

WILDLINES

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



SUMMER 2022



A Modern Look at FIRE-ADAPTED HABITATS

A 13-state project is revealing how fire-adapted habitats support native pollinators in the Northeast. Project leaders identified around two dozen bees that require this type of habitat for survival and many more that are predicted to utilize the habitat where it is available. While expanding regional collaboration, the project seeks to outline the structure of bee communities, map species ranges, and better understand the habitat needs of fire-adapted bees.


A fire-adapted natural community is comprised of soils and plants that can efficiently rebound after a burning event, in some cases even requiring regular fire to be maintained. In the Concord and Ossipee

pine barrens, New Hampshire's predominant fire-adapted habitat type, 45 bee species have been documented as part of this endeavor thus far.

Pine barrens are characterized by a diversity of disturbance-adapted plants, many of which are host plants to moths and butterflies, 726 known Lepidoptera species, to be exact. Many years of research have uncovered this array of pine barrens users, and now bees are at the forefront of the investigation. Each year in New Hampshire, planned fire, often called prescribed or controlled burning, is used as a tool for multiple reasons ranging from public safety benefits to agriculture purposes.

New Hampshire Fish and Game and The Nature Conservancy use prescribed burns to maintain pine barrens habitat.

Another example of prescribed burns designed to improve wildlife and habitat needs is the use of fire on the Isles of Shoals, the only successful tern breeding colony in New Hampshire which supports nesting opportunities for the state-threatened common tern, federally endangered Roseate tern, and the locally rare arctic tern. This restored colony depends on the islands for nesting space, and fire is used to expose rock and reduce the density of vegetation which improves nesting sites and provides better protective cover for chicks.

Prescribed burns only occur under ideal weather and atmospheric conditions. Fish and Game works closely with the New Hampshire Prescribed Fire Council, critical partners that help accomplish this important work. Biologists expect to conduct prescribed burns each year as conditions allow to maintain a dynamic environment for the state's insects, a diverse community we continue to learn more about. 



In an effort to maintain pine barren habitat, NH Fish and Game and The Nature Conservancy conduct prescribed burns.



Many species of bees, like the sweat bee (*Augochlorrella aurata*), can benefit from fire-adapted habitats.



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YELLOW-BANDED BUMBLEBEE (*Bombus terricola*)



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Description: A medium-sized bumblebee. Mostly black with pale yellow bands, short antennae, and translucent brown wings. Sightings have drastically reduced over the past two decades, appearing largely absent from most U.S. states, even where it was once somewhat common (including areas of the Northeast). In the U.S. and Canada, bees are active from April to September collecting nectar from flowering plants.

Habitat: Meadows, crop fields, orchards, gardens, and other locations with flowering plants.

Threats:

- Habitat loss due to land conversion and herbicide use that reduces flowering plants (used for foraging) and nearby untilled soil needed to create their underground nests.
- Pesticides that kill or cause impairment in bees.
- Insect diseases from commercially produced bees used for crop pollination.

Conservation Actions:

- Learn to identify common bumblebee species and allow them to forage in yards and gardens.
- Support the permanent protection of farmland, where less chemical use and the propagation of flowers can occur.
- Leave grassy areas in orchards and crop fields unmowed, increasing the abundance of wild hedgerows and reducing pesticide use.

GREATER CAPACITY

in New Hampshire

The Nongame Program is known for its successful research and management efforts targeting the protection of rare and common wildlife, but one of the program's most important roles is less often reported. When land is developed to support buildings, parking lots, roads, and

other infrastructure, the potential exists for wildlife habitat to be permanently altered or lost. Fish and Game reviews proposed development projects that have the potential to affect threatened or endangered wildlife. This process, termed *environmental review*, is the frontline of critical habitat loss



Habitat loss due to land development can have an adverse affect on New Hampshire's wildlife.

ASSESSING RECOVERY FROM WHITE-NOSE SYNDROME

Since its initial discovery in a New York cave during the winter of 2006, white-nose syndrome (WNS) has swiftly decimated bat populations throughout the United States and Canada. This winter, biologists returned to known hibernation locations in New Hampshire to monitor the presence of bats as part of a rotational survey strategy.

Overall survey numbers throughout the state remain low. However, this winter's surveys revealed a few encouraging discoveries including, "Hibernacula with little brown bats and eastern small-footed bats present for the first time in over ten years," reported Nongame Program Biologist Sandra Houghton. There were fewer than five little brown bats, but slow and steady may be the theme of this narrative as bat populations struggle to rebound from the deadly disease.

A recent collaboration by biologists, researchers, and conservation organizations throughout the U.S. sought to determine the geographic extent and severity of WNS's impact on the nation's bats. A large-scale research and data-sharing project in 2021,

co-authored by Houghton, summarized the impacts to five hibernating bat species: northern long-eared bats, little brown bats, tri-colored bats, Indiana bats, and big brown bats. The consensus among the states is that, "Any recovery is going to be slow," said Houghton.

The multi-state project discovered some alarming results with the most severe effects

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A tri-colored bat

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Y FOR PROJECT GUIDANCE

prevention locally in New Hampshire, and it helps ensure that reasonable actions are taken for protected species.

The need for additional resources dedicated to the environmental review of construction projects has been present for some time. Until recently, the Nongame Program's capacity to conduct environmental reviews was largely limited to a single biologist and included thousands of reviews in a given year. A series of changes to the state's environmental review regulations over the last few years have put even more responsibility on the Nongame Program, while the availability of new federal resources resulted in the addition of staff dedicated to the review process. "This will increase the program's capacity to review and respond to development projects while also maintaining the Nongame Program's strong proactive conservation efforts underway to conserve the full diversity of the state's wildlife," explained Nongame Program Coordinator Mike Marchand.

A Growing Need for Protection

New Hampshire Fish and Game is the dedicated guardian of the state's fish, wildlife, and marine resources, and environmental review is an important tenant of fulfilling that essential role. Currently, the state is home to 30 endangered species and 21 threatened species, 12 of which are also listed under the federal Endangered Species Act. Although Fish and Game's review is focused on specific protected wildlife, the associated benefits of staff working with project planners to accommodate wildlife needs has benefits for other species as well.

Collaboration Conserves Plants, Water, and Wildlife

The Nongame Program collaborates with the New Hampshire Natural Heritage Bureau and the New Hampshire Department of Environmental Services during environmental review and consults with other state, federal, and nongovernmental groups depending on the project scope. To assess impacts and provide the most pertinent recommendations to protect wildlife, biologists employ a range of tools and actions including evaluating maps and

development plan details provided by project proposers, conducting database searches that contain rare species records, using information from the *New Hampshire Wildlife Action Plan* and other documents to assess risks to certain species, and meetings and discussions with developers, engineers, and other environmental consultants.

Effective Strategies for Each Situation

Each proposed project is unique and often requires site-specific consideration. For projects that occur in the vicinity of documented threatened or endangered wildlife, one common conservation measure is to ensure that contractors working onsite are properly informed and take necessary precautions. "For example, we often provide species identification flyers containing photos and descriptions of rare species occurring nearby as well as the contact information for the biologists they should call if they observe one of these animals," explained Kathleen Wadiak, a Nongame Program environmental reviewer.

"If a state-endangered Blanding's turtle is documented in the vicinity of a site under review, biologists may recommend design modifications, protective habitat buffers around suitable wetlands, exclusionary fence to keep turtles out of active work areas, and changes to drainage systems to minimize the potential of turtles becoming trapped inside catch basins and other structures," said Wadiak. Every site is different, but Nongame Program staff are equipped with the necessary tools to solve conservation challenges collaboratively and proactively to protect New Hampshire's wildlife for future generations. 🦋



The process of environmental review is an important tool used to help conserve protected wildlife including threatened species such as the grasshopper sparrow (top) and endangered species such as the marbled salamander (above).

SUMMER Wildlife Almanac

JULY

• The Milbert's tortoiseshell butterfly may be seen visiting a variety of flowers such as Joe Pye Weed and common dandelion. The adults are primarily dark brown with a distinguishing orange band at the edge of each wing. The spiky black caterpillars may be seen in clusters feeding on nettles.



AUGUST

• By this time of year, most young bats are able to find insects on their own, and maternity colonies disperse. As they prepare to either hibernate or migrate, bats stay busy storing food as body fat.

SEPTEMBER

• A variety of native dogwood species are fruiting now, such as flowering dogwood (*Cornus florida*) which provides excellent cover and food for northern flickers, pine grosbeaks, bluebirds, and many other birds.



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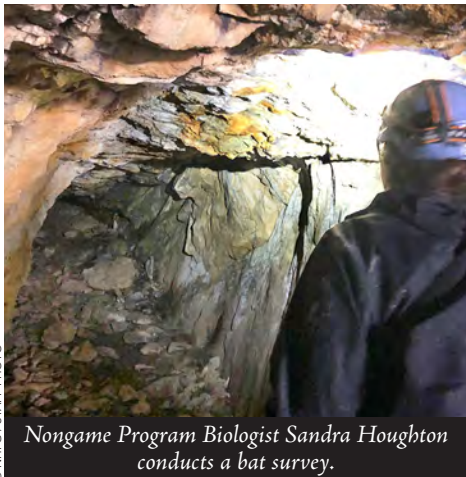
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of WNS documented in the Northeast. Population declines at hibernacula with documented disease, a measure of severity, was greater than 90% for the northern long-eared bat, little brown bat, and tri-colored bat. Of these three species, some winter colonies are still in existence but have been drastically diminished, while others have been extirpated.

Interestingly, the regional analysis found that big brown bat colonies have experienced moderate declines in response to WNS infections and seem to be faring a bit better



Nongame Program Biologist Sandra Houghton conducts a bat survey.

New England cottontails, ovenbirds, wood thrushes, and whip-poor-wills are just a few examples of animals that make their nests on the ground. Additionally, turtles and snakes often travel great distances over land to lay eggs in a seemingly safe and sun-soaked location. While you are out enjoying the many wonderful trails and wild spaces of New Hampshire, remember to read posted signage and minimize your impact on habitat. Human-related disturbance is recognized as a present threat to many wildlife species in New Hampshire's *Wildlife Action Plan*. Pets can be inadvertent disturbers or predators of native wildlife. Keeping cats indoors and dogs on a leash during nesting season, for example, protects growing young and their devoted parents.



than other native bats at this time. Aptly named, big brown bats are larger bodied than other species and are able to utilize buildings as well as caves and mines for hibernation. Neither of these characteristics, however, has been directly correlated with their ability to withstand infection. There may be unique genetic factors in populations that appear to be rebounding or stabilizing. Some research has looked at the possibility of bats developing an adaptive immune response to combat WNS, and similar investigations will

continue into the future.

Bats are typically long-lived species that produce just one (rarely two) young each year, another facet that makes recovery a slow process. All of New Hampshire's bat species remain listed as threatened, endangered, or as a species of greatest conservation need (SGCN). Biologists will continue monitoring and researching in the coming years, and landowners can continue to provide safe spaces for bats by erecting bat houses and by allowing bats to persist in barns.