

# LOON CALLER

VERMONT CENTER FOR ECOSTUDIES



Vermont Loon Conservation Project



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The breeding range of Common Loons could shrink 56% by 2080.

## Climate Change Challenge BY ERIC HANSON

In 2014, Audubon's Birds and Climate Change Report noted that the Common Loon breeding range could shrink 56% by 2080, shifting ever northward and away from Vermont. While the Audubon study is based solely on temperature, many factors will affect how loons and other species respond to a changing climate. Nevertheless, after Vermont loons' remarkable recovery from the brink of extirpation in the 1980s to their 2015 level of 85 nesting pairs, the idea that this threat could cause the species' disappearance from the state is indeed troubling. VCE is participating in cooperative research with the Loon Preservation Committee, Tufts University, Biodiversity Research Institute (BRI), Maine Audubon, the U.S. Fish and Wildlife Service, and others to understand more clearly how climate change will impact loons in the Northeast, and to identify ways to mitigate these impacts. Hopefully, our grandchildren will not have to travel to Quebec to experience the thrill of hearing a loon's yodel carry across a moonlit lake.

A warming climate and increased precipitation affect loons directly,

decreasing nesting success and chick viability. Nest cameras have revealed that incubating loons start to pant at 75°F, which is their normal response to warmer temperatures. As temperatures rise, adults spend more time off the nest to cool off, leaving the eggs prone to predators. In addition, preliminary research indicates that the porosity of egg shells changes at high temperatures, which can negatively affect the developing egg. Climate models predict an increase in large rain events, which can lead to more flooded nests. The Northeast has experienced more sudden rain events in recent years; in fact, last year's rainy June led to a record number of flooded loon nests in Vermont.

A changing climate may also affect loons indirectly through changing food webs, diseases, and other stressors. A healthy loon can fight off common bird viruses, parasites, fungal infections, and other diseases that it normally encounters. A loon stressed by heat, high parasite loads, mercury, changes in food resources, or other agents will likely be more vulnerable to infection and less resistant and *(continued on page 3)*

## Loons Rescued on Lake Champlain

Last winter's uncommonly warm weather proved perilous for many loons across the state. Several young birds, just learning their migration routes, lingered a bit too long. Without a long enough open water runway for take-off (100 feet is a minimum), ice-bound loons become quite literally "sitting ducks" for Bald Eagles. If they are lucky enough to avoid predation, they may dive and become trapped under the ice (thereby drowning) or succumb to starvation.

In late February, a team of long-distance ice skaters and I rescued eight loons from Lake Champlain and released them in open water. Buffeted by 30-mph winds and with Mt. Mansfield's wintry profile looming in the distance, our Antarctic-like expedition trekked a mile from shore, laden with rescue and safety gear, attempting three separate rescues over the course of a week.

Rescuing loons stranded by ice is tricky, dangerous business. Even in the best of conditions, it requires a vast array of safety equipment—nets, tarps, ice screws, ropes, and *(continued on page 3)*



One of eight ice-bound loons released

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The Vermont Center for Ecostudies (VCE) is a nonprofit organization whose mission is to advance the conservation of wildlife across the Americas through research, monitoring, and citizen engagement.

The Vermont Loon Conservation Project (VLCP) is a joint program of VCE and the Vermont Fish and Wildlife Department (VFWD).

The VLCP's mission is to restore and maintain Vermont's Common Loon population through monitoring, management, education, and research.

The Vermont Fish and Wildlife Department's mission is to protect and conserve our fish, wildlife, plants, and their habitats for the people of Vermont.

Volunteer information and VLCP publications are available on the VCE website: [www.vtecostudies.org](http://www.vtecostudies.org)

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## Meet the Newest Loon Pairs in Vermont



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**A**lthough volunteers for VCE's annual LoonWatch count in July have counted about 300 adult loons during each of the past three years, new pairs have been steadily forming and claiming territories: 12 in the past three years, and 32 since 2008.

Most of the 32 newest territories are located in north-central (16) and far northeastern (7) Vermont, where the majority of Vermont's lakes are located. Some are further afield, however, including two on lakes in northwestern Vermont (Metcalf and Fairfield Ponds) and seven on lakes in southern Vermont between Rt. 4 and the Massachusetts border. Ten pairs have formed on larger lakes where other loon pairs were already established (Somerset Reservoir, Lake Groton, Green River Reservoir, Mollys Falls Reservoir,

Joe's Pond, both Averill lakes, Norton Pond, and Maidstone Lake.) Seven other pairs chose ponds smaller than 50 acres, which shows that loons are likely utilizing more marginal lake habitat.

***In an early nest attempt, the Metcalf Pond loons nested on a rocky island in the middle of the lake (and boat traffic). The nest failed. The Metcalf Pond loon pair has more recently nested in a marsh location with more success. (top)***

What kind of nesting success are our recently established pairs enjoying? The first-year success rate for the 32 pairs averages 50%. This rate rises to 67% in year two. The improved outcomes from year 1 to 2 might be due to gains in experience, better nest locations, chance, or a combination of these. We can compare these success rates to the average nest success rate for established pairs of 78% since 2008.

Pairs with failed nests share a number of features. Nests on shorelines are far more prone to predation than island nests; 31% of new pairs choose shoreline locations versus only 12% of established pairs. Although the loon pairs on Center, Nelson, Dog, and Long (Greensboro) ponds have only attempted nesting once or twice, these nests were all on drier, wooded shorelines and they all failed. Additionally, failed nests are more common on developed or very busy lakes and on lakes with high numbers of extraterritorial intruder loons.

In contrast, the most successful new pairs have nested on islands or in marshes with hummocks. Coits, Flagg, Great Hosmer, and Miller ponds have recently hosted new pairs whose nesting has been 100% successful.

Most of Vermont's lakes with high quality loon habitat are now occupied by established pairs. New pairs will continue to squeeze into unoccupied sections of larger lakes or settle on smaller lakes that lack marshy habitat or islands. It is a testament to the strong recovery of Vermont's loon population that quality nesting habitat is close to saturation, but that new pairs continue to become established and to nest successfully, even if at lower rates. —E.H.





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*The loons were not visible from shore as the rescue crew headed out. The most effective capture technique was placing a tarp over the hole, forcing the loons to surface in a limited area.*

boxes, all towed across the ice in sleds or canoes. It requires professional expertise in safe ice rescue techniques, and a team of experienced individuals, some who can safely assess the situation to protect human life, and others knowledgeable about loon biology and behavior who can safely approach, capture, and handle the loon(s).

The ideal scenario—and our usual default protocol in Vermont—would have us wait for the hole to completely freeze over, forcing the loons onto the ice and enabling us to simply walk over and pick them up. In this case, however, the movement of nine trapped loons and persistent warm weather kept the hole open, leaving the birds to slowly starve or fall victim to eagles. Such was the unfortunate outcome for at least two loons on Lakes Seymour and Morey, as we waited for conditions to improve enough to allow intervention. On Spectacle Pond, we lost a chick when the ice froze very rapidly and the loon wandered off before I could find it.

Evaluating the risks on Lake Cham-

plain, we noted that ice around the hole was nearly 10 inches thick, and the skaters, well-trained in ice safety, made for a very competent team of assistants. We decided to proceed. Attempt number one yielded a single rescued loon, but the hole was too big and winds too strong for us to reach the others. The next day, we were able to net three additional loons and drive another three onto the ice (where we could pick them up), happily releasing them a short while later into open water near Burlington. On our final attempt to catch the two remaining birds, one loon did not survive when it became disoriented after diving and could not relocate the hole.

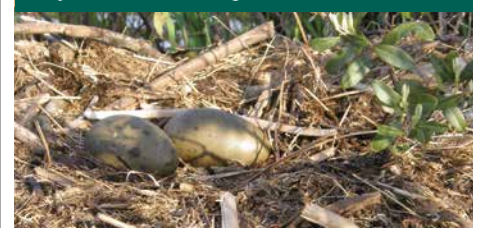
In the natural course of events, most iced-in loons would not survive. With over four decades of work by Vermont's biologists and volunteers to mitigate human-caused threats to loons, our population is now robust enough to allow some natural threats to play out. Nevertheless, if the situation is safe and we can mobilize the resources to act, we will always try to give ice-bound birds a second chance. —E.H.

resilient to the effects of stress. In addition, diseases may be introduced from further south, exposing loons and other wildlife to new pathogens to which they have no resistance.

As wildlife, including loons, respond to changing climate, so do the diseases and parasites that affect them. In 2015, a loon from Lake Umbagog died from avian malaria. Dr. Mark Pokras of Tufts University Veterinary School of Medicine and Dr. Inga Sidor, a senior veterinary pathologist and clinical associate professor at the University of New Hampshire and the New Hampshire Diagnostic Laboratory, made the discovery. Whether this was a one-time event or a harbinger of long-term change remains a question. VCE collaborator Dr. Ellen Martinsen of the Smithsonian Institute has studied malaria in many bird species, including Bicknell's Thrush. She detected six species of malaria in loons, four of which originated in the tropics. Many, if not most, birds carry malarial parasites without illness, but if a bird is exposed to a novel pathogen, it is more likely to succumb.

VCE plans to help collect data on other key health indicators of loons as part of a nationwide study led by Veterinarians Dr. Michelle Kneeland and Dr. Nina Schoch at BRI. During the past two years, researchers have collected blood and feather samples from 316 loons to assess an array of parameters, including blood chemistry, stable isotopes, toxins, and diseases. The goal is to create a baseline for each parameter, allowing us to assess threats and evaluate impacts as the effects of climate change unfold. Only with this information can remedial actions be developed and implemented. —E.H.

*As temperatures rise into the 80s and 90s F, loons are more likely to leave the nest. This may contribute to higher nest failure rates.*



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## HOW YOU CAN HELP

Please support the Vermont Loon Conservation Project and Vermont's loons through a tax-deductible contribution to the Vermont Center for Ecostudies today.

### YOUR DONATION SUPPORTS:

- Statewide loon monitoring
- Loon nesting platforms and nest warning signs
- Volunteer coordination
- Public outreach programs
- Loon rescues
- Research on threats to loons

Constituents receive the *Loon Caller* and VCE's biannual *Field Notes*.

Mail your donation to:  
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(If you wish, include a note stating the donation is for the VLCP.)

## SHOW YOUR SUPPORT



VLCP is funded in part by the Vermont Fish and Wildlife Department's Nongame Wildlife Fund.

Please support the Nongame Wildlife Fund by purchasing the Conservation License Plate and through the tax check-off on your VT income tax form.

VLCP would like to thank its many volunteers and contributors for their continued support.



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Loon chick in Lakeville, MN pen.



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Captive rearing pens in Minnesota.

## Translocation of Loons in Minnesota and Massachusetts

North America boasts a strong history of successful reintroductions to restore populations of previously extirpated wildlife. In Vermont, Wild Turkey, beaver, and fisher were all pushed to extirpation in the mid-1800s, by forest clearing associated with European settlement and unregulated trapping. All three species have been successfully reintroduced and are thriving across the state today.

Can loons be successfully reintroduced to territories where they no longer nest but did in the past? VCE's colleagues at the Biodiversity Research Institute (BRI) are conducting a study to determine if loons can be actively reestablished on historically occupied territories in Minnesota and Massachusetts.

Loons formerly nested in southern Minnesota and northern Iowa as well as throughout Massachusetts. Currently, loon pairs in Minnesota are found west and north of Minneapolis but not further south. In the 1970s, there were no breeding loons at all in Massachusetts. Pairs have since reoccupied some lakes and reservoirs in the north-central part of the state, but there are several unoccupied lake regions in south-eastern and southwestern Massachusetts that provide potentially suitable habitat.

About 20 six- to ten-week old chicks have been relocated over the past two summers, moved from healthy populations in northern Minnesota and the Adirondacks to lakes in Minnesota and Massachusetts that no longer host breeding pairs. BRI veterinarian Michelle Kneeland and biologists Lee Attix and Jim Paruk have overseen this work. The biologists captured one chick from two-chick broods and transported them to large holding pens on lakes in southern Minnesota or southeastern Massachusetts. The chicks were fed and monitored continuously, yet their only visual contact with people was during health examinations. The chicks had to quickly learn to how to catch the fish that were released into their pens. After several weeks of living in their large holding areas, the chicks were released onto their "new" natal lake in September. They soon became fully self-sufficient.

The loon chicks in Massachusetts left their new lakes between October and December, while the Minnesota chicks dispersed much earlier than their eastern counterparts, leaving their "adopted" lakes within three weeks of translocation.

Studies of color-banded loon chicks have shown that they usually return within 10 to 20 miles of their natal lake to breed, typically between the ages of 3 and 7 years. This affinity to their natal lake region means that loons are slow colonizers of unoccupied lakes further afield. Thus, the primary reason for attempting this translocation project is to see if people can help loons recolonize these areas in Minnesota and Massachusetts that are a long way from other areas with nesting loons. Attix and Paruk are betting that loon chicks moved, reared, and released in a new region will show fidelity to their "adopted" lakes and return there to breed instead of the lakes where they hatched. In 3 to 4 years, biologists and volunteers will conduct extensive surveys on the receiving lakes in southern Minnesota and southeastern Massachusetts, hoping for sightings of banded loons. If the relocation experiment is successful, Wyoming may be the next region in which loon translocation will be attempted. —E.H.