# Tale of fight to save New England's native rabbit

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New England cottontail (Sylvilagus transitionalis). Credit: U.S. Department of the Interior/Wikimedia Commons, CC BY-SA

What is New England without the New England cottontail?

This is a question that Assistant Professor in Residence Chadwick

Rittenhouse, a researcher in the Department of Natural Resources and the Environment in UConn's College of Agriculture, Health and Natural Resources, asks. As a wildlife biologist, Rittenhouse understands the value and need for biodiversity, but as a New England resident, he says losing this native species would be akin to losing maple syrup from Vermont or Mount Washington in New Hampshire—the New England landscape would not be the same without its only native rabbit.

New England cottontails face many challenges, explains Rittenhouse, from changes in landscape like development, fragmentation, and loss of habitat, to the encroachment of another lookalike species, the Eastern cottontail. Once distributed throughout the region, now where New England cottontails are found, they seem to be barely hanging on.

A regulatory decision has brought the New England cottontail into a limbo-like situation, and now Rittenhouse is one of the researchers pulling every lever available in the cause to conserve the species as part of the New England Cottontail Conservation Initiative.

## The bunny

Cottontails are the fast food of the small mammal world, says Rittenhouse, making them an important component of the food web:

"Just about everything eats them from owls and raptors, red-shouldered hawks to terrestrial-based predators, like foxes and coyotes and bobcats who are really, really good bunny eaters."

Bunnies are primary consumers, meaning they eat vegetation—preferably native plant species for New England cottontails—and convert plants into muscle protein. Predators eat that protein, and those nutrients then travel through the trophic web. Researchers are still studying the New England cottontail's other roles

within the ecosystem.

New England cottontails tend to be found in younger forest and shrubland habitats, and Rittenhouse says that, particularly in Connecticut, the forests tend to be more mature.

"Put simply, we don't have a lot of young forests, and troublingly, we don't have active forest management. Most of the efforts for New England cottontail conservation have recognized that we think they're a habitat-limited species, so let's go out and do some habitat management, and they should respond."

This strategy seemed promising when the New England cottontail was considered for Endangered Species status in 2015, but the path to protective status is not always straightforward.

## The policy

For species that face uncertain futures, proactive conservation through the Policy for Evaluation of Conservation Efforts (PECE) is the preferred approach, where measures can be taken before the need to list them under the Endangered Species Act (ESA).

With PECE, the conservation approach is seen as a "bottom-up" and more collaborative between all stakeholders, whereas under the "top-down" ESA there are more regulations and penalties associated with listed species, and the protection process can become more punitive and less collaborative. PECE also stipulates that if conservation efforts already underway are effective and are likely to increase a species' chance of survival, this could preclude them from listing under the ESA.

"In short, PECE gives credit for conservation actions that have been enacted, and those that are planned to be enacted," says Rittenhouse.

While PECE can help ensure resources are focused on the most at-risk species, Rittenhouse explains that PECE decisions can bring species' status into an awkward place, because there are currently no mechanisms in place that allow for re-evaluation if the conservation measures do not work out as planned. This is what happened for the New England cottontail.

After a rigorous review process, in 2015 U.S. Fish and Wildlife Service decided not to list the New England cottontail under the ESA. Though the evaluation was based on the latest science at the time, PECE determined there was a high degree of certainty that conservation measures would be successful, Rittenhouse says it was a roll of the dice.

"The decision hinged on the idea that the species is habitat limited, we're going to build the habitat, it's going to be populated with New England cottontails, and everything will be great."

The PECE decision for the New England cottontail is touted as a model for proactive conservation, but Rittenhouse and collaborators now make the case that more conservation action is needed. The species was expected to increase based on proactive conservation completed by 2015, but has continued to decline in the years since the decision to not list.

"We were getting credit for conservation actions that ended up not working as well as we thought and now, we have no mechanism to revisit the species. The only recourse available is to petition the Fish and Wildlife Service for listing the species and go through the whole process, again," Rittenhouse says.

Rittenhouse and his collaborators have published a series of papers detailing the case between proactive conservation versus listing species, and regional monitoring designs, including a recent paper detailing

methods using cutting-edge remote sensing technology to map New England cottontail habitat that presents a story arc making strong connections between science, management, and policy to provide the information needed to make management and conservation decisions.

"Now we really need to up our game, we need more science and more policy actions for this species," he says.

Research suggests New England cottontails don't disperse very far and therefore don't find new habitats as quickly as expected. Additionally, Eastern cottontails are increasing their range and seem to be better at establishing themselves in new patches of habitat than New England cottontails. Rittenhouse says researchers are not sure what gives Eastern cottontails this edge.

"We're seeing this wave of Eastern cottontail advancement through our regional monitoring effort, moving through Connecticut, Massachusetts, New Hampshire, and in just within the last year, they are now in Maine. Eastern cottontails basically exist everywhere that New England cottontails exist, and that's not good news for the New England cottontail.

"There's certainly a lot more to the New England cottontail story. Someone could have the perspective of well, Eastern cottontails are here, and if they replaced New England cottontails, so what? We've got a bunny, there's food on the landscape for other animals. Over enough time, species are fluid, they blink in, blink out, and change but I think the part that's missing in a conversation like this is what humans value."

## The path ahead

Rittenhouse sees New England cottontail conservation as a value proposition: are we good stewards of the land? Do we care about

everything? And if so, what can we do about it?

"That's really what I think any species listing decision comes down to at the end of the day, can we do something about it? I think there's still a lot that can be done and I'm not throwing in the towel. The people that I work with are not throwing in the towel. To be a good steward is to value life in all its different forms. I don't think we can think of things as substitutable or replaceable if we have that belief system."

Rittenhouse says there is still a lot of activity between multiple states, collaborating universities, and zoos for captive breeding programs, all intent on conserving the species.

"Everyone recognizes that this is a species that needs our attention, but what we don't have is that mechanism to say the science done over the last 10-plus years indicates we're in a worse position than where we started."

Fortunately, several states already listed the species as threatened or endangered, and in every state in this range, it's considered a species of conservation need.

These policy decisions pose challenges for other species as well, explains Rittenhouse. On the other side of the spectrum, populations of grizzly bears and wolves in the lower 48 are doing very well because of these policy decisions—almost too well—and there are challenges in de-listing the species.

"Grizzly bears were listed, and conservation actions worked. The situation is the same for wolves in northern Wisconsin, northern Minnesota, and the Upper Peninsula of Michigan, they are doing fantastically well. There are other species that have really benefited from a listing decision, but they can't get delisted. Now, the New England

cottontail is in this weird space where it didn't get the benefit of a listing decision, and it's worse off. I think there's an interesting kind of parallel."

Those working to conserve the New England cottontail are pushing on several different fronts, with some of the funding efforts directed toward zoos and breeding programs.

"I would say also advocate for forests, including young forests and shrublands for New England cottontail and the many other species that rely on these habitats," Rittenhouse says. "This really is a team effort and we're all working hard and trying to move in the same direction, which is to benefit New England cottontail. It's a multi-fronted approach because this rabbit needs a lot of attention, quickly, or we might not get another chance if we sit on this for another five or 10 years."

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