

THE
**NEW ENGLAND
COTTONTAIL**

A REGION-WIDE EFFORT OFFERS HOPE FOR RESTORING | BY
A FURRY NATIVE TO NEW HAMPSHIRE'S LANDSCAPE | HEIDI **HOLMAN**

It is cold as the dusk settles in on New Year's Eve. The deep snow squeaks with each step. This is my last stop of the day. I make my way to the edge of the thicket and get down on my hands and knees. I scramble and belly crawl through the thorny and tangled branches, making my way to an edge where I can stand up again. I am looking for tracks, browse or pellets to determine who lives in this thicket. I begin to walk the outside of the patch, peering in. As I round the bend of the dense patch of shrubs, I am startled by the unimaginable – a brown rabbit with a cotton-white tail, just beginning his evening activities. It was my third season of surveying, and this was the first time I had actually seen a New England cottontail!

Surveying for New England cottontails has become one of my favorite holiday traditions. Light vehicle traffic and low snowbanks make it easier to pull off to the side of the road in an instant to make observations. These early season surveys, just after the first snows, give us the best idea of how the population is doing. Detection of the presence of cottontails increases dramatically, because we can observe their tracks for days after they are made in the snow, and the brown pellets left behind stand out against the white surface. Not only is the sign more visible, the number of rabbits is still high from the recent breeding season, before the harsh winter ahead takes its toll.

WHAT'S THE STORY?

Whenever I talk with people about cottontail rabbits, I hear one of two stories: “There used to be so many, but now that you mention it, I haven't seen a rabbit in over a decade.” I hear this in south-central and southwestern New Hampshire. But people in the southeastern part of the state often ask, “How could these rabbits be endangered? I see them on my lawn every day!”

The rabbits people are seeing in southeastern New Hampshire are often Eastern cottontails, which look a lot like their native New England cousins. Introduced to New Hampshire from the Midwest in the early 1900s to increase hunting opportunity, the Eastern cottontail has a few advantages over our native “brush rabbit” or “wood hare.” They frequently are spotted using open grasslands and narrow hedgerows that allow them to spread out across the landscape. A scientific study conducted by the University of New Hampshire (UNH) in the late 1990s actually confirmed that the Eastern cottontail was less likely to be picked off by predators in open areas because it has a larger eye to see them coming!



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People are often baffled that a rabbit – the infamous prolific breeder – is struggling to survive, but if there are no shrubby patches or dense stands of young forest, then no matter how many rabbits are born, they do not have the resources to survive.

Eastern cottontails also have more habitat available to them, since they can wander farther from brushy cover, so they have become the dominant species in many parts of New England over the past 50 years. A large number live in seacoast New Hampshire towns and communities near the Massachusetts border. They have also maintained a marginal presence in the Connecticut River Valley where farming is still active.

As for those folks who no longer see cottontails, habitat loss has driven population declines, resulting in an 86% percent reduction in their range since the 1960s. This led to New Hampshire listing the New England cottontail as state endangered in 2008. (It is also listed in Maine.) People are often baffled that a rabbit – the infamous prolific breeder – is struggling to survive, but if there are no homes, no shrubby patches or dense stands of young forest to provide cover from predators or food in the winter, then no matter how many rabbits are born, they do not have the resources to survive.

CRUCIAL HABITAT

Human land use changes, including declines in agriculture and logging, as well as the loss of natural processes like beaver flooding and fire, have resulted in extensive forest regeneration in New Hampshire. This trend, coupled with development, can result in permanent loss of habitat for New England cottontails and isolate remaining patches into fragments that may not be accessible to dispersing rabbits.

The decline of the New England cottontail in New

Hampshire and the Northeast has long been recognized by scientists, biologists and hunters. Back in the 1970s, it was apparent to Fish and Game biologist Ted Walski that land use changes were affecting the species by decreasing suitable habitat. This was echoed loudly by UNH Professor John Litvaitis in the late 1990s and 2000s, as he studied the intricate details of the New England cottontail's struggle to survive in a landscape endowed with less suitable habitat. Both agreed that the action needed to conserve the species was to engage landowners of all types to take an active role as stewards – before it was too late.

To do this, Fish and Game's Nongame and Endangered Wildlife Program spearheaded a range-wide recovery effort spanning six states, funded through competitive State Wildlife Grants. Since 2009, over 450 acres of habitat have been created across New Hampshire, on private, municipal, state and federal lands. Creating habitat for the species began with the help of many people knocking on doors, talking to their neighbors, publishing news articles, attending workshops and mobilizing critical support from our conservation partners including the Wildlife Management Institute, UNH Cooperative Extension, and the U.S Fish and Wildlife Service.

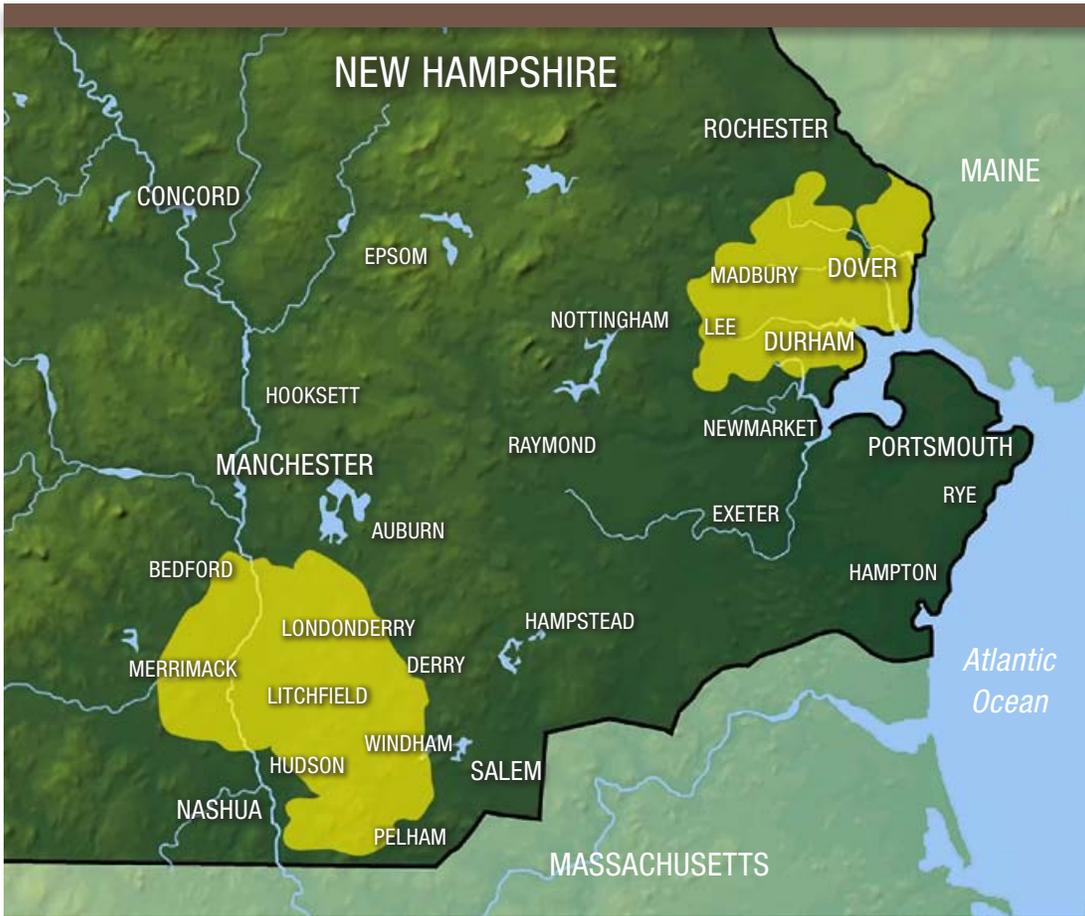
In particular, the Natural Resource Conservation Service (NRCS) has been integral in helping to create habitat on the landscape. NRCS has a long history of working with landowners, especially agricultural and forest producers in New Hampshire. It has provided a valuable connection to a large number of people actively managing their land. At the national level, NRCS began the Working Lands for Wildlife program, designed as a long-term approach to help more farmers, ranchers and forest landowners manage and restore high-priority habitat for at-risk species like the New England cottontail.

JUMP-STARTING THE PROCESS

Even though new habitat is being created, so few New England cottontails remain in New Hampshire that not all habitat patches will be connected to existing populations. That means no rabbits will move naturally into the new real estate. In the past, biologists may have trapped and released rabbits from other parts of the state. Such an effort was made from 1918 to 1961 in southern New Hampshire when snowshoe hare were declining. During that time, more than 30,000 hares were trapped and transferred! Other efforts have brought in wildlife from other states, such as the famous reintroduction of turkeys in New Hampshire in the 1970s. Because there are so few New England cottontails across its range, an alternative strategy was needed.



Though at first glance they look very similar, closer inspection reveals some subtle differences between the two rabbit species. At a little over 2 lbs., the New England cottontail is noticeably smaller than the Eastern cottontail. The Eastern cottontail has larger eyes and longer ears than its smaller cousin.



CRUCIAL HABITAT

Fish and Game's Nongame and Endangered Wildlife Program is working in concert with conservation partners, including the Wildlife Management Institute, UNH Cooperative Extension, and the U.S. Fish and Wildlife Service, to create habitat for the New England cottontail. This includes working with landowners and encouraging them to take an active role as stewards in providing this crucial habitat. The map shows focus areas (indicated in yellow), where the program is targeting projects for the future.



Successfully executing the New England cottontail restoration program requires extensive planning and coordination. This includes mobilizing volunteer services (left), conducting tree harvests with heavy equipment (above), working with landowners and their neighbors, as well as securing critical support from various conservation partners.

With the use of a breeding program, a few adult rabbits collected from the wild can result in a large number of young to be released.

To create a new source of rabbits to re-colonize the landscape without putting further stress on the remaining wild populations, a captive breeding program began in 2009 at the Roger Williams Park Zoo in Rhode Island. By bringing New England cottontails into a captive environment, we are able to provide top-notch nutrition to the parents, yielding high birth rates, and protect the young from the early dangers of life. With the use of a breeding program, a few adult rabbits collected from the wild can result in a very large number of young to be released.

Initially, rabbits were trapped from more plentiful populations in Connecticut. Rabbits are trapped in late fall to early winter, when populations are at their peak and the health of the animals is still good. Before being moved into the breeding colony, adults are quarantined for 30 days to be treated for fleas and ticks and monitored for signs of disease.

Breeding begins at the zoo in late February. Males and females are placed together in a private pen for a few days, rotating out different pairs. This timing is

meant to coordinate closely with the species' behavior in the wild; typically females initiate nesting around spring green-up. Following birth, the mother provides some care until the rabbits are weaned. The whole process from conception to weaning takes about 40 days. At this point, the female is ready to, or if in the wild, may have already mated and conceived her next litter! These characteristics allow the rabbits to survive high predation rates, as long as ample resources, including food and habitat, are available.

Pilot breeding efforts have resulted in a few dozen rabbits being released in 2012. Some of these rabbits were released on an island off the coast of Rhode Island to establish a breeding colony. The other rabbits are being held in enclosures at the Great Bay National Wildlife Refuge in Newington and the Ninigret National Wildlife Refuge in Rhode Island. These rabbits will be released in the spring of 2013. New rabbits were captured in the wild last fall and brought into the breeding program, including three from New Hampshire.



Clockwise from top left: Prime New England cottontail (NEC) habitat; the NEC utilizes its shrubby habitat to avoid predators when foraging for food; a litter of NECs born at the Roger Williams Park Zoo in Rhode Island will be part of the pilot breeding effort in New Hampshire; the breeding enclosure at the Great Bay National Wildlife Refuge provides over an acre of habitat and currently holds nine NECs; biological technician Brett Ferry handles one of the NECs at the breeding enclosure while recording data vital to the program.





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OUR NATIVE COTTONTAIL

Sometimes called the gray rabbit, brush rabbit, woods hare, or in traditional New England vernacular, “coney,” the New England cottontail is the only cottontail rabbit native to the Northeast. It is medium-sized, up to 16 inches in length and weighing 2.2 pounds.

New England cottontails are unlikely to survive more than two or three years in the wild. The species compensates for this high mortality with a high reproductive rate. Females may have two to three litters per year, with litters ranging from three to eight (typically five). Conception to weaning of young takes about 40 days.

New England cottontails live in dense areas of shrubs and young forests where trees grow back following disturbances caused by logging, fire and flooding. They do not venture far from heavy cover. During spring and summer, they feed on a variety of grasses and herbaceous plants; in winter they eat the bark, twigs, and buds of woody plants. When food is not available within the cover of thickets, they are reluctant to forage in the open.

THE LURKING QUESTION

In addition to increasing the number of rabbits available for release, the captive environment gives us a chance to take a closer look at some of the things we do not understand about the species, such as the nutritional impacts of invasive plants on reproduction. By far the most common question I get is whether the rabbit can withstand its many predators, including coyote, fox, weasels, fisher, owls, hawks and domestic dogs and cats.

Predation is a natural source of mortality for rabbits. Previously, it did not threaten species survival, but because of current habitat conditions, it is an important risk factor. If the thickets are not large enough to provide enough food and cover to sustain rabbit populations, the food becomes depleted, and rabbits are forced to turn to lower-quality forage or feed farther from cover, where risk of predation is greater. A UNH study revealed that New England cottontails in small patches were killed at twice the rate and sooner than rabbits living in larger patches.

Quality of habitat is the key to cottontail abundance, and as habitat is improved, adequate availability of food, cover and shelter for New England cottontails will help ensure long-term viability for the species. As rabbits are released over the next few years, they will be fitted with radio collars that allow biologists to track their movements and survival, providing us with more information about the effects of habitat quality and availability on the species. This

will give us confidence that New England cottontails can survive on their own, restoring a special part of New Hampshire’s wildlife diversity. **W**

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Predators, like this young northern goshawk, become a significant risk factor for the New England cottontail because of the lack of suitably large patches of brushy habitat.

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