

Silver-haired Bat Migratory Stopover Ecology

Background

Several species of bats make annual long-distance migrations, but questions about if/how bats use stopover sites to rest and refuel remain unanswered. Silver-haired bats (*Lasionycteris noctivagans*) are a widespread migratory North American species. Previous study has suggested Long Point, Ontario (north shore of Lake Erie) as a potential stopover site for this species.

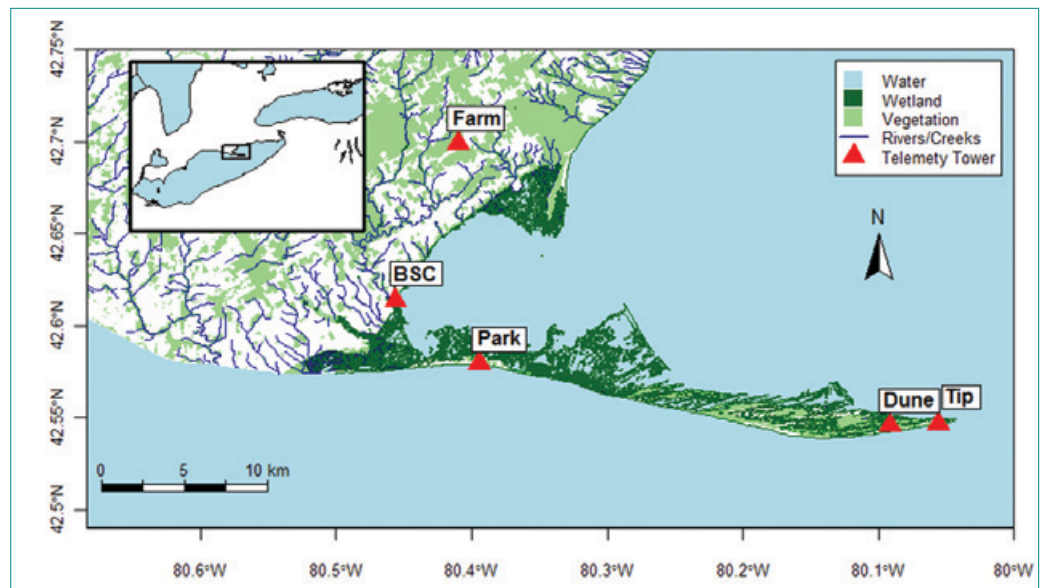
We captured silver-haired bats during fall migration at Long Point and used a digital radio-telemetry array to monitor their movements over an area ~ 20 x 40 km, documenting stopover duration, and departure direction. The question of whether bats flew across Lake Erie was a particular concern given proposed offshore wind energy development on Lake Erie.

Telemetry Devices

- Four SRX600 Automatic Datalogging Receivers with two or four Yagi antennas per receiver.
- One SRXDL-1 Automatic Datalogging Receiver with a single Yagi antenna.
- 0.29g NTQB-1 Lotek digitally coded radio transmitters (< 3.1% of body mass).
- “21 day” tag life at 5 second signal rate (actual tag life was ≥ 23 days in the field).
- All transmitters were on the same frequency, but transmitted a unique ID “code”.
- Digitally coded tags and automated datalogging radio receivers allowed simultaneous monitoring of all bats 24/7 (one individual was detected 14911 times before departing).



Radio-tagged silver-haired bat



Map of the study region. Telemetry towers are indicated by red triangles. Most towers were equipped with 9-element antennas achieving ~12 km detection range, the Farm tower had 5-element antennas and ~5 km detection range.

Case Study

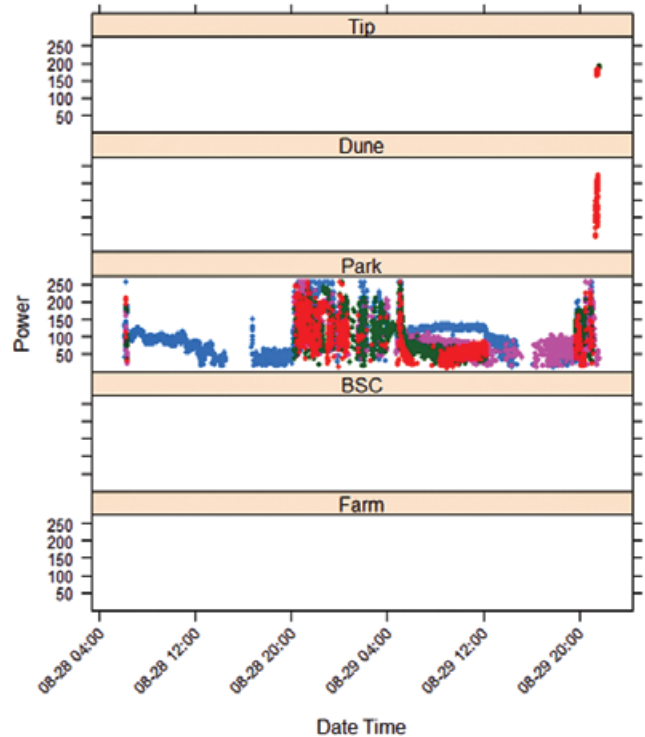
Silver-haired Bat

Migratory Stopover Ecology (continued)

Insights

- i) Bats arrived near dawn, presumably after completing a migratory flight.
- ii) Manual tracking revealed the bats roosted opportunistically, not exhibiting any clear preference for day roosts.
- iii) Most bats stayed at the site only one day (though some stayed > 2 wks) before departing immediately the following evening.
- iv) Some bats returned to the mainland, departing along the shoreline while others departed across the lake.
- v) We observed few periods of presumed foraging suggesting bats use stopover sites more for temporary refuge than for extended resting and refueling as in migratory birds.

These findings collectively have greatly furthered our understanding of the ecology and behaviour of migratory bats.



A bat captured near the Park tower at dawn Aug 28. The bat roosted for the day, foraged in the area throughout the following night, roosted through the following day and then departed, flying past the dune and tip towers. Panels are arranged from inland at the bottom to the tip of the point at the top. Coloured points indicate different antennas/directions.

Research Team & Publication

McGuire, L. P., Guglielmo, C. G., Mackenzie, S. A. and Taylor, P. D. (2011), Migratory stopover in the long-distance migrant silver-haired bat, *Lasionycteris noctivagans*. Journal of Animal Ecology. doi: 10.1111/j.1365-2656.2011.01912.x



For Further Information:

Lotek Wireless Inc. (The Americas & Japan)
Web: www.lotek.com Email: biotelemetry@lotek.com
Phone: (+1) 905-836-6680

Biotrack Ltd. (all other areas)
Web: www.biotrack.co.uk Email: info@biotrack.co.uk
Phone: (+44)(0)1929 552 992



Partners in telemetry