

EDITOR: ROB McCORMICK  
745-4641 ext. 244  
fax 743-4581  
life@peterboroughexaminer.com

# LIVING

# Salamander secrets

Of all the amphibians, salamanders are by far the shyest and most secretive. Unlike frogs or toads, they do almost nothing to attract attention. It's therefore not surprising that most people rarely see them. However, April affords us a special opportunity to observe these enigmatic creatures.



## OUR CHANGING SEASONS

Drew Monkman

On mild, rainy April nights, often when there is still some snow on the ground, salamanders are on the move, making their way to ancestral breeding ponds. They are guided by an imprinted memory of their birthplace with its specific odours of decaying vegetation and mud. By watching closely for the first warm, rainy evenings of the month, you can witness this phenomenon first hand. If

you drive slowly along back roads that cross through low woodlands with flooded ditches or treed, swampy areas, you may be able to see individuals of up to three species on the pavement or gravel in front of you. You should then park the car and walk in order to avoid adding to the carnage that often results when frogs and salamanders compete with cars for road space. Don't forget your camera as these amphibians make for excellent photographs. North School Road and Millage Road, located south of Deer Bay near Young's Point, are sometimes quite good for salamander watching.

The two species you are most likely to see at this time of year are the spotted (sometimes called the yellow-spotted) and the blue-spotted salamanders. They generally measure between 10 and 14 centimetres in length. These species are often referred to as "mole" salamanders because the adults spend most of their lives underground, just like moles. They can also be found under logs, stumps, and rocks in rich woodlands, most often when there are nearby shallow ponds. Piles of decaying firewood are often good places to look, as well.

The adult blue-spotted is bluish-black in colour and covered with white or blue flecks. In some, usually the largest, the blue spots can barely be made out. Our most beautiful species, however, is the adult spotted salamander. It is also black but has two rows of yellow or orange spots.

Both of these salamanders are early spring breeders. The warm rains of late March or early April bring these animals out from their tunnels. They then travel to woodland ponds, often by the hundreds, to mate. These "vernal" or spring ponds are almost always dry for part of the year and are therefore free of predatory fish. Salamander mating begins with an underwater dance in which groups of males gyrate and rub up against females. Should the female be willing, she will leave the group with one of the males. He will then deposit a spermatophore (a small, jelly-like package of sperm) on underwater debris. The female becomes fertilized by taking the spermatophore into her genital opening. She will then deposit gelatinous clumps of eggs on underwater vegetation. Salamanders remain at breeding ponds for three days on average. About six weeks later, tiny, gilled, tadpole-like larvae emerge from the eggs and begin to develop legs and lungs. They will leave the pond by mid-summer as air-breathing, terrestrial salamanders — that is unless the water dries up before they mature. The only other salamander you may find migrating to breeding ponds at this time of year is the red-spotted or eastern newt. Ontario's only newt, this species has a somewhat complicated life cycle. Like the spotted and blue-spotted, most salamanders go through a larval or "tadpole" stage, but then develop into amphibians that live

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An eastern newt (top inset), a blue spotted salamander and a spotted salamander (bottom inset).

Tim Dyson, special to The Examiner

on land. A very few, such as the mudpuppy, never develop beyond the larval stage and actually spend their entire lives in the water. Newts, however, are a sort of hybrid of these two lifestyles. Newts actually pass through three stages. Olive-coloured, red-spotted adult females lay eggs in the spring in ponds in woodlands and meadows, especially where there is an abundance of submerged vegetation. Tiny larvae, only a half centimetre in length, emerge after three weeks or so and soon develop front and then hind legs. After about three months, they reach a length of three to eight centimetres, lose their gills, and leave the water to live on land. This sub-adult, land-living "red eft" stage is when they are most often seen. Their bright red or orange colouration makes efts especially visible. Red spots ringed with black stand out prominently on their backs and sides. Red efts remain in wooded areas for one to three years before returning to the water to live out the rest of their lives. They then change to a dark olive colour and develop a broad swimming tail. Like many brightly coloured animals, efts are poisonous. They protect themselves by secreting a chemical from their skin that burns the mouths of other animals. This protection also allows them to live in waters where fish are present. Newts are poisonous in all stages of their life cycle.

Although you won't find them out and about in the spring, the most common salamander in the Kawarthas is probably the redback. At first glance, this ubiquitous species looks remarkably like an earth-

worm. In most individuals, however, a closer look will reveal a dull red stripe running the length of the dark coloured body. Some redbacks, though, don't actually have a red back but are uniformly dark gray. This is known as the "leadback" colour phase.

Unlike mole salamanders, the adult redback does not have gills or lungs but breathes entirely through its damp skin. It is also unique in that it lays its eggs within cavities in wet logs and stumps. The six to 12 eggs hang in a cluster from the cavity ceiling. Since there is no water outside of the egg for the larva to swim in, larval development must occur completely within the egg. Tiny, fully-formed salamanders emerge after eight weeks. This is the only salamander found in the Kawarthas whose life cycle can be completed without the presence of standing water. The redback is especially common in cottage country, where it hides under all manner of objects including tar paper, flat rocks, patio stones, boards and logs. If you are out looking for them, always remember to carefully return whatever you turned over to its original position. Redback salamanders also have an interesting way of defending themselves. Their tails will break off easily and continue to wiggle, keeping the attention of predators while the salamander makes its escape. Over time, the tail will regenerate itself.

Unlike most frog species and baby painted turtles, salamanders are not freeze tolerant. In the winter, they must retreat below the frost line in order to avoid freezing to death. Some even turn up in damp basements in

the winter. They probably gain entrance through water pipe and electric service entrances or holes in masonry foundations.

Finally, a few words about mudpuppies. Probably the least known of our salamanders, mudpuppies are completely aquatic. They never lose the external gills of the larval stage and never emerge from the water to live on land. Mudpuppies are also unique in that they remain active all winter long. People most often encounter this rather bizarre creature by catching it while ice fishing. Since ice fishing is illegal on most lakes in the Kawarthas, it's not surprising that we know relatively little about its distribution in this area.

In fact, it is rather disconcerting how little we really know or care about salamanders and other amphibians in general. Many people don't even realize that salamanders exist in the Kawarthas. Ignorance is not bliss; it is a recipe for extinction. Amphibians world-wide are in a precipitous decline as a result of increased UVB radiation, infectious diseases, habitat destruction, acid rain, high concentrations of certain chemicals during snowmelt, and, most dangerous of all, climate change. It's worth repeating that, in the end, humans will strive to protect only those living creatures that they care about, and will care about only those they know.

**Drew Monkman is a Peterborough teacher and author of *Nature's Year in the Kawarthas*. He can be reached at [dmonkman1@cogeco.ca](mailto:dmonkman1@cogeco.ca).**