SPRING 2012 Volume 13, Issue 1

Tracker News

Microwave Telemetry, Inc.

Taking Biotelemetry to New Horizons

Dear Customers and Friends,

Sometimes one has to take a step back to see the whole picture. Our conference in March gave me, and I am sure some of you, a few moments to understand the scope of what we are all involved in. We now use a vast array of technology: satellites, internet, microcomputers and solar power to mention a few, all of which we take for granted but all must work flawlessly to help us in our quest to understand the lives and travels of the animals we study. Each of the 36 conference presentations took us beyond biotelemetry horizons we could not have imagined 20 years ago; some using our latest devices that may become the standard in future important conservation studies, just as our unique 5g PTT has become the catalyst for many groundbreaking studies of smaller birds over the last two years.

As always, I would like to thank the authors of the articles we present here, especially Libby Mojica and Brian Washburn for volunteering to deploy prototype GSM units within their studies. Their excellent articles give us a glimpse into the future, as GSM-based units become a viable alternative to PTTs for some studies.

Similarly, I would like to thank Ken Meyer for his excellent article. He shows yet again how adding GPS accuracy to an existing study opens up fine-scale understanding of habitat use.

Last but not least, thanks go to Dave Kerstetter for sharing the preliminary results of his team's swordfish study.

The students of the four projects we awarded free transmitters to last year have been busy. I would like to thank Maximiliano Galmes and his team for their report on their Crowned Eagle project and wish them and his team for their eagle chicks. In due course, we will report on the other three school projects.

Thank you again to every one of you who attended our conference. I wish you a successful field season.

Sincerely,

Paul and the MTI team

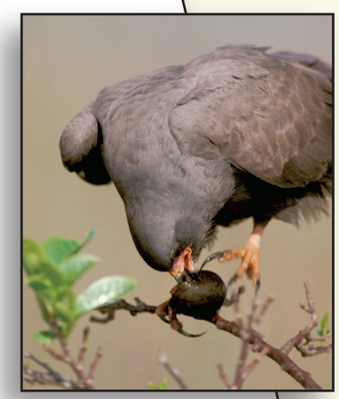

Photo by Rob Bennetts

Above:
Adult male Snail Kite extracting Apple Snail from shell

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A New Kind of 'Tweet': I Just Got a Text from a Red-Tailed Hawk!

Brian Washburn is a research wildlife biologist with the USDA, APHIS, Wildlife Services, National Wildlife Research Center in Sandusky, Ohio and is an adjunct assistant professor with Michigan State University, North Carolina State University, and the University of Missouri.

Each year over 66 million people pass through Chicago's O'Hare International Airport on their way to business meetings, conferences, vacations, and other important events. As they gaze out the window of the terminal or an aircraft at the large expanses of pavement and grass, likely they do not notice the presence of red-tailed hawks and other wildlife that also find the airfield at one of the busiest airports in the world to be a good place to spend time. While passengers enjoy a burger, sandwich, or salad from the food court, European starlings are foraging within grassy areas looking for insects and red-tailed hawks search for voles and other prey items. However, problems arise when birds and aircraft collide, an event that occurs most commonly on and within 5 miles of airports.

Photo by Brian Washburn

Red-Tailed Hawk

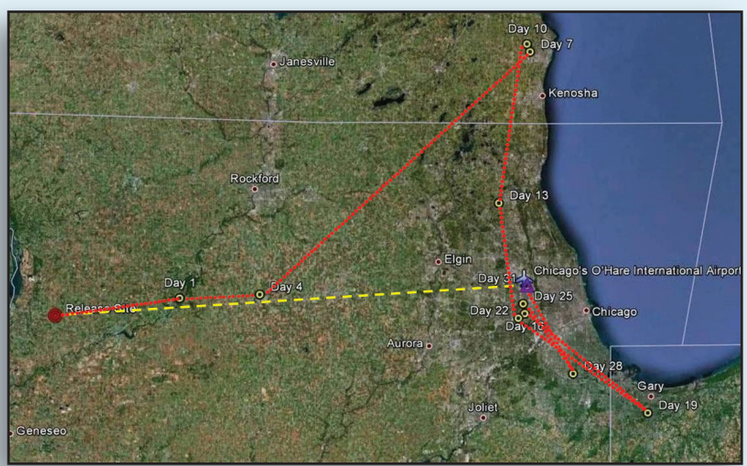
Fortunately, going about their important work relatively unnoticed are wildlife professionals from the U.S. Department of Agriculture's Wildlife Services (USDA WS) program. These airport biologists use a variety of tools and techniques to make the airfield unattractive to wildlife and scare or remove those problematic birds that remain and pose a hazard to safe aircraft operations. When it comes to reducing the risk to aircraft posed by raptors such as red-tailed hawks, the live-capture and relocation of these birds away from the airport is a common practice. However, little is known about where and when these relocated birds spend their time.

The National Wildlife Research Center (the research arm of USDA WS) provides research and information in support of the USDA WS operations program and the airport community. As a Research Wildlife Biologist, I am leading several research efforts aimed at gaining a better understanding of how to effectively reduce the risk of raptor-aircraft collisions. At Chicago's O'Hare International Airport, my USDA WS colleagues and I are using colored wing-tags and traditional leg bands to determine how many relocated red-tailed hawks actually return to the airport. We are starting to gain an understanding of how age class, time of year, and other factors might influence whether or not a bird returns to the airport following a relocation 'road trip'.

Photo by Craig Pullins

Although the information we are obtaining from the tagging efforts is very valuable, the need for more finite details regarding post-relocation movements of raptors is clear.

In February of this year, an exciting opportunity presented itself to allow this process to begin while simultaneously learning about a new technology in satellite telemetry. Working with Paul and the Microwave Telemetry staff, we agreed to deploy an experimental 25-gram GPS-capable solar-powered transmitter on a red-tailed hawk. However, this unit is somewhat unique in that it uses the Groupe Spécial Mobile (or Global System for Mobile communication; GSM) system standard and the same cell phone towers we rely on for our daily human communications to transfer the data from the unit to the end user rather than through the satellite network (granted, this is a huge oversimplification to an amazingly complex process).



Locations (shown at 3-day intervals) of a red-tailed hawk (GSM14) following her relocation from Chicago's O'Hare International Airport. Although she took one month and a relatively indirect path, GSM14 traveled back to the airport from which she was live-trapped and relocated.

On an early March morning, a second-year female red-tailed hawk found a gerbil safely tucked away in a bal chatri trap too much to resist as breakfast; thus we had a volunteer. Hereafter known as GSM14, she was fitted with the GSM/GPS telemetry unit using a backpack harness, provided with vehicle transportation, and released at a presumably safe site about 125 miles west of the airport.

GSM14 left the release site within hours and by the next day had flown 25 miles to the east. One week later she was located in southeastern Wisconsin. Next, she traveled south through the northern reaches of Chicago to an area southeast of O'Hare airport. After two forays into northeastern Indiana, GSM14 headed north toward the airport where she was captured. Most importantly, exactly one month after her relocation the unit recorded her presence back on the O'Hare airfield. Since that time she has taken up residence in a wooded area to the east of the airport and has wandered onto the airfield itself on numerous occasions.

GSM14 and other red-tailed hawks present on or near Chicago's O'Hare International Airport that are currently wearing satellite transmitters (as part of a related research study) are providing valuable information about the movements of these birds and the potential risks of hawk-aircraft collisions at O'Hare and other airports. Further, the introduction of the GSM/GPS telemetry units provides exciting opportunities for future research to increase our understanding of wildlife ecology and movements.

Satellite-GPS Telemetry and the Conservation Biology of Swallow-tailed Kites and Snail Kites

Ken Meyer co-founded Avian Research and Conservation Institute (ARCI; www.arcinst.org) in 1997; he now serves as Executive Director. ARCI's mission is to conduct problem solving research on rare and imperiled birds that stimulates management action and enhances public appreciation for science based conservation planning.

From 1996 to 2007, Avian Research and Conservation Institute (ARCI) used Microwave Telemetry's (MTI) Doppler-only PTT-100 to address conservation-related questions about the ecology and demography of Swallow-tailed Kites (*Elanoides forficatus*) and Snail Kites (*Rostrhamus sociabilis*). This research was very productive, but it soon became clear that GPS-enabled PTTs would allow us to focus more sharply on hypotheses about movements and habitat selection and, thus, to recommend effective management practices. Agency interest grew rapidly, but the smallest available Argos/GPS units, weighing 22 grams, were too heavy for these lightly-built species. Fortunately, MTI kindly offered to take on the challenge of producing a 17g Argos/GPS unit, light enough for the kites and the smallest GPS-enabled PTT ever made, in time for the 2011 nesting season. The following accounts summarize our findings based on Doppler technology and our preliminary results from the more recent GPS tracking.

Photo by Ken Meyer

Adult Swallow-tailed Kite

Discovery of the 8,000 km migration pathway and wintering destinations of the U.S. population of Swallow-tailed Kites was one of the first applications of MTI's 18g PTT when it became available in 1996. This knowledge has made it possible to address human-caused threats to kites over their year-round range. These transmitters also produced the first estimates of adult survivorship and revealed the areas and seasons for which mortality levels were greatest. In the summer of 2011, we began using MTI's Argos/GPS units to find previously undetected pre-migration communal roosts and to estimate detectability and turn-over rates (with our partners from GA Dept. of Natural Resources, SC Nature Conservancy, and AL Dept. of Conservation and Natural Resources). We are identifying important habitat features and land parcels, refining survey methods, and improving population size and trend estimates. ARCI is particularly interested in documenting use and habitat selection within National Wildlife Refuges by breeding, staging, and migrating kites. On the South American winter range, where our prior research revealed high mortality, GPS locations will improve our ability to identify likely sources of mortality.

Southbound paths of 11 Swallow-tailed Kites tracked with 17g Argos/GPS PTTs

The goal of our first satellite-tracking study of Snail Kites, begun in 2007, was to compare the utility of PTT (Doppler only) and VHF data for estimating home-range areas, survivorship, and movements of 10 adults carrying a combination PTT/VHF package. Home range areas differed significantly between VHF (205 km²) and satellite (961 km²) methods. Seven of the 10 tagged kites regularly made movements of 100 to 125 km, often returning within a few days to their starting point. We could not have detected such movements with any feasible and affordable VHF tracking protocol. Our survival estimate in 2007 was 1.00 based on the satellite data but only 0.67 based on VHF detections of the same individuals.

Photo by Rob Bennetts

Adult male Snail Kite with Apple Snail

While the satellite tracking produced a cumulative two-year estimate of 1.00 (the VHF transmitters expired after the first year), a concurrent estimate from a study in the same area using band resightings and VHF telemetry was less than 0.50. Our present research uses GPS locations to compare movements among foraging areas with regard to snail, vegetation, and hydrologic conditions. In addition, copper concentrations determined from successive tissue sampling of the tagged kites will be analyzed in relation to levels in snails at successive foraging locations to determine whether this toxic metal, long used as a fungicide in citrus groves and detrimental to bird reproduction, is being acquired by the kites. Snail copper levels are extremely high at some planned water storage sites essential to Everglades restoration. Because these reservoirs are expected to draw foraging Snail Kites, we want to know how much residual copper the birds acquire. The GPS-derived movement data are also being used help develop a risk-assessment model for this endangered species with regard to proposed wind-power facilities in southern Florida.

MTI's 17g Argos/GPS PTTs are performing extremely well in these valuable studies, producing on average nearly eight fixes, accurate to within 18 meters, every 24 hours. Unlike any other spatial depiction of movements, these systematically gathered datasets document finely scaled locations with no observer or detection biases for species that were previously impossible to track with GPS technology. We are grateful to MTI for making such research possible. We also thank USFWS, USGS, Florida Fish and Wildlife, National Fish and Wildlife Foundation, Southern Company, Felburn Foundation, and our collaborators: G. Kent, J. Coulson, D. Demarest, P. Darby, K. Hart, and R. Frakes.

Tracking the Bald Eagle with 70g GSM/GPS Transmitters

Libby Mojica is a wildlife biologist and full time researcher at the Center for Conservation Biology at the College of William and Mary and the Virginia Commonwealth University where she studies raptor conservation and management.

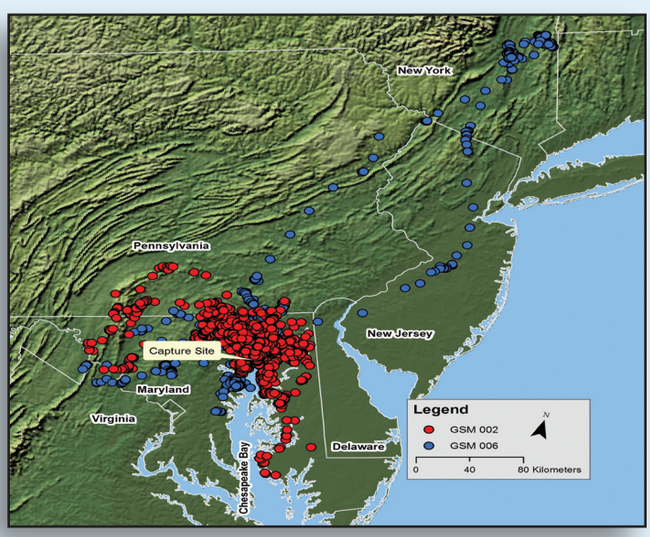
The Bald Eagle (*Haliaeetus leucocephalus*) was one of the first wildlife species tracked with satellite telemetry. Its large body size (>3,500 g) can easily carry the 100+ g transmitter without impeding breeding or their 4,000 km distance migrations. We estimate several hundred bald eagles have been tracked with PTTs since the 1980s. Over 200 of those were on the Atlantic flyway of North America from eastern Canada to Florida. The Chesapeake Bay is in the middle of the flyway and attracts eagles from three different breeding populations along the flyway.

We were approached by MTI last year to deploy a couple of their transmitters modified to use GSM technology. We wanted to test the units in areas we knew had consistent access to the cell phone network. Unlike most MTI customers, we chose to put the GSM/GPS units on a species where we already had extensive data on their movements. Bald eagles travel a fairly predictable migration route with no known transoceanic flights that would compromise near real-time data transmission. We also chose to deploy the transmitters on individuals from the Chesapeake Bay eagle population because we knew they would not travel large distances and we could retrieve the transmitters if needed.

Photo by Lucy Howey-Jordan

A second-year bald eagle fitted with GSM unit 006

With the help of Lucy Howey-Jordan and Lance Jordan at MTI, we deployed 70g GSM/GPS units on two second-year bald eagles in February 2011. These prototype units were programmed to record a GPS location every hour of the day. We can locate each eagle after the transmitter sends the GPS data via the cell phone network each morning. So far the transmitters have each collected over 10,500 GPS locations over 473 days on the wing. Data transmission through the cell network has been extremely reliable with rare interruptions in the data.



Locations for both Bald Eagles tracked with GSM/GPS units in the Chesapeake Bay region since February 2011.

The GPS data is comparable to those of the 70g solar Argos/GPS PTTs we have on 67 other bald eagles in the same region. The GPS-PTTs are programmed with a majority of the fixes recorded during the day and one programmed at midnight. The additional hourly fixes on the GSM/GPS units have provided us with more data on eagle movements when the daylight increases during summer months. We expect this to be especially useful if an eagle summers in high northern latitudes when behaviors may not be tied to a strict time of day.

Photo by Lance Jordan

Lucy Howey-Jordan holding eagle 006 while Libby Mojica secures the Teflon backpack harness.

Both eagles moved within the mid-Atlantic region as expected. Eagle 002 spent 95% of its time within 50 km of the capture site on the Chesapeake Bay in Maryland but also made two exploratory flights. One flight went west to the Blue Ridge Mountains of Maryland and Pennsylvania in Fall 2011 and another flight was made southeast to Blackwater National Wildlife Refuge in Spring 2012. Eagle 006 moved farther from the capture site with two flights west to the Blue Ridge Mountains and a 400 km flight North to the Hudson River in southeast New York. The eagle spent Fall 2011 on the Hudson River 130 km upstream of New York City and was likely foraging on seasonally available anadromous fish. Both eagles spent considerable time at the Conowingo Dam on the Susquehanna River (35 km north of the capture site). The hydroelectric dam provides a year-round source of food as stunned fish flow downstream through the turbines. The dam is also home to a large communal roost hosting between 100-200 eagles a night. The eagles also visited 58 of the known 122 roosts in the northern part of the Chesapeake Bay. These movement patterns are similar to the other eagles we are tracking in the region with large home ranges and exploratory flights. It is assumed their sub-adult years are spent exploring the landscape for future breeding territories and mating opportunities.

We plan to track both eagles until they settle into a breeding territory around age 5 which could happen as early as Fall 2013. Of the 34 eagles we are tracking that are of breeding age, only 4 are currently breeding. This high number of floating non-breeders is also reflected in our research on the overall health of the Chesapeake Bay eagle population. The population is exhibiting record high productivity and low mortality rates so the competition for a breeding territory is at an all-time high. It is unknown what the average age of first breeding is currently for the species in the Chesapeake Bay. Using tracking data, we will continue to monitor the complex dynamics of this population using the movements of sub-adult and non-breeding adult eagles. Tracking maps can be found on Movebank.org under the study "Chesapeake Bay Bald Eagles".

Movement and Behavior of a Swordfish Tagged off Cayman Brac, Cayman Islands

David Kerstetter is a Research Scientist and the Principal Investigator of the Fisheries Research Laboratory at Nova Southeastern University's Oceanographic Center focusing on a wide diversity of fisheries-related research topics.

The swordfish (*Xiphias gladius*) is a solitary, pelagic, oceanodromous species found in tropical, sub-tropical and temperate waters worldwide from 45°N to 45°S, in temperatures from 5-27°C, and can function at extreme pressures and temperatures. Swordfish are known to exhibit diurnal movement patterns, spending the daylight hours at depths between 200 and 800 m and the nighttime hours between 0 and 160 m, presumably following prey abundance and distribution. Data from recent studies have shown a positive correlation between average depth at night and visible moon fraction, with the fish remaining deeper during a full moon and shallower during a new moon.

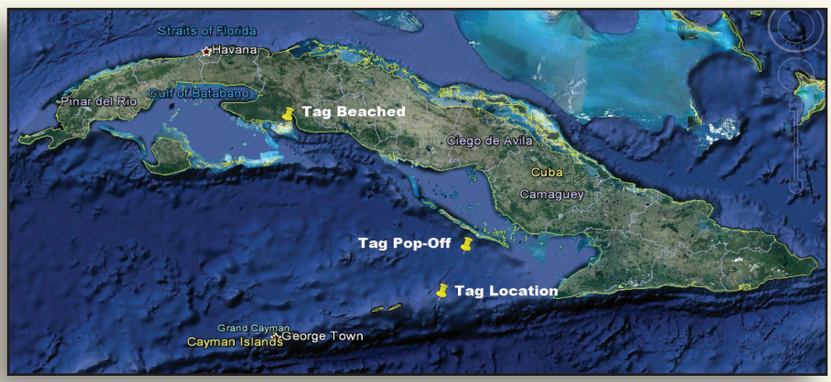


Figure 1. Study location of swordfish tagging project

The Fisheries Research Laboratory at Nova Southeastern University's Oceanographic Center (Fort Lauderdale, FL) has recently begun a collaborative tagging study with a local organization in the Cayman Islands. The purpose of the tagging study is to conduct a preliminary evaluation of the behavior of swordfish in the waters off the Cayman Islands utilizing archival Pop-up tags. This project is a collaborative effort with Mr. Clarence Flowers, of Orchid Development, Ltd. in the Cayman Islands.

To obtain the fish needed for this study, Nova Southeastern University graduate students Jenny Fenton and Travis Moore participated in the annual Cayman Swordfish Challenge tournament, held on Grand Cayman Island March 29 to April 2, 2012, as ride-along research scientists conducting opportunistic tagging. The trip was very successful; all three tags for this study were deployed. The tournament also donated all of the release category prize monies for use in future swordfish tagging projects. The three electronic tags that were used in this project to test this surfacing periodicity were high-rate X-tags. These tags were programmed for a 90-second sampling interval, providing a high-resolution profile of the fish's vertical and horizontal movements and allowing for investigation into behaviors such as basking and straight-line distance traveled.

To date, we have confirmed mortality of one fish and data from one tag has been received. That same tag also washed up on a beach in Cuba, was found by an Italian man, and is currently being sent back to the Fisheries Laboratory. Locations of where the tag was deployed, where the tag popped off and where it beached are shown in the map (figure 1). The data collected from that tag were analyzed with a model, developed in another study, that elucidates any diurnal vertical movement patterns as well as any movement patterns related to the lunar cycle. The preliminary data showed that the swordfish demonstrated a diurnal vertical migration pattern and movements related to the lunar cycle similar to swordfish tagged in previous studies (this is delineated by the fit line in figure 2). The swordfish exhibited a movement pattern of dives to deep water depths during the day and shallow water depths during the night (the red boxes in figure 2 highlight the nocturnal hours). This movement pattern is consistent with what is known about swordfish movements. Temperature data from that tag were plotted with the depth data to obtain information about the temperature of the waters the fish was moving through during the tag's deployment (seen in figure 3). The data show that the surface waters were around 25 to 28°C and the waters at depth were around 8 to 10°C. This indicates that this fish sustained, and can tolerate, a wide range of temperatures throughout its daily vertical migrations. Currently, a detailed analysis of the data is underway to determine detailed swordfish behavior in tropical waters and whether these fish exhibit differences or similarities with fish tagged in more temperate waters.

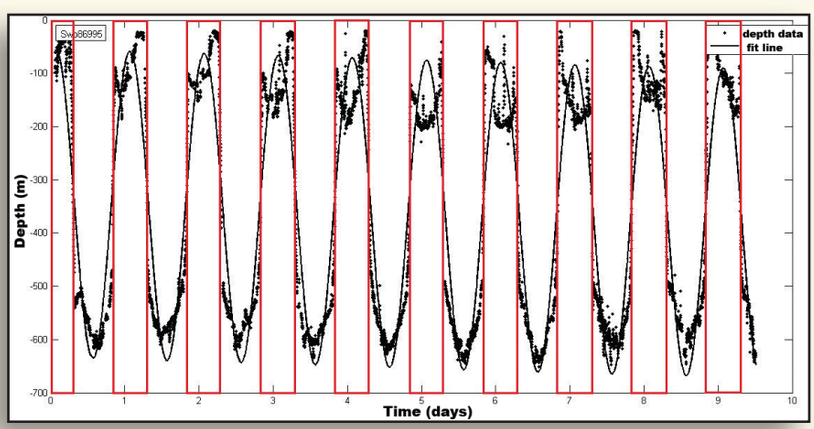


Figure 2. Depth profile illustrating diurnal vertical movement

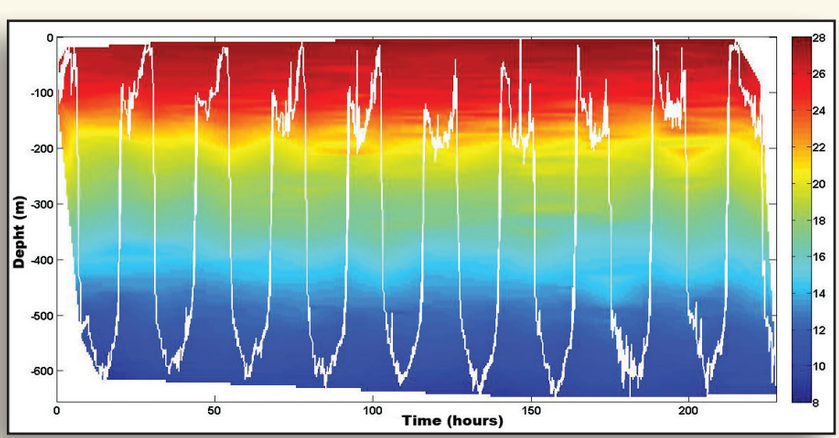


Figure 3. Plot showng temperatures encountered during vertical migrations

2012 MTI Avian and Marine Tracking Conference

Thank you to all those who attended our MTI 2012 Avian & Marine Tracking Conference, held in Columbia, Maryland from March 27-30. We especially thank those who came from halfway across the world, from India, Russia and Japan and those who overcame administrative difficulties in raising funds for their travel. We salute all attendees by displaying the flags of their countries.

The four-day event featured 36 presentations, six technical sessions, an avian attachment workshop, a fish tracking geolocation workshop and several group visits to our facility.

We would also like to acknowledge our keynote speakers, Jim Watson and Molly Lutcavage; Libby Mojica who led the avian attachment workshop, Ben Galuardi and Tim Lam for their fish tracking geolocation workshop and last but not least, our colleagues from CLS for their contributions to our technical sessions. You, along with all the other presenters, made the conference very informative and a huge success!

All of the abstracts are now posted on the homepage of our website.

Paul & the MTI Staff

We thank Jim Watson of the US Fish & Wildlife Service who shared his reflections on his 40 years of raptor research.

France

India

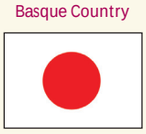
Norway

Israel

Thank you CLS America for sponsoring a delicious lunch!

Thank you Libby Mojica for your helpful attachment workshop.

Basque Country



Japan

Canada

Visitors at our MTI facility watch our robot in action.

Our Wednesday night banquet was enjoyed by everyone.

Russia

United Kingdom

Portugal

Czech Republic

Bahamas

USA

At our dinner, Lisa Davenport and Lela Schlenker were the winners of our surprise drawing for a bird and a fish transmitter.

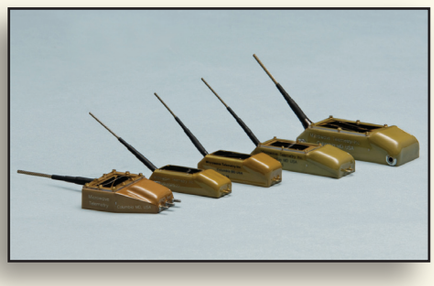
Our group photo taken in front of the lake outside the Sheraton Hotel.

Thank you
Russell and Kevin
for taking the pictures!

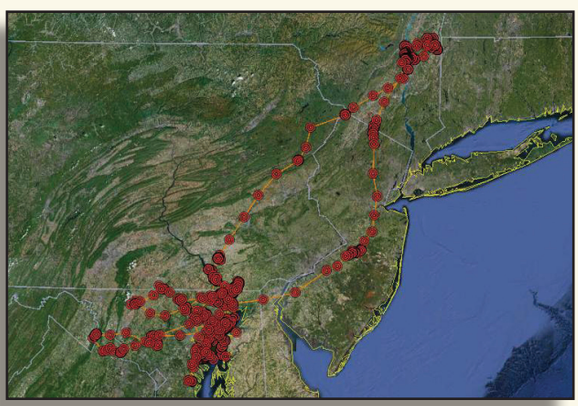
New Products

Solar GSM/GPS Transmitters

At our recent conference we unveiled our line of GSM/GPS transmitters that we have been developing over the last three years. This is in response to our customers' requests, as the GSM system should work particularly well in populated parts of the world where interference to the Argos system limits data reception. The GSM/GPS transmitter is also capable of transmitting more data, and ultimately is more cost effective per unit of data transmitted.



Our five models of GSM/GPS transmitters were designed with the same rugged housings as our Argos/GPS solar PTTs with weights ranging from 25-70g. Retaining the same features as our well-proven GPS PTTs, the GSM models: incorporate the same micro-power GPS receiver, have microprocessor controlled battery charge management allowing collection of GPS data at night, have temperature and activity sensors, and are programmed to take fixes at intervals as frequent as one per minute, depending on battery charge. Most importantly, the GSM/GPS transmitters allow 9800 bytes of data transfer per day. In areas of sparse GSM coverage, where no data download is possible in three days, a simplified text message containing the last locations will still be transmitted. However, the detailed data is archived for later transmission upon return to data coverage areas. Using the technology we have already developed for our fish tracking tags, our GSM/GPS transmitters can archive 258,000 GPS fixes for later download! This translates into a GPS fix every two minutes for an entire year. The GPS data will also incorporate the HDOP and VDOP measurements, as well as other parameters.



Bald Eagle 006 Tracked with 70g GSM/GPS Transmitter for over 412 days. 9676 GPS hourly fixes so far.

Global Coverage

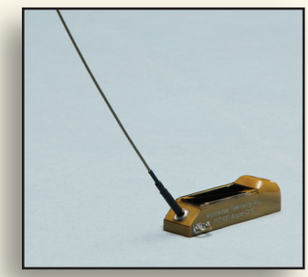
Our GSM/GPS transmitters offer global coverage as we have negotiated a contract with one of the largest international mobile phone operators. Further, our transmitters use an advanced embedded global µSIM to ensure secure operation in the rugged field environment.

PTCRB Certification

Our GSM/GPS transmitters have already undergone and passed testing by an independent test lab to obtain PTCRB and worldwide certification. We believe we are the first biotelemetry company to have achieved this certification for any GSM-based telemetry transmitter. Certification is legally required to use such devices on the worldwide GSM system.

User Friendly Data Access

GSM data transmitted to our server from anywhere in the world where there is GSM coverage, will be parsed and automatically emailed to the customer within 10 minutes. The data will include a "KML" file, an "E" file and an enhanced "G" file that will contain other parameters such as the HDOP and VDOP as well as the other normal GPS data that our customers are accustomed to receiving. We are now developing a "GSM Data Gate" on our website that will allow customers to log in and retrieve all transmitted data from a project.



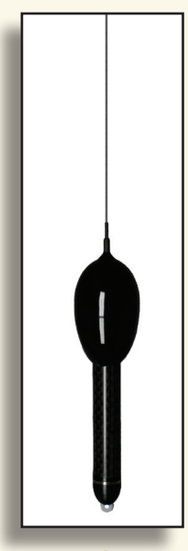
17g Solar Argos/GPS

Another new product introduced at our conference is the 17g solar Argos/GPS PTT. This latest addition to our series of GPS PTTs has the same features as the others but now offers the possibility of tracking bird species down to 500 g. Deployment of prototypes has been extremely successful (see article on page 3).

Prototype 3g Doppler PTT

On the trail to the Holy Grail of a 2g PTT, Paul showed a 3g prototype at our conference. The actual weight of 3.2 g would make it possible for the first time to satellite track a bird weighing less than 100 g. However, Paul pointed out that we already have a full developmental slate, so progress on this may be slow. Even though it will be the same circuitry as our 5g PTT, we have been told that this smaller version will have to go through the CLS certification, a fairly time consuming process. So, don't hurry to order any!

E-Tag



At our 2009 conference, we talked about the Pop-up E-Tag or Equinox Tag™, a smaller archival tag. If used in conjunction with an X-Tag on the same fish and programmed to pop-off at the equinox, it would provide a valuable Argos position to use as an intermediate point for longer duration tracks, as light-based geolocation is not possible at the equinox, when day length is essentially the same at all latitudes. Developmental work on this tag slowed down while we worked on upgrading the X-Tag's light sensing ability by putting the light sensor in the nose of the tag and improving the software. However, prototypes of this long-awaited E-Tag are now being tested.

The E-Tag can be programmed to pop-off at the spring or fall equinox or other dates; it records temperature at 15 min intervals for up to 1 year. Smaller than the X-Tag it will allow even smaller fish to be satellite tagged. The E-Tag will also allow for multiple, sequential pop-off locations on larger species. Further development will integrate into the E-Tag all the features of the other archival pop-up tags.

Students' Crowned Eagle Tracking Project from La Pampa, Argentina

Maximiliano Galmes

To celebrate our 20th anniversary, last year MTI awarded free transmitters to four student projects. This is the first report from students in Argentina.

The Crowned Eagle (*Harpyhaliaetus coronatus*) has been considered an endangered species by IUCN since 2004. The world population was estimated at less than 1000 individuals and their populations are declining. This is a large eagle that inhabits open woodlands in xerophytic forests of different biomes along its distribution that ranges from southern Brazil to northern Patagonia in Argentina.

Photo by Bart Paxton

Bryan Watts from the Center for Conservation Biology, Maximiliano Galmes and Fernando Urquiza working on the tagged chick.

Human persecution is the most significant threat to the endangered Crowned Eagle in central Argentina, due to a local belief that Crowned Eagles heavily and consistently prey on livestock.

Contrary to local beliefs, our results show that Crowned Eagles in semiarid habitats of central Argentina do not prey on livestock. Through video monitoring at nests we found that the main prey are venomous snakes and armadillos.

From Centro para el Estudio y Conservación de las Aves Rapaces en la Argentina (CECARA), Universidad Nacional de La Pampa and with the support of Peregrine Fund we are carrying out educational campaigns to disseminate information about ecology and conservation of the Crowned Eagle. We consider that these tasks are the most urgent high priority conservation measures that should be taken to preserve Crowned Eagle populations in this broad region.

By means of extension activities we incorporated a motivated group of students from "Escuela Provincial Agrotécnica", Victorica, La Pampa province, Argentina. Since then the student group has been participating in the Crowned Eagle project and with their teacher they currently collaborate on different research activities including searching for nests, capture and tagging of eagles.

Photo by Andrea Costan

Anabel & Fernando holding a Crowned Eagle chick during MTI 70g PTT attachment.

We aim to determine the habitat use of Crowned Eagles and evaluate the post-fledging period in central Argentina involving local students in conservation tasks of the species.

Working together with researchers from the Center for Conservation Biology, College of William and Mary and Virginia Commonwealth University, USA and PCRAR personnel from the Buenos Aires Zoo, we tagged three Crowned Eagle nestlings with 70g solar powered Argos/GPS PTTs donated by MTI earlier this year.

Photo by Maximiliano Galmes

Fernando holding a crowned eagle chick with a donated MTI 70g PTT.

The nestlings were tagged a few days before they left the nest. Although the young have not dispersed yet from their natal territory, some of them are moving considerably farther than others, performing displacements of 30 km from the nest. All transmitters are working very well and we are collecting new information regarding the habitat use of this raptor. We hope to continue collecting more important data for its conservation at its dispersal areas.

Local students Fernando and Anabel have a strong commitment to the project and throughout their participation they are open-minded regarding conservation tasks in the local environment. Furthermore this commitment from local youth has encouraged many local farmers to take part in Crowned Eagle conservation, caring and monitoring the nests within their ranches.

Photo by Joaquín Cereghetti

Left to right. Gonzalo Fernández Quintana (teacher), Anabel Gallardo holding the chick, Fernando Urquiza, Maximiliano Galmes and José Sarasola.

We plan to share data on the birds' movement with the student group over the coming months. We trust their enthusiasm will continue to grow and in this way we can ensure that information about the Crowned Eagle will spread among families, the school community and the local people.

Bits & Pieces

We will be closed July 4, 5 and 6 in observance of the Independence Day Holiday.

Remember - we will not begin work on your order until we have your completed Production Form and Purchase Order!

A new open-access journal titled Animal Biotelemetry will soon be launched by BioMed Central. The scope of the journal includes studies which utilize telemetric techniques to examine terrestrial, freshwater and marine species. Contact editor-in-chief Peter Klimley for more information - apklimley@ucdavis.edu

A reminder: To meet demands for new orders, we are only accepting bird PTT refurbishments from August to February.