Understanding Nocturnal Bird Migration in the Gulf of Maine: Owls

Northern Saw-whet Owls migrate at night along the Atlantic coast in the autumn months. Photo © Merra Howe

What We Studied

In 2010, BRI set out to better understand the migration and movement patterns of raptors, also known as birds of prey, as they moved through the Gulf of Maine at night (nocturnal raptors such as owls) and during the daytime (diurnal raptors such as hawks and falcons).

Northern Saw-whet Owls are a small species (they weigh about 1/5 of a pound) that migrates, breeds, and winters in Maine. In some locations their populations are thought to be decreasing, but saw-whets are not monitored as intensively in Maine as they are farther south. In Fall 2010, we caught saw-whet owls, at eight sites in coastal Maine, to gather information about their abundance and habitat use, and to determine their migration timing at different mainland and island locations along the coast (Figure 1).

What We Found

- BRI researchers caught 253 saw-whets in September and October 2010, with an average of 54 owls caught per 100 hours of effort (see map). Northern Saw-whet Owls appear to migrate in large numbers in coastal Maine.
- Maine coastal islands may be important stopover sites for owls during migration. Saw-whet migration intensity varied by location, but seemed to be comparable between offshore islands and mainland sites in 2010.
- Banded owls that are recaptured at different locations or in subsequent years can provide important information on potential owl migration patterns (see recaptures map on back page).
- Due to the coastal and offshore migration routes of some saw-whet owls, this species has the potential to be impacted by environmental changes in the Gulf of Maine.

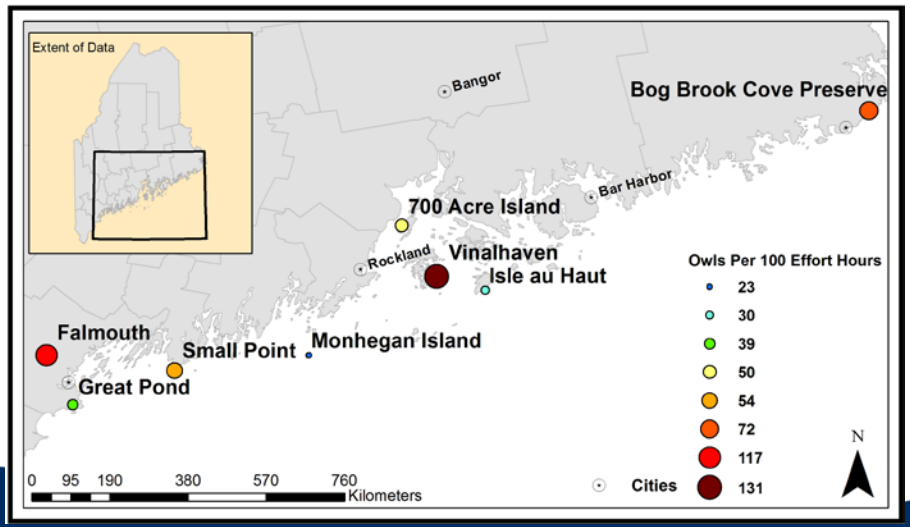
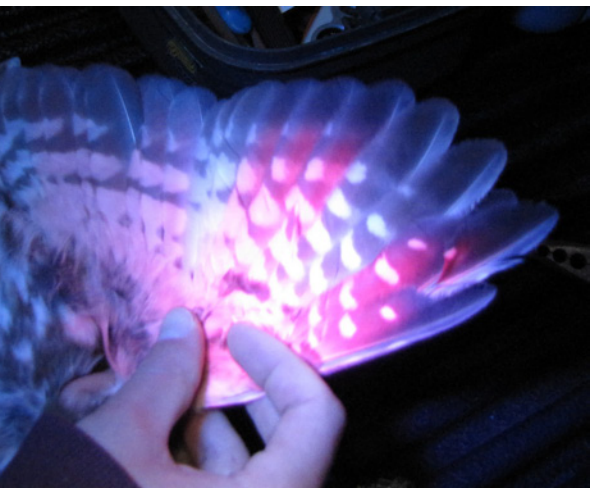


Figure 1. Number of owls (adjusted for effort) captured at eight sites along coastal Maine during the fall of 2010.

Our Approach

BRI researchers have spent the last 15 years developing field techniques to capture and study wildlife without negatively affecting the animals. Owls were captured between dusk and dawn using fine mesh nets erected around an audiolure—an audio system playing saw-whet owl calls. Owls attracted by the calls flew into the nets, were caught in the mesh, and were harmlessly extracted, banded, aged (using UV light—see photo below) and released by BRI biologists. A small feather sample was taken from each bird to analyze for stable isotopes of hydrogen and oxygen, the ratios of which can provide geographic and habitat information about the breeding or hatching grounds of the birds. In addition to northern saw-whet owls, BRI also captured several barred owls, a long-eared owl, a dozen little brown bats, and a whippoorwill.

Northern Saw-whet Owls can be easily distinguished from other owls by their small size and markings such as the white "V" over their eyes. Photo © Chris DeSorbo



Researchers use an ultraviolet light to determine the age class of owls. Recently molted feathers reflect a brighter pink color under ultraviolet light compared to older feathers. Photo © Merra Howe

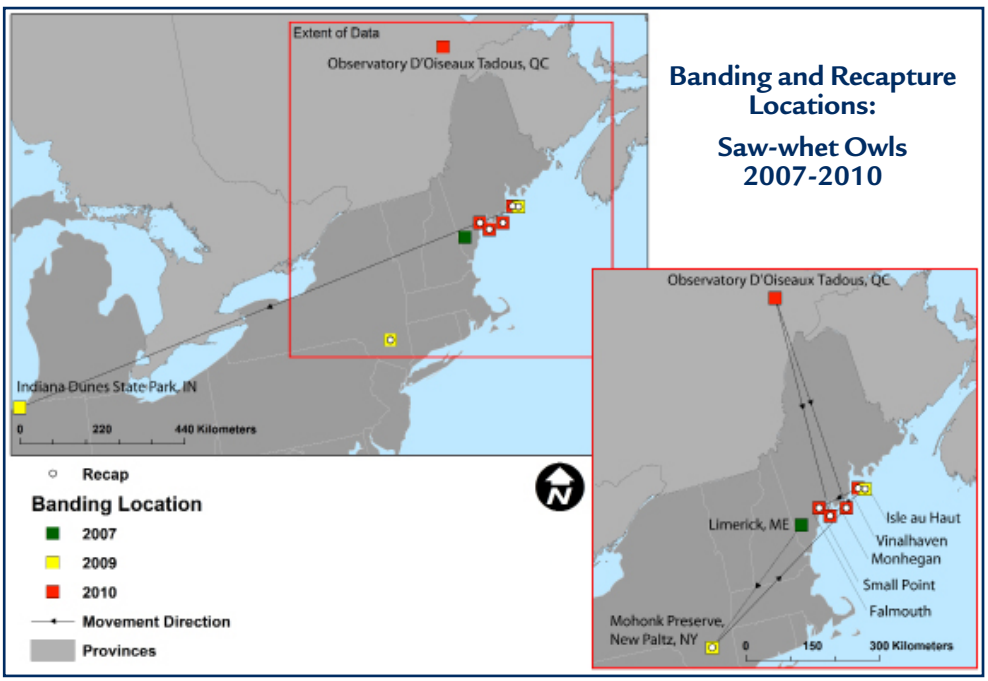


Figure 2. Banding and recapture locations of saw-whet owls from 2007 to 2010. Arrow on the lines indicate movement direction.

More Information

Additional information about this study and other BRI wildlife research can be found at www.briloon.org.

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