Vancouver Avian Research Centre

Research - Conservation - Education

Description of Project

The Northern Saw-whet Owl is a small nocturnal owl found in portions of southern Canada and northern USA. The species is partly migratory throughout its range, with large numbers of owls captured and banded at monitoring stations in British Columbia each fall, including hundreds captured at the Rocky Point Bird Observatory (RPBO) on the southern tip of Vancouver Island which suggests that significant numbers of owls migrate through southern Vancouver Island each fall. The numbers captured at the Vancouver Avian Research Centre (VARC) banding station at Colony Farm Regional Park in Port Coquitlam are much lower and this raises questions about the migratory routes of these owls. At present, the migratory routes and destination for these birds remain poorly understood because so few birds are subsequently recaptured after traditional banding activities.

The MOTUS Wildlife Tracking System (https://motus.org/), which consists of a large, growing network of VHF receiving stations in Canada and around the World, provides an excellent opportunity to study migration and habitat use by Northern Saw-whet Owls. MOTUS receivers automatically detect and record signals from radio transmitters (tags) deployed on birds that pass within their detection radius (15-40 km) and, with a significant increase in the number of receivers deployed in southern British Columbia and northwest USA including a receiver at VARC's banding station in Colony Farm Regional Park, the VARC study aims to use the MOTUS Wildlife Tracking System to assess the movement behaviour of Northern Saw-whet Owls in coastal areas of BC and northwest USA. Our study complements a pilot project currently being carried out by Vancouver Island University (VIU), RPBO and the Tatlayoko Bird Observatory (TLBO; Chilcotin District, BC). The project will constitute a "proof of concept" for using MOTUS to track bird movements in the mountainous Pacific region and it will provide an opportunity to build future capacity for more comprehensive collaborative projects with saw-whet owls and other species.

Conservation of any wildlife requires a good understanding of the species, including population dynamics, migratory or other movements, habitat preferences, stopover ecology and site loyalty. As relatively little is known about most of these aspects of the Northern Saw-whet Owl's life cycle, we hope to increase our understanding of these important questions in aid of conservation strategies for this species. The 2022 goal of the VARC study is to capture up to 20 Northern Saw-whet Owls and tag them with MOTUS tags during their Fall 2022 southern migration. Owls will be captured with mist nets and banded as part of the owl monitoring program currently operating at VARC's banding station in Colony Farm Regional Park. Individual owls selected for tagging will receive a Lotek Avian NanoTag attached on the birds' back using a leg-loop harness. The tag will emit a VHF radio signal every 29 seconds for up to 2 years. Once released with activated tags, owl movements will be recorded by the MOTUS receiver network to help elucidate the species' migratory behaviour. A subset of questions that may be addressed by this project include:

- What is the pace of migration? How far do the owls travel each day? How long do saw-whet owls stay in one general location (stopover, wintering, breeding) before moving on?
- Do they travel a direct or wandering route? How do migration pace and routes compare among project locations, and with previous studies in eastern North America?
- Do they return to the same geographic areas? Do groups of tagged owls consistently migrate to the same area or do they "spread out"? Are there age or sex differences in movements?

- Is there a northerly post-breeding dispersal from Washington and Oregon?

Any of these and other questions not specifically included in the pilot project may be addressed later as the data will endure and may be combined with future projects on this species. The MOTUS network is built on a collaborative data sharing framework, and data generated from this pilot project will be available for researchers and students at VARC and beyond.

One of the long-range benefits of a MOTUS project is that it contributes to, and benefits from, any other MOTUS project. Regardless of what the receiving station may have been installed to monitor, they receive the transmissions from any MOTUS-tagged individual. The research projects provide a synergy that enhances all other projects while their own data is being collected. This shared information provides outreach opportunities and community benefits. Everyone from school children to researchers will be able to access our information in real time. Visual presentation of the travel routes of Northern Saw-whet Owls can open the discussion to the importance of wildlife monitoring, conservation, and ecological health.