

## NATURALLY: Presence of seal salamanders indicates healthy ecosystem

- By ED PATTERSON Special to the Gazette
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Tucked under a rock at the headwaters of White's Run in White's Woods, I found a seal salamander in March 2018, 83 years after Graham Netting of the Carnegie Museum spotted them near Coleman's Hill in White's Woods.

The seal salamander (*Desmognathus monticola*) is a species of lungless salamander (oxygen is absorbed through their skin) found in 10 counties in southwest Pennsylvania, although most populations are found in just three counties: Fayette, Westmoreland and Indiana.

Named seal salamanders because of their resemblance to seals when they perch on rocks and arch their backs, elongating their necks, seal salamanders are found in shady cove forest ravines with streams, creeks, waterfalls and nearby springs.

The Pennsylvania Fish & Boat Commission initiated the Pennsylvania Amphibian and Reptile Survey (PARS) in 2013. One aspect of the survey is to revisit historic locations to determine if the species are still found there. The problem I faced was that Netting's geographic name for where he found the seal salamander, Coleman's Hill, did not include GPS coordinates, which, of course, did not exist at that time. So it took some time to find the 6-inch salamander. Fortunately, seal salamanders' home range is only 150 square feet.

Seal salamanders are classified as a species of special concern, which refers to a species that has a limited distribution range and a lack of observations or declining observations through the years. And, salamanders have been around for about 240 million years.

However, some scientists have begun to notice some changes in woodland salamanders (the seal salamander is an aquatic salamander) due, in all probability, to climate change. Woodland salamanders have shrunk in size by about 8 percent. The jury is still out, though, on whether the change in size is due to climate change.

The presence of seal salamanders in White's Woods is a strong indicator of the health of the ecosystem there. Seal salamanders are found in hardwood forests in association with small- to medium-sized streams containing cool, well-aerated water. White's Woods' lush canopy is another contributor to the perfect habitat for seal salamanders. Tree canopies hold rainwater contributing to the moist atmosphere necessary for salamander habitat and reproduction.

In "Amphibian Declines: The Conservation Status of United States Species," Dr. James Petranka notes, "the greatest threat to populations of this species, therefore, may be timber harvesting techniques that increase rates of evaporative water loss through the removal of the protective canopy."

Why worry about the fate of such small amphibians? In addition to the salamander being a harbinger of climate catastrophes and an indicator of a healthy ecosystem, the creature has the ability to grow back lost body parts, like a tail. Scientists have been studying salamanders to discover if their regrowth abilities have any implications for humans.

According to an article by Anthony King in Horizon, the EU Research and Innovation publication, "Salamanders are remarkable creatures. If one of these amphibians loses a finger, it grows back. Furthermore, if you chop away a piece of heart or spinal cord, it will regenerate. Perhaps most impressively, they can even regrow a leg bitten off by a hungry predator."

Scientists caution that "While it remains within the realms of science-fiction for a person ever to regrow an arm or a leg, researchers believe that the salamanders can offer insights into how patient injuries might be better treated."

A word of caution: Do not collect salamanders. As a species of special concern, they need to remain in their habitats to proliferate and thrive. Fines can range up to \$5,000 and some violations carry jail time.

Ed Patterson is director of Indiana County Parks & Trails. The Naturally columns are brought to you each month by the Indiana Gazette and Friends of White's Woods to showcase the wonders of nature in our area.