RADIO TELEMETRY AND MIGRATION STOPOVERS: LONG POINT'S *DIGITAL ARRAY*

It has been relatively recently that radio telemetry has been used to study a relatively short lived (and largely unexplored) period of birds' lives—stopover visits made during migration. Most telemetry studies on stopover ecology have focussed on small scales, but the Phil Taylor lab (Acadia University, Atlantic Cooperative Wildlife Ecology Research Network, Bird Studies Canada) is tackling larger scale questions with Lotek Wireless / Biotrack (Canada & UK).

Figure 1. The banding station at the Tip of Long Point, one of the locations where birds were tagged and monitored.

Long Point Bird Observatory - Where better to set up a system for larger scale enquiries than Bird Studies Canada's Long Point Bird Observatory on Lake Erie? Established in 1960, this facility has been monitoring bird migration longer than anywhere else in North America. The point is a relatively pristine 35 km sand spit jutting into Lake Erie, with active stations about 29 km apart.

The Digital Array – For organisms moving on the scale of kilometres, rather than meters, there is a significant advantage to establishing multiple receiving stations. In the fall of 2008, the lab established four automated, multi-antenna sampling towers along the axis of the Long Point sand spit. Each tower was equipped with a Lotek SRX 600 receiver capable of sampling signals from multiple antennas sequentially.

Figure 2. Assembling Yagi directional antennas on one of the towers of the array.

Projects using the array - Using 3 species that migrate through Long Point in considerable numbers (Swainson's Thrush, Hermit Thrush, and Northern Saw-whet Owl), the lab team (Taylor, Alex Mills, Beth Thurber, Stu Mackenzie) outfitted about 90 birds with light-weight (< 1 g) Lotek tags. With receivers collecting data non-stop throughout the study, the team proceeded to collect over 200,000 detections through the course of the fall.

Figure 3. A Northern Saw-whet Owl wearing a Lotek transmitter (left) and applying a transmitter to a Hermit Thrush (right).

Analysis of the results – Over the course of the winter, members of the Taylor lab have been analyzing the data and preparing manuscripts for publication, as well as planning for 2009. The 2008 work revealed some interesting spatial patterns in stopover ecology that are expected to be in press by the end of 2009.

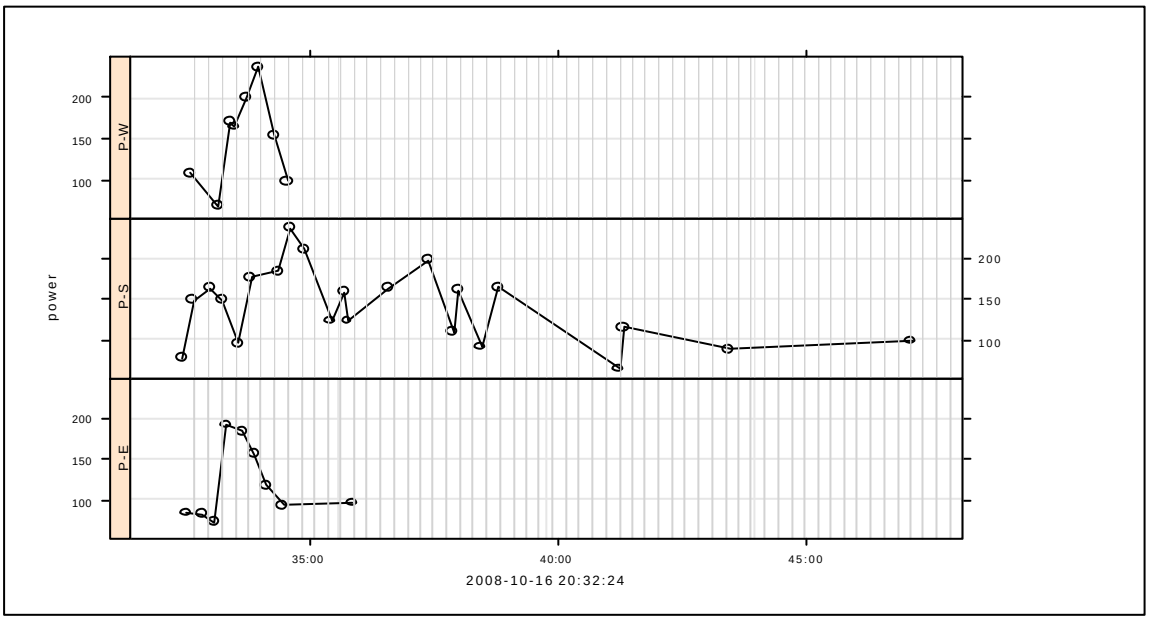

Figure 4.
One of many behaviours captured by the digital array are departures such as this Hermit Thrush. The persistent but declining signal on the south pointing antenna (P-S) tracks the departure for about 13 minutes (or 10 km). The earlier disappearance of the signal in the east and west pointing antennas (P-E & P-W) show that the thrush went south.

The Americas & Japan… Lotek Wireless Inc. – www.lotek.com – biotelemetry@lotek.com
All other inquiries… Biotrack Ltd – www.biotrack.co.uk – info@biotrack.co.uk