

WILDLINES

New Hampshire Fish and Game's quarterly newsletter of the Nongame and Endangered Wildlife Program



SPRING
2021

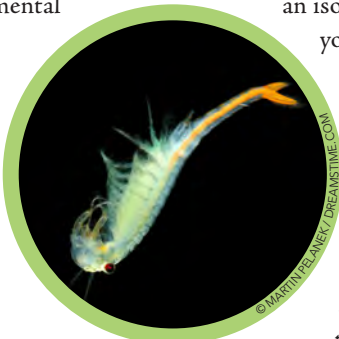
AN OUTDOOR CLASSROOM

That Appears Once a Year

Ephemeral pools, more commonly called vernal pools, provide a unique opportunity for investigation, combining science with the physical and mental benefits of spending time outdoors. Vernal pools begin to appear as snow melts and spring rains fill depressions in the earth. Wildlife that uses these pools need to work quickly, as pools often dry up with the arrival of summer.

Fairy shrimp, wood frogs, spotted salamanders, Jefferson salamanders, blue-spotted salamanders, and marbled salamanders serve as vernal pool indicators in New Hampshire. These species require vernal pool

habitat for at least a portion of their life cycle. Discovering one of these fascinating creatures in an isolated wetland means you have found one of nature's most complex, and often tiniest, natural habitats.

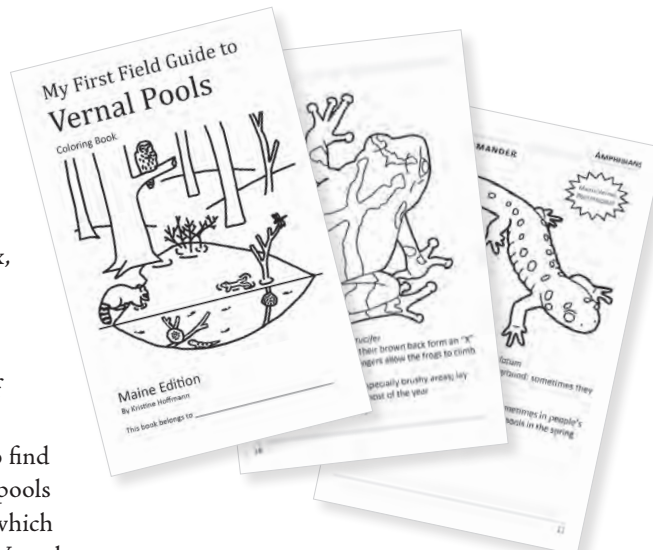


Male fairy shrimp

Biologists have enlisted the help of citizen scientists in local communities to find and document vernal pools throughout the state, which are protected by law. "Vernal

pools can be hard to identify outside of the spring season," said Nongame and Endangered Wildlife Program Biologist Melissa Doperalski. "Many are at risk of being affected or destroyed by human-induced activities, so it is vital that mapping and inventorying are

conducted to ensure the protection of these amazing resources." This is a wonderful opportunity to introduce kids of all ages to wildlife adaptations



The Kid's First Field Guide to Vernal Pools coloring book is available in the Kid's Corner of www.vernalpools.me

and habitats. Learning about vernal pools highlights the importance of protecting water sources for people and wildlife.

Materials for exploring vernal pools can be found at www.wildnh.com/nongame/vernal-pools.html. Vernal pool habitat and associated species can be documented using the state's official wildlife reporting website: www.NHWildlifeSightings.unh.edu.



Spotted salamander



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WILDLINES

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RAPIDS CLUBTAIL DRAGONFLY

(*Phanogomphus quadricolor*)



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Description: Typically dark grey, green, or black, with a characteristically club-like tail. Their overall length is less than two inches. Yellow, gray, or green stripes may be seen behind the head on the thorax of this dragonfly. Active in late spring and summer, they may perch on vegetation while hunting for flies and mosquitoes, which they capture with the aid of spiny legs.

Habitat: Medium to large rivers with muddy or silty bottoms that are adjacent to woodlands. In New Hampshire, the rapids clubtail is known only to occur along stretches of the Connecticut and Merrimack Rivers and their tributaries.

Threats:

- Bank stabilization along rivers in southern New Hampshire, which can affect habitat availability for non-flying nymphs.
- Water releases, which may wash away nymphs or eclosing dragonflies (the stage where nymphs are metamorphosing into flying adults).

Conservation Actions:

- Become familiar with this dragonfly and report any observations, with a photograph, to www.NHWildlifeSightings.unh.edu.

The Science of WILDLIFE

Science is at the basis of all conservation actions, but for many rare species minimal life history information exists. Frequently, there are many questions surrounding the status of these species, including potential threats to their populations or habitats. Biologists embark on potentially life-saving missions to discover more about each uncommon species in order to design a plan that will best address the needs of that animal. This scientific process is critical for conservation to work effectively.

Many partners often come together in New Hampshire to participate in the investigative process of answering wildlife questions. The endangered New England cottontail is one such species that has benefited from these partnerships. A shrubby 25-acre site in southern New Hampshire

was selected to reintroduce the cottontail, which had once occupied this same area. A captive rearing program was established with the Roger Williams Park Zoo, which resulted in the release of 42 rabbits over five years at this site. Staff from the Nongame and Endangered Wildlife Program collaborated with University of New Hampshire researchers Melissa Bauer and Adrienne Kovach to quantify the success of released rabbits, carefully tracking their activities through



Monarch Conservation Relies on St

The US Fish and Wildlife Service (USFWS) completed a science-based assessment of the monarch butterfly to determine if the species warranted listing and protection under the Endangered

Species Act (ESA). In December 2020, USFWS announced that listing the monarch butterfly is warranted but precluded, meaning that there are other listing decisions that are higher priority at this time. This decision-making process ensures that the limited resources available are directed to the most essential wildlife conservation actions. The monarch butterfly will however remain a candidate for listing under the ESA. The next assessment, in 2024, will reexamine whether an official listing is necessary or if on-the-ground conservation actions by states, communities, nonprofits, and others are effectively working toward the recovery of monarchs, in which case listing may be deemed unnecessary.

New Hampshire continues to encourage voluntary conservation measures for pollinators, including the planting of



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E RECOVERY

radio telemetry and genetic analysis of fecal pellets. Biologists documented that several released rabbits reproduced, as did many of their offspring.

By surveying this site regularly, biologists and volunteers collected mortality data and helped determine threats to survival. The most dangerous time for released cottontails was during their first month on-site, with an average life span of about 15 months. These findings will enable wildlife managers to adapt conservation actions to



ates and Partners

milkweed to help reach a national goal of 1.3 billion stems. A summary of actions tracked in the USFWS Monarch Conservation Database estimates that 500 million milkweed stems exist as a result of conservation projects.

“A great partner in this effort has been state transportation agencies such as the New Hampshire Department of Transportation, which has worked on designing modifications of mowing and seeding techniques,” said Wildlife Diversity Biologist Heidi Holman. “Our partners at the Natural Resources Conservation Service are also actively recruiting the agricultural community to help protect pollinators, including the monarch, through Farm Bill programs,” said Holman.

During the winter of 2019–2020, researchers assessing the overwintering population of monarch butterflies in Mexico recorded a 53% decrease from the previous year. New Hampshire and its many conservation partners anxiously await news of this winter’s data, hopeful that another year of dedicated work will have had a positive effect on this powerful migratory pollinator. 🐦

improve the outcome of this effort.

For many populations of rare wildlife, answering questions urgently is the key to their preservation. The endangered timber rattlesnake is among the state’s most imperiled species, with just one known isolated population remaining in New Hampshire. Like all snakes, rattlesnakes require areas to bask in sunlight to maintain body temperature and function normally.

While some snakes lay eggs, rattlesnakes give birth to live young. During the gestation period, they need adequate time in the sun for the unborn young to develop. Recent research determined that rattlesnakes mature at around eight years of age, but only reproduce every three to seven years, generating up to nine young each time. Successful recruitment into these critically endangered populations was a top priority for biologists in the region, particularly after their number in the state declined to just 19 individuals in 2006.

Open, rocky sites that receive adequate sunlight had been suggested as a limiting resource for rattlesnakes. These important habitat features slowly grow in, becoming shaded by tree canopies in areas without active forest management. New Hampshire biologists set out to determine how to best address

this particular habitat need at the Granite State’s only known rattlesnake site.

Using a tested design that had worked for other reptiles, biologists selectively removed trees to open the forest cover in a way that would potentially increase temperatures on south-facing rocky slopes within the range of New Hampshire’s rattlesnake population. Not only did average temperatures rise after tree removal, but rattlesnakes were observed, using time-lapse remote cameras, frequenting the opened areas more.

When each individual reptile is critical to the continued existence of a species, ensuring that reproduction and recruitment goals can be met is an absolutely necessary part of an effective conservation plan. Nongame and Endangered Wildlife Program biologists Michael Marchand and Brendan Clifford led this project and authored a scientific paper published in *Northeast Naturalist*, in conjunction with Javan Bauder from the Illinois Natural History Survey. 🐦

Timber rattlesnake





New Hampshire
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11 Hazen Drive
Concord, NH 03301

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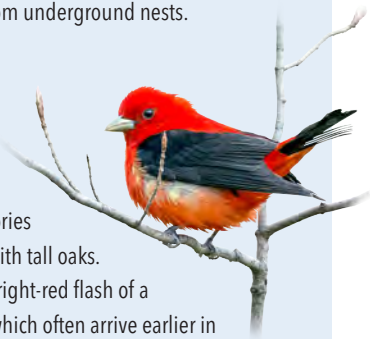
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APRIL

- Watch for solitary holes in bare soil surrounded by a neat pile of dirt, as this may indicate the emergence of leafcutter ants or mining bees from underground nests.

MAY

- Male scarlet tanagers are establishing breeding territories in woodlands with tall oaks. Watch for the bright-red flash of a male tanager, which often arrive earlier in the spring than their female counterparts.



JUNE

- The seeds and buds of the silver maple (*Acer saccharium*) provide food for birds such as cardinals and grosbeaks.

Revealing the Secrets of a Tiger Beetle

Cobblestone tiger beetles inhabit rocky shoreline bars and islands along rivers and streams in New Hampshire. This sharp-sighted insect is endangered in the Granite State and considered vulnerable throughout its range. Cobblestone tiger beetles are a dull olive hue all over. Their camouflage coloring is accented by a bright orange-red abdomen that may serve to ward off potential predators. The beetles lay their eggs in sandy areas, amongst the cobble. The larvae later burrow to the surface where they await minuscule prey to ambush using their sickle-shaped jaws. There are typically three larval stages of development, which conclude when they barricade themselves in their burrows until they pupate into an adult beetle, a transition that can last



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from several months to over a year.

“Research indicates that tiger beetles are highly susceptible to environmental changes such as hydrological alterations from dams,” said Nongame and Endangered Wildlife Program Biologist Melissa Doperalski. Recently, the New Hampshire Fish and Game Department helped approve a study that, for the first time, explored genetic diversity of tiger beetles throughout their range and described all larval stages, revealing the basic biology of these rare insects. By studying these beetles in a laboratory setting, researchers found new ways of distinguishing them from closely related beetles, including unique “hook” placements that help them attach to the soil in their burrow.



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A recent multi-partner vernal pool workshop established regional working groups to study vernal pool conservation and answer questions, such as what size buffer zone is adequate to protect the vulnerable species in vernal pools. Many states (including New Hampshire) do not have established rules that require setback buffers, although some towns have taken the initiative to implement rules that establish protection zones. “We strongly support this work and are excited that this has been taken to a regional level of importance, and that citizens are encouraged to participate in documenting vernal pools,” said Nongame and Endangered Wildlife Program Biologist Melissa Doperalski.