

## Of Bobcats and Blackbirds



A Male bobcat that has been tracked from the air by the University of New Hampshire and LightHawk. Photo: Heidi Chester



UNH's Derek Broman holds one of the collared male cats in the study before release. Photo: University of New Hampshire

*LightHawk takes radio-tracking technology to the New Hampshire skies to monitor two species that are ecological barometers for effective conservation.*

Understanding the needs of wildlife is critical to effectively protecting habitats and ecological integrity. Tracking individual animals by temporarily attaching a radio transmitter can enrich our knowledge of key species and the ecological systems they need to prosper. While much of this work is done from the ground, tracking from the air is often a game-changer for scientists and conservationists.

Thanks to the generosity and experience of LightHawk volunteer pilot Janice Newman, and her business partner volunteer pilot Tom Haas, LightHawk's Eastern region was recently able to deploy a Cessna 182 equipped with FAA certified radio telemetry antennas to aid scientists tracking wildlife. This capacity has accelerated the efforts of two wildlife research projects: a 4-year collaborative bobcat (*Lynx rufus*) study with the University of New Hampshire (UNH), and a multi-year rusty blackbird (*Euphagus carolinus*) study run by New Hampshire Audubon as part of an international effort.

### **Cat corridors**

There is nothing polite about a bobcat. These energized 35-pound bundles of muscle, fur, and claws are on the increase in New Hampshire thanks to 20 years of effective protection. Bobcats are shy and secretive around humans. While they roam large distances, they rely on core habitats where they spend most of their time. Tracking bobcat movements from the air reveals landscape-level features – like wooded streams or ridgelines – that serve as pathways for long-distance movement for bobcats as well as many other species. Locating these passages is necessary for effective management of corridors, protection of bobcats and other wildlife. According to John Litvaitis, UNH professor of Wildlife Ecology, “the bobcat is an obvious emblem of all that’s good about nature; it’s an animal that just exemplifies wild.”

With that in mind, Litvaitis and his team, in cooperation



Southwest New Hampshire, home to an increasing population of bobcats. Mount Monadnock looms in the background and one of two tracking antennas is seen in the foreground. *Photo: University of New Hampshire*



UNH graduate student Chris Bottom after retrieving a dropped bobcat radio collar miles from any road and underwater in a beaver pond. The collar was located, after ground attempts failed, during a LightHawk flight. *Photo Derek Broman/University of New Hampshire*

with the New Hampshire Fish and Game Department, inaugurated a four-year study to track and glean knowledge from these compact wildcats. Soon after planning began, Litvaitis contacted LightHawk to request aerial support, and with the support of Haas and the expertise of Newman, LightHawk obtained the necessary permissions from the FAA to outfit a wildlife-tracking plane.

In 2010, UNH biologists trapped, weighed, and measured 12 bobcats, then outfitted them with collar-mounted radio transmitters. Researchers were able to locate four cats from the ground and LightHawk flights quickly identified the remaining animals and confirmed their locations. The collars are designed to fall from the cats' necks after a period of months and sometimes they fall in hard-to-find, inconvenient locations. One collar landed several miles from any road, underwater in a beaver pond. These high-tech collars carry detailed location data from the entire summer, making them incredibly valuable and their recovery paramount. In addition to tracking bobcats, LightHawk flights allow researchers to pinpoint the location of dropped collars to within at least 200 meters so that important data can be accessed and bobcats further understood and protected.

### **Feathers and wetlands**

Far on the other end of the ferocity index is the rusty blackbird. Not your usual blackbird, this shy species is completely dependent on wooded wetlands. Rusty blackbirds are an important indicator of climate change in the Northeast because of their reliance on boreal forest wetlands for breeding. Boreal wetlands are an ecosystem under threat from acid rain, drying wetlands, and human conversion of forests. In the past 30 years, the population of rusty blackbirds has plummeted 95%, according to the Breeding Bird Survey. Some of the greatest declines have occurred in the eastern portion of the boreal forest: northern New Hampshire, Vermont, New York and Maine.

Spurred by this alarming decline, a group of scientists formed the International Rusty Blackbird Technical Working Group. One member, Carol Foss, director of conservation with New Hampshire Audubon, was concerned about a specific gap in data and contacted LightHawk to assist in filling it. Using tiny spine patch transmitters on 20 birds, Foss wanted to identify the areas these birds depended on during the most vulnerable part of their adult life cycle. In the late summer months after their breeding season and just prior to their taxing migration south, rusty blackbirds undergo their version of "the full monty". This full molt is an exhausting period of feather re-growth that happens every year.

Tucker and Foss were unsure if the small transmitters would be captured from the air while flying over the mountainous terrain in northern New Hampshire. Always up for an adventure, volunteer pilot Newman accepted the challenge, while UNH's Litvaitis generously allowed the



A male rusty blackbird in the New Hampshire Audubon study with telemetry gear attached. *Photo: Carol Foss/NH Audubon*



New Hampshire rusty blackbird tracking team with volunteer pilot Janice Newman (white shirt) and her antenna-rigged Cessna 182. *Photo courtesy of Janice Newman*

use of the strut-mounted antennas he employed for their bobcat tracking.

Once airborne, the LightHawk flight quickly established that radio-tracking in the varied terrain of northern New Hampshire is not only possible, but is the only viable option for locating birds during this period. Knowledge of habitat requirements and threats during the molting period - when mobility is reduced and energy demands are high - is critical to developing a long-term conservation strategy for rusty blackbirds. It also provides a better, practical understanding of the impacts of climate change and pollution's effects in the region and across the boreal forest.

### **Healthy Forests, Healthy Creatures**

The health of the much-diminished, yet nevertheless magnificent northern temperate forest is often gauged by the health of the animals whose lives depend on it. Unlike their ancestors of many generations ago, these creatures rely not on the integrity of one forest, but on a series of healthy, ecologically stable core areas and viable corridors between them. LightHawk flights illuminate the value of these areas as homes for wildlife, as well as empower our partners as they protect and manage the landscape wisely for the benefit of bobcats and blackbirds, and ultimately, humans.

*LightHawk's monthly update, WayPoint, was created to highlight the impact of our work. Each edition covers one specific flight, or series of flights, and illustrates how LightHawk advances conservation efforts throughout North and Central America through the unique perspective of flight. We hope you enjoy WayPoint and will share with others our success stories from above.*

## **About LightHawk**

What started in 1979 with one man and a vision has grown to over 185 volunteer pilots flying missions across the U.S., into Canada, through Mexico and down to Panama. Today, LightHawk is the oldest and largest nonprofit, volunteer pilot-based organization flying environmental missions in collaboration with hundreds of partner organizations.

At LightHawk we believe the view from the window of a small airplane provides a powerful and effective platform for research, ground-truthing, environmental awareness, and education.

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