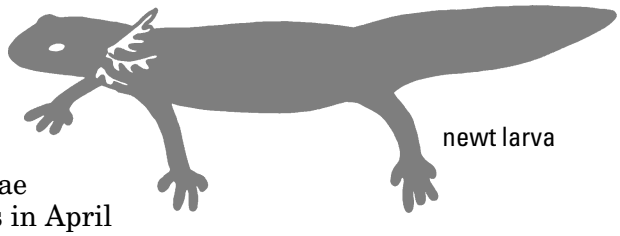
As winter rains fill these ponds, and as temperatures drop, newts move toward water to breed. Newts tend not to be territorial; many hundreds can be found in one pond. Once a male locates a mate, he seizes her from the back with his large back legs, grabbing tightly to prevent an escape. He rubs his cheeks and chin on her head, smearing his scent in a motion that looks like a kiss. Then he scoots off a short distance in the water and deposits a spermatophore, the male spermatozoa enclosed in a capsule-like form. She follows, collecting the cluster into a cavity on her belly called a cloaca through which her eggs pass. Within a few hours, she begins to lay. The female lays each egg singly, fastening it to a leaf or stem of a small plant in quiet waters. She may even wrap each egg in a leaf for extra protection. Over several months, a female newt may deposit 200 to 375 of the tiny yellow eggs in a breeding pond.



Range Map:

Red-spotted newt

Broken-striped newt



newt larva

Newt eggs incubate 20 to 35 days. Small larvae begin appearing in ponds in April and May in North Carolina, and may hatch through midsummer. When it hatches, the larva is pale gray, green or brown tinged with yellow and measures about 8 millimeters long. Its front legs are blunt buds and the hind legs are undeveloped. Young larvae eat plankton, moving up to larger meals such as micro-crustaceans and mosquito larvae as they grow. By late summer or early fall, after a larval period of about two to three months, the newt's first transformation takes place.

The newt in its second stage is called an *eft*, or *red eft*. The eft now has lungs, legs and less porous skin as it emerges from the water for this land stage, and it takes on a bright red color. It is small, measuring 1 to 3 inches in length. It scurries to the forest to live, sheltering under logs or leaf litter and foraging for small insects, spiders, snails and earthworms for food.

Efts may remain on land for as long as three to four years before returning to the pond for a second transformation. Once back at the pond or pool, the eft becomes sexually mature and develops a tail fin and darker coloration. The aquatic newt gets oxygen through its skin, gulps air at the surface through its lungs, or pumps water through its nasal passages, taking oxygen and odors from the water like other amphibians. Adult newts eat a wide variety of small animals, preferring tadpoles, mosquito larvae and especially eggs, such as those of tiger salamanders. Raccoons, minks, weasels and other mammals prey on newts, often peeling off their toxic skin and rolling them in the grass. Snakes and birds may also eat newts. But newts' distasteful skin and hiding instincts usually provide ample protection.

Range and Distribution

Newts populate every county in North Carolina. The red-spotted newt thrives primarily in the mountains, Piedmont and northern Coastal Plain. The broken-striped newt inhabits the southeastern Coastal Plain and the Sandhills.

People Interactions

Some newt populations may have benefited from farming, since this hearty amphibian can survive in ponds with fish. People also find newts beneficial because the larvae and adults eat mosquito larvae.

Newts remain popular in the pet trade. They are easy to care for and adapt well to aquariums, often learning feeding times and responding to raps on the glass. Newt collectors seine ponds to supply this market. Such harvesting may disrupt less tolerant species such as tiger salamanders and gopher frogs found in the same habitats.

References

Martof, Bernard et al. *Amphibians and Reptiles of the Carolinas and Virginia* (University of North Carolina Press, 1980.)

Earley, Lawrence S. "Back to the Pond," *Wildlife in North Carolina*, Dec. 1991, pp. 2-3.

Credits

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WILD Facts

NEWT

Classification
Class: Amphibia
Order: Caudata
Family: Salamandridae

Average Size
Red-spotted newt—4 to 5 in.
Broken-striped newt—3 ½ in.

Food
Carnivorous. Adults feed on tadpoles, mosquito larvae, amphibian eggs and many other small animals.

Breeding
Most breeding takes place in winter and early spring. Male deposits spermatophore in water, and the female collects it. She lays 200 to 375 eggs through the summer, which incubate 20 to 35 days.

Young
Larvae live in ponds for 2 to 3 months, transforming to an eft, or land stage, by fall. Remain in eft stage up to 3 to 4 years before returning to pond as adult.

Life Expectancy
Newts are long-lived, surviving 10 to 15 years.