



Shorebird Stopover Ecology and Habitat Use at Plymouth Bay, Massachusetts

Evan Dalton
Landbird Conservation, Manomet

Project Description

Shorebirds are one of the fastest declining groups of birds in North America, with many of the long distance migrants showing population declines of at least 50% since the 1970s (State of the Birds Report 2014). These birds face a multitude of threats including increased predation, habitat degradation and loss, unsustainable hunting on the wintering grounds, and climate change (Atlantic Flyway Shorebird Conservation Business Strategy 2013). Effective conservation strategies must consider the full life cycle of these birds. However, due to the lack of basic biological information during migration, it is often unclear what conservation actions would be most effective at important stopover sites. The focus of this study is the Semipalmated Sandpiper (*Calidris pusilla*, SESA), a bird that is still common, but work on the wintering grounds (Morrison et al. 2012) and during migration (Gratto-Trevor et al. 2012) suggests a steep population decline. By learning more about SESA use of stopover habitat, a critical element in the annual migration cycles of these birds, we will be able to more effectively conserve SESAs and other migratory shorebirds in the region and across northeastern North America.



Over several sessions in August 2015, scientists from Manomet Inc. and MassWildlife, plus a number of additional volunteers, captured shorebirds on Plymouth Beach using mist-nets placed near the high tide line on an incoming tide at dawn. The position of the mist-nets enabled the scientists to catch birds moving along the water's edge while feeding. After immediate extraction, each SESA was marked with a USGS metal band on the upper right leg, and a unique alpha-numeric dark green engraved flag on the upper left leg. Other captured shorebirds were marked with a USGS metal band on the upper right leg. In addition, radio-telemetry Lotek NTQB-2 Avian NanoTags, fully funded by the generous grant from the Blake-Nuttall Fund, were deployed on 13 juvenile SESA.



Results

After deployment, of these initial 13 nanotagged SESAs, we had detections of 5 birds at 7 different MOTUS towers, all operated by the US Fish and Wildlife Service, with detections up until September 15th. These towers were located within the Monomoy NWR, South Cape Beach State Park in Mashpee, Nomans Land Island NWR off Martha's Vineyard, Block Island, and three different towers on Nantucket. These detections, as part of the full three-year data set, will give us a better idea of how migrating SESA use the coast of New England on their southbound journeys.

Further Work

Since the start of the project, with additional funds from the William P. Wharton Trust, we tagged a total of 73 SESA on Plymouth Beach over three fall migrations. Also with these funds, Manomet purchased a telemetry receiver station using a pair of 9-element Yagi PLC-1669 antennae which was erected on Plymouth Beach as part of the MOTUS network (see motus.org), enabling automated reading of any Lotek Avian NanoTag that transmits within the detection range of approximately 5 km. We are currently working with MOTUS staff to download and analyze these data to determine SESA length-of-stay on Plymouth Beach and writing up our results with the project's collaborator Andrew Vitz, the State ornithologist for the Massachusetts Division of Fisheries and Wildlife as part of a regional monitoring plan. Results from this study will provide important information to assist government agencies, conservation organizations, and beach managers in developing a conservation strategy for migratory shorebirds in MA Wildlife.



Gratto-Trevor, Cheri, R. I. Guy Morrison, David Mizrahi, David B. Lank, Peter Hicklin, and Arie L. Spaans. 2012. "Migratory Connectivity of Semipalmated Sandpipers: Winter Distribution and Migration Routes of Breeding Populations." *Waterbirds* 35.1: 83-95.

Morrison, R. I. Guy, David S. Mizrahi, R. Kenyon Ross, Otte H. Ottema, Nyls De Pracontal, and Andy Narine. 2012. "Dramatic Declines of Semipalmated Sandpipers on Their Major Wintering Areas in the Guianas, Northern South America." *Waterbirds* 35.1: 120-34.

North American Bird Conservation Initiative, U.S. Committee. 2014. *The State of the Birds 2014 Report*. U.S. Department of Interior, Washington, D.C. 16 pages.

Winn, B., S. Brown, C. Spiegel, D. Reynolds, and S. Johnston. 2013. *Atlantic Flyway Shorebird Conservation Business Strategy*. U.S. Department of Interior, Washington D.C. 26 pages.