

Vernal pools virile and vulnerable

 www.pressherald.com/2015/05/17/vernal-pools-virile-and-vulnerable/

By Deirdre Fleming Staff Writer | @FlemingPph | 207-791-6452

ORONO — The forest beside Orono High School is hardly the kind of North Woods wilderness one would search for thriving wildlife populations. There are houses leading up to a trail and traffic is audible from Interstate 95.

This is precisely why Carly Eakin, a doctorate candidate at the University of Maine, is studying the impact of this residential area on vernal pools.

Eakin's research is trying to determine which kinds of development — such as roads, buildings or parking lots — are harshest for the amphibians that breed in the pools, chiefly wood frogs and salamanders. She's part of a team of researchers at UMaine who hope to one day provide better protection for the state's vernal pools.

State biologist Phillip deMaynadier said vernal pools are critical for more than half of the amphibian and reptiles in Maine — including more than 10 species that are threatened or endangered.

That's why Eakin's work is one of several vernal-pool studies taking place at UMaine through a \$1.48 million grant from the National Science Foundation. The reality, Eakin said, is biologists are unsure what specific conditions are needed for amphibians and reptiles in the pools.

The studies are important, deMaynadier said, because only 20 percent of vernal pools in Maine are eligible for protection under current regulations. And while he said vernal pools in Maine are prolific, species such as the Blanding's turtle and the ribbon snake are not.

"Vernal pools are one of the more common wetland types and they are one of the most threatened. Because they are small and temporary, and difficult to recognize, they fall through the cracks as far as wetland protection. They intersect with human land use all over the state all the time," said deMaynadier, the amphibian and reptile leader at the Maine Department of Inland Fisheries and Wildlife.

Some of Maine's vernal pools are protected by a state law requiring a 250-foot buffer zone from development. But the forested habitat beyond the regulatory zone is as important for the amphibians as the pool where they breed, so Eakin said the law is not so effective.

"Amphibians breed in the pool but live in the forest," said UMaine professor Amar Calhoun, who is overseeing the research team. "Many other states don't even have a law (to protect vernal pools). We're lucky to be on the map. But it's only a starting point. We're doing this fleet of research to get a better understanding of land practices."

Calhoun is hopeful the research could lead to an enhancement of the 250-foot buffer zone around vernal pools that are identified by biologists as important. That increased protection, she said, could come in the form of an optional federal regulation that could be adopted by cities or towns.

The new option would amount to a "trade program," where developers could purchase the rights to develop around an existing vernal pool that showed little chance of producing a thriving amphibian population. Calhoun said in such a program, the money spent by developers could go into a conservation fund that would help protect the land around vernal pools elsewhere, in areas that promised more robust amphibian and reptile populations.

"Carly's work and that of other graduate students will help us choose which vernal pools in rural areas have the right characteristics that support vernal pools," Calhoun said.

The plan would have to be adopted by the Maine Department of Environmental Protection before it would be

available to towns, she said.

Jared Homola of Michigan, another doctorate candidate on the UMaine team, is looking at the genetic makeup of some 70 vernal pools around the state. His research may help to determine what landscape features are stopping amphibians from moving from one vernal pool to another.

“If they are not exchanging individuals, then what’s stopping them, a freeway or a river or a change in elevation?” Homola said.

Eakin is trying to survey 30 to 40 vernal pools in the Bangor area that are beside different kinds of developments. She’s looking at egg masses and then the resulting wood frogs and salamanders in each pool to see what kinds of pools amphibians thrive in. She hopes to rate the “degrees of disturbance,” from worst to least intrusive.

As Eakin waded recently through a vernal pool in a forested neighborhood, she inspected and estimated egg masses and frog embryos. Later, she’ll return and estimate the resulting froglets. In the months and year ahead, she’ll consider what conditions allowed this population of wood frogs to prosper or fall short.

There are many reasons why wood frogs in a vernal pool wouldn’t do well: road salt, traffic, predators, disease. Eakin hopes her trail cameras record the wildlife predators.

Most of all, she hopes her research work can be replicated by citizen scientists to help shed greater light on Maine’s vernal pools.

“I’m trying not to make assumptions. Hopefully what we will tease out is what land practices seem to be most detrimental,” Eakin said.

Share

[Read or Post Comments](#)

Were you interviewed for this story? If so, please fill out our [accuracy form](#).

[Send questions/comments to the editors](#).

