In the News

Middle School Students Follow Osprey

At MTI, we have always believed that education of young minds is one of the most effective conservation tools and have supported numerous educational projects over the years. In 2011, we teamed up with the Chesapeake Bay Foundation (CBF) and began laying the groundwork for future collaboration. We agreed that offering school-aged children a connection with the animals in the Chesapeake Bay ecosystem could have lasting impacts. Further, we wanted to provide a resource where students and educators could remain engaged long after their CBF educational program ended. CBF sees over 35,000 students pass through its programs each year.

After creating the foundation of our collaboration, we decided upon what species and technological approach would best benefit the new program. We chose osprey (*Pandion haliaetus*), an iconic Bay species with nests in great abundance throughout the Chesapeake region. This is a species researchers have successfully tracked for years in North America after its near demise due to DDT bioaccumulation. The osprey generally spend winters in South America away from the cold temperatures, though some individuals find refuge in the Caribbean. Much of the electronic tracking of osprey over the previous 20 years has used Argos PTTs. The GPS-enabled PTTs used on osprey provide highly accurate geopositional information during nesting, migration, and wintering; the Argos satellite constellation's global coverage allows such data to be collected over the Atlantic and deep into the Amazon basin. While receiving high-resolution GPS data through Argos was vital for understanding migration patterns, significant gaps remain with regard to behavior and fine-scale habitat use. The reason: due to a variety of constraints, PTTs are only able to transmit GPS positions recorded at hourly intervals. As noted on page 5, our GSM/GPS units are able to send users GPS data collected at much higher frequency, thereby allowing students to examine foraging behavior and migration data that match the expectations of a generation accustomed to almost unlimited high-speed mobile data transfer.

In early 2013, we contacted long-time friend and osprey expert Rob Bierregarrd (Research Associate, Academy of Natural Sciences of Drexel University) to ask if he would be willing to help us tag osprey for the collaborative project. Rob graciously offered his support and insight on the proposed project, as he has much experience with other educational programs. Once the permits were obtained, we were ready to go. John Rodenhausen, CBF's Maryland Director of Development – who is definitely no stranger to our GSM units (see Winter 2011 Tracker News) – spied a few nests for the project that he thought would physically connect the students to the osprey. These nests were easily accessible to educators and students during educational programs. Students can make *in-situ* observations of the behaviors of the tagged nesting male osprey. Then they can access the internet and follow where the birds have been foraging. Once their respective CBF educational program concludes, students and teachers can continue to monitor the birds' movements on the CBF website (http://cbf.org/ospreymap). In addition to an interactive map (thanks to Movebank.org) that enables visualization of movement data, the webpage includes information about each tracked osprey as well as resources for teachers and students. Teachers, in addition to using their own creativity, can access lesson plans while students can view entire datasets in Movebank or listen to the call of an osprey should they ever forget what one sounds like.

A day in the life of Woody as he tends to his mate's caloric needs near the Chesapeake Bay Bridge in Annapolis, Maryland. (Example of mobile .kml file that can be viewed on Android devices and later-generation iPad tablets.)

In April 2014, we tagged two more osprey on the Eastern Shore of the Chesapeake Bay in Maryland. We hope students and educators will be able to observe some general differences in foraging behavior among the individuals during the nesting season, in addition to watching their autumnal migrations. We have high hopes for this project and are grateful to all those that have supported the collaboration, including some citizen scientists who have helped us along the way.

Osprey instrumented with 30g GSM/GPS unit.

A. *Tagging team in Port Isobel near Tangier Island from left to right: Lucy Howey-Jordan, Lance Jordan, John Rodenhausen, Rob Bierregaard, Paul Howey, and Bart Jaeger.*

B. *An osprey affectionately known as Woody at CBF's Arthur Sherwood Environmental Education Center in Annapolis, Maryland has an obliquely built "Dr. Suess-esque" nest.*

C. *Rob Bierregaard carefully extracting an osprey from its nest*