

Tracker News



Microwave Telemetry, Inc.

Our Journey: 1991-2011

Dear Customers and Friends,

Please join us as we celebrate our 20th anniversary and look back at 20 years during which we have journeyed together through good and bad times, through amazing discoveries and economic recessions. It has been a privilege to serve you; your support and encouragement have urged us on. For this we are truly grateful.

This journey would not have been possible without our colleagues at CLS; our shared vision of providing a high tech platform for animal tracking has created strong cooperative efforts over the years. We thank Michel Guigue of CLS France and Bill Woodward of CLS America for their good wishes and kind words.

We also thank Geoff Holroyd and Helen Trefry for an update of their Burrowing Owl's northward migration. The Burrowing Owl was voted "Cutest Bird" in our lighthearted MTI Book of Records in this issue. We hope you enjoy looking back at some of the most memorable species tracked using our transmitters.

We hope you also enjoy a walk down memory lane. As we put this issue together we realized how far we have come. Our vision has always been to advance the field of satellite telemetry. So, it is very satisfying to look back at so many pioneering milestones, a series of "firsts" in our industry.

However, along with success comes a responsibility to give back. We hope to receive many applications for our end-of-year party drawing for free transmitters and for those we plan to donate to school projects. We also hope to receive many applications for the student scholarships we will provide at our conference in March of 2012. Save the date and please plan to attend. Come celebrate past successes with us and look to the future.

We thank you for being part of our journey the last 20 years and look forward to many more years together.
Have a safe and productive field season.

Sincerely,
Paul and the staff at MTI



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Celebrating Our History: The First 20 Years

You may remember our trip down memory lane featured in our 15th anniversary celebratory newsletter. We fondly reminisced about our humble beginnings in Paul's basement, our lack of test equipment, having one employee and one product, our 95g PTT!

Our primary means of communication with our customers back then was a fax machine. Here we are 20 years later, amazed how advances in technology have helped. The advent of email, websites and cellular phones makes for instant communication.

When we introduced our first newsletter in 2000 and 'Tracker News' in 2004, it was hard to predict that it would be so well received and a perfect way for our customers to share information about their work.

Please join us in taking stock of where we are now. We hope you enjoy the images we have gathered together for you. Thank you for being part of our journey, may we have many more years to celebrate together!

Our Staff

The MTI family: it truly is a privilege to work among employees we consider friends. We recognize all past employees and their contributions to our company. We wish them well!



On May 16th, the actual anniversary of our company's founding, we enjoyed a Maryland Crab Feast, cake and champagne.



Location

Our expansion in 2009 has allowed for enlarging our production space, adding a research lab, and a new conference room in which we proudly display the flags of 50-plus countries to which we export.



From Our First Catalog to Our New Website

Have you looked at our website recently? We hope you enjoy our Homepage photos, winners of our photo contest. Please feel free to give us some feedback.



Our 1993 price list.

Product	Price
95g PTT	\$150.00
50g Solar PTT	\$180.00
18g Solar PTT	\$120.00
12g Solar PTT	\$100.00
9.5g Solar PTT	\$80.00

Our new online price list. Notice we offer a battery powered GPS PTT - the LC4 - at the same price as a Doppler PTT!

Product	Price
95g PTT	\$150.00
50g Solar PTT	\$180.00
18g Solar PTT	\$120.00
12g Solar PTT	\$100.00
9.5g Solar PTT	\$80.00
LC4 PTT-100	\$150.00

Price List
Our oldest price list pulled from our archives shows that in 1993 the base price of a 95g PTT was higher than it is today. This is not unexpected; as newer and better technology replaces the old, some prices are lowered. However, the integration of newer technologies into our PTTs such as solar power and GPS demanded years of research and investment of time and equipment. Since we exclusively support all of our R & D, lower prices would bring our progress to a halt, ultimately limiting the research you, our customers, can carry out.

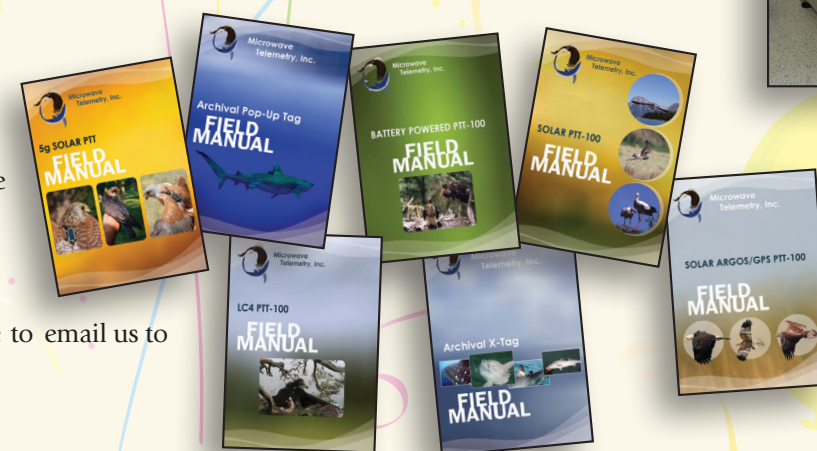
Machinery

Gone are the days when we manually placed components on our electronic boards! Our first generation Pick & Place machine in 1996, though an improvement over manual placement of parts, was very crude. Manually bonding individual microprocessors was also very time consuming. Our 3rd generation Pick & Place robot is truly state-of-art, allowing the placement of components with laser precision.



Our Manuals

Our first manual in 2000 consisted of a few pages, and was adequate for providing information about our limited range of battery powered PTTs. With the introduction of solar, Argos/GPS, LC4 PTTs and Archival Pop-Up Tags, it became critical to provide more information to our customers. Here are the covers of our 3rd generation manuals which some of you have already received with your recent orders. Feel free to email us to request an electronic version in pdf Acrobat™ format.



MTI: Pioneering Milestones in the Industry

We have worked very hard in the last 20 years to bring you the finest products we could with the state-of-the-art electronic and battery technologies available at the time. We look back with satisfaction on a series of "firsts" in the field of satellite telemetry:

Then...

First PTT weighing less than 100 grams: our 95g PTT in 1991



First Implantable PTT in 1993

First Solar PTT under 100g: in the mid 90s it was a 50g solar PTT, soon to be followed by a 35g solar in 1996, an 18g solar in 2001, a 12g solar in 2004, and a 9.5g solar in 2005



In 1996, our 20g PTT was first used to track the Peregrine falcon



First Archival Pop-up Tag, a concept we pioneered and finally realized in 1997, followed by subsequent versions



Satellite-in-View™ technology in 2000



Ground Track™ (integrated ground tracking capabilities) introduced in 2003

First generation of Argos/GPS PTTs (70g) in 2001, followed by a 45g model in 2003, a 30g model in 2005, and a 22g model in 2007

LC4 First LC4 battery powered GPS transmitters in 2004



First X-Tag (smallest Archival Pop-up Tag) introduced in winter of 2006

Now!

First 5g solar PTT in 2009



Microwave Telemetry Book of Records

Over the last 20 years, we have had the pleasure to watch our customers track many creatures, small and large, ugly and cute, scary and beautiful. This issue would not be complete without looking back at some of the more memorable species tracked. Of course, this is meant lightheartedly and the monikers are given with affection.

Cutest Marine Creature

Is there any marine creature cuter than a baby turtle? We think not! Kate Mansfield and Jeanette Wyneken's neonate loggerhead sea turtles, tracked with 9.5g modified solar PTTs, win this category hands-down.



Photo by Jim Abernethy

Fan Favorite

Over the years, no story has generated more comments and inquiries from readers than that of Max, the White Stork tagged with a 35g solar PTT in Switzerland by Adrian Aebischer in 1999. Max has been tracked for years from her breeding site in Germany to her wintering sites in Africa.



Photo by Adrian Aebischer

Cutest Bird

The recent development of our 5g solar PTT has made it possible for Geoff Holroyd and Helen Trefry to track what we believe is the cutest bird ever to carry a PTT: the Burrowing Owl. It may be a killer, but it's so darn cute!



Photo by Gordon Court

Most Tracked Fish

The most tracked fish has been the bluefin tuna, no doubt due to its commercial value and overexploitation. Molly Lutcavage has been tracking these fish since 1997 in New England.



Photo by Nuno Fragoso

Largest Bird

The largest bird tracked with our PTTs is the Andean Condor, tagged in 1997 by the Andean Condor Conservation Project of Argentina. Since then, in a Binational Program of Conservation with Chile, more than 42 satellite transmitters have been deployed on condors in Venezuela, Bolivia, Chile and Argentina.



Photo by Herman Pepe

Largest Creature

Try this on for size: the largest creature tracked with one of our tags is the largest fish in the sea, the whale shark, a gentle giant which can reach up to 18 meters in length. This was tracked by Alex Antoniou then of SRI, in 2001.

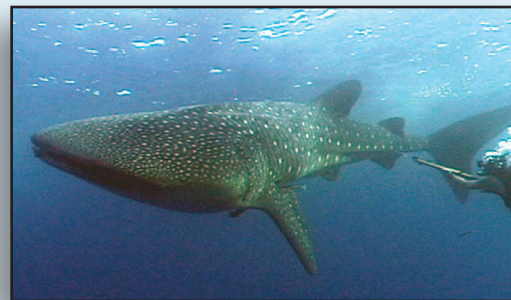


Photo by Alex Antoniou

Longest Migration

We get tired just thinking about this one! The longest nonstop trans-Pacific migration was tracked by Lee Tibbitts and Bob Gill, et al., of USGS Alaska. Their Bar-tailed Godwit flew 8 days, and an almost unbelievable 29,500 km, from Alaska to New Zealand in 2007.



Photo by Ted Svem

Smallest Bird

To date the smallest bird tracked by satellite is the Common Cuckoo, tracked with our 5g solar PTTs by Thomas Alerstam in 2010.



Photo by Raymond Klaassen

Rarest Bird

The rarest bird tracked with our PTTs has to be the California Condor, first tagged by Mike Wallace at the Hopper Mountain Wildlife Refuge (USFWS) in southern California. In the early 1980s it was determined that there were only about 22 of these birds left in the wild which led to the decision to capture the birds and begin a captive breeding program. Satellite tagged birds were reintroduced to the wild beginning in 1998.

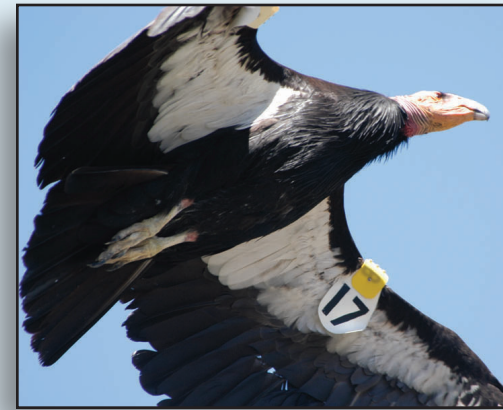


Photo by Mike Wallace

Most Tracked Bird

Most tracked bird is the Houbara Bustard, which has been tracked by the National Avian Research Center in Abu Dhabi since the mid-1990s, and was featured in a special article in 15th anniversary newsletter in Spring 2006.



Photo by Xavier Etchaker

Smallest Fish

The smallest fish tracked to date was a spiny dogfish with a fork length of 62cm tagged on August 13, 2010 by James Sulikowski and Amy Carlson in the Gulf of Maine. The man loves his work!



Photo by Angela Cicia

Ugliest Fish

This one has a face only a mother can love! Our pick for ugliest fish is the wolfish, though we must admit the choice is not unanimous. Kohl Kanwit and Tim Bennett who have tracked this beast consider it a beauty—they suggested it may be the "awesomest" fish tracked!



Photo by Trisha De Graaf

Longest Tracked

Already a prize winner in this category from our winter 2005 newsletter, a Greater Spotted Eagle tagged by Bernd Meyburg in 1999 continues to report locations confirming its migratory routes.



Photo by Dariusz Kowalczyk

Weirdest Fish

This was an easy pick! The weirdest fish tracked with our Archival Pop-up Tags has to be the *Mola mola* (or ocean sunfish) which looks like a giant head. Inga Potter tracked this unusual fish off the coast of New England in 2005 and 2006.



Photo by Josh Eldridge

Scariest Creature

Definitely the stuff of childhood nightmares! Our pick for scariest creature tagged is the Echizen Jellyfish, one of the largest medusa in the world. Dr. Naoto Honda tagged this giant with Archival Pop-up Tags in 2004. Maybe this category should be bravest biologist!



Photo by Singso Kurthara

SAVE THE DATE!

MTI 2012 Avian and Marine Tracking Conference

Conference Objective

To promote and facilitate the exchange of information among scientists using satellite telemetry all over the world including updates on the latest developments in satellite telemetry.

Date

Due to scheduling issues at the previously proposed venue, the conference has been rescheduled for March 2012 at a new venue. Conference Sessions will be held March 27, 2012 through March 29, 2012 at the Sheraton Columbia Town Center Hotel in Columbia, Maryland. We have negotiated excellent rates and free wireless Internet.

Details will be posted on our website in September.

Registration Information

An on-line registration form will be posted in September. All conference attendees, including speakers, are required to register. Registration entitles attendees to all sessions, a copy of the conference proceedings and admission to the welcome dinner reception on Tuesday evening. Breakfast and lunch will be hosted each day.

Call for Papers

Look for a call for abstracts on our website in September. Abstracts will be accepted for presentations describing the use of our PTTs in avian and marine tracking. The deadline for submission will be January 15, 2012.



2009 Conference attendees.

Scholarships

At our 2009 Bird and Fish Tracking Conference, we awarded scholarships to two students: Sarah Trefry from the University of New Brunswick, Canada, and Pascual Lopez from the University of Alicante, Spain. Continuing our practice of promoting satellite telemetry for the next generation of scientists, we will sponsor two students to attend the 2012 conference by providing registration fees, food and lodging. Please see our website for details and applications which will be posted mid-August 2011. Selections will be made by a committee. Students must provide their own transportation.



2009 scholarship student recipients Sarah Trefry (University of New Brunswick, Canada) and Pascual Lopez (University of Alicante, Spain).



Bits & Pieces

MTI will be closed the week of July 18 - 22 for our biennial retreat. We will have limited access to email and voice messages. We will return phone calls and emails on Monday, July 25.

Production slots are assigned on a first come-first served basis. We require a Purchase Order and Production Form to lock in a slot. Spring production slots fill quickly so please send your orders as early as possible!

Please note that starting in 2012, we will schedule refurbishment of transmitters for August through February only. Please plan accordingly!

Be sure to use the latest GPS parsing software! Data from 2011 GPS PTTs must be parsed with this latest version of the parser, so be sure to install and use the software shipped with your PTTs.



Free Transmitters for School Projects

You may remember Tannis Thorlakson, who participated in a satellite tracking project with transmitters we donated to Liberty Bell High School in 2002, and who is now a student at Harvard College. Tannis said of her experience, "As I stop to reflect on what initially shaped my interest for environmental work, I immediately jump to my involvement with the Chelan Ridge Raptor Migration Project."



Photo by Kent Woodruff

Tannis releasing a juvenile male northern goshawk.

Similarly, Nomin Erdene, a participant in the Mongolian Great Bustard school project we featured in our winter 2006 newsletter, found her interest piqued by the experience. She is now at the National University of Mongolia studying bioinformatics.



Nomin Erdene

Over the past twenty years it has been our pleasure to work with researchers whose projects involve school children. It is our hope that early exposure to the sciences will spark a lifelong interest. To this end, in celebration of our 20th anniversary we will be donating satellite transmitters for school projects, just as we did for our tenth and fifteenth anniversaries.

If you are involved with your local middle or high school, here is your chance to shape the next generation of biologists with an opportunity for the students to get some hands-on experience with satellite telemetry. Rules and application will be posted on our website in mid-August 2011. The deadline for application is September 30, 2011. The winner will be announced in our winter newsletter.



Mimi Kessler and research team with EcoClub students.

20th Anniversary Drawing for Free Transmitters

Enter our drawing for a free GPS PTT or a free X-Tag!

Entry Rules

Entries may be mailed or submitted in an email with subject line "Free Transmitters" and your name, address, organization and type of transmitter in the body of the email.

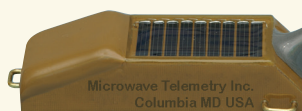
Entries must be postmarked or emailed no later than October 31, 2011

Send entries to:
Microwave Telemetry, Inc.
8835 Columbia 100 Parkway
Suites K & L
Columbia, MD 21045 USA

Or email microwt@aol.com

One entry per customer.
Drawing will be made at our Holiday Party in December.
Winners need not be present.
Winners will be contacted by email.
Winners will assume Argos costs.
All decisions are final.
Employees or family members of our competitors and associates are ineligible for prize.

Rules will also be posted on our website.



Free Transmitters

Name _____

Address _____

Email _____

Choose One:

Free GPS PTT

Free X-Tag

Our Sympathy...

Our hearts ache for the people of Japan in the wake of the devastating earthquake and tsunami which struck there earlier this spring. Likewise we pray for those here in the United States who are dealing with the aftermath of hundreds of tornados. We have made donations to the Red Cross to provide whatever help is needed in Japan and in affected communities here.



Microwave Telemetry: The Game Changer

Bill Woodward, CLS America and Michel Guigue, CLS France



In the late 1970s the Argos Data Collection and Location System was conceived by engineers at the French Space Agency after their successful operation of a similar experimental data relay satellite for acquiring and relaying telemetered data from meteorological balloons. Dedicated to the environment and begun as a cooperative program between the U.S. and France the Argos success story has spanned three decades and continues to support the evolving capabilities of the biological community for tracking animals in their natural habitat. The longstanding partnership between Microwave Telemetry and Argos has provided the valuable framework within which the Howes' visionary and innovative efforts have had an enormously positive impact on the wildlife community and on the ability to successfully apply Argos to their scientific needs. Starting in 1991 with a "small" 95 gram transmitter, Microwave Telemetry has continually pushed the envelope of miniaturized electronics enabling the community to continue to rewrite their textbooks on the migration patterns and habits of an increasingly wide variety of avian, marine, and land animal species. The recent certification by CLS of their 5 gram PTT100-5 is the culmination of years of hard work and dedication to the wildlife community. The PTT100-5 dramatically expands the number of bird species that can be tracked and changes the game significantly regarding animal

tracking capabilities. What a ride the last two decades has been.... congratulations to Paul, Chris and the whole team on Microwave Telemetry's 20th birthday.



5g PTT Demonstrates Dispersal Hypothesis in Burrowing Owls

By Geoff Holroyd and Helen Trefry - Environment Canada, Edmonton, Alberta, Canada
geoffrey.holroyd@ec.gc.ca, helen.trefry@ec.gc.ca

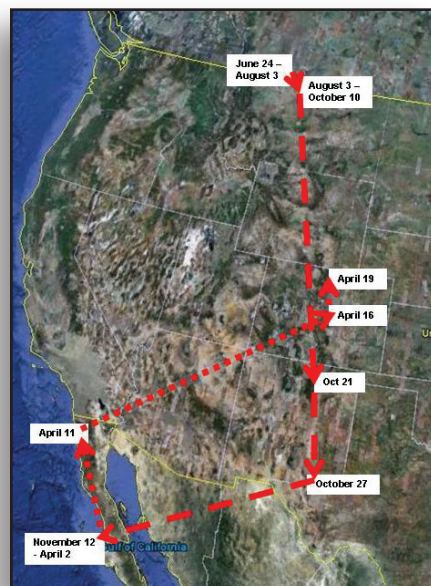


In the last issue of MTI Newsletter we told you about the southward migration from Canada of a Burrowing Owl wearing a 5g solar PTT-100. The winter and spring story of this owl is just as revealing with new information about the migration of this iconic prairie owl. To quickly recap, the transmitter was attached to a female owl that nested successfully in southern Alberta, Canada. She flew to Baja Sur, Mexico via New Mexico in November and stayed there for the winter.

She delayed her northward departure until early April, a time when burrowing owls have already started to arrive in Canada. By April 11, she was near Ensenada, Baja Norte, Mexico just south of the California border. Then she made a remarkable movement. Five days later on April 16, she was 20 km east of Denver, Colorado, 1400 km straight line distance. We assume she returned via her autumn route as this would have meant she avoided the heart of the Rocky Mountains, in which case she flew about 1700 km. This flight is comparable to the speed and movements of Peregrine Falcons, but totally unexpected by a round-winged small owl. In the next three days she only moved 100 km north. She was 30 km east of Fort Collins and she has stayed there! The Location Class 3 record placed her in the middle of a prairie dog colony.

The ability to study breeding dispersal has important conservation implications. The number of Burrowing Owls declined 20% per year during the 1990s in prairie Canada to the point that they were declared endangered in 1995. The numbers have stayed

depressed since. Stable isotope analysis of breeding Burrowing Owls in Canada led to the hypothesis that the decline was caused by high rates of breeding and natal dispersal that resulted in a net emigration of owls from Canada to the US and Mexico. Satellite transmitters provide a new technique to study these dispersal movements, which may occur at a scale almost impossible to study with traditional techniques such as banding and VHF telemetry. Even though this owl was a successful breeder in 2010 in Alberta, she has stopped short in Colorado and is apparently nesting in one of the core breeding areas for Burrowing Owls remaining in North America. We suspect the population of owls in the US Great Plains is in decline and is being backfilled by owls from Canada. This rate of dispersal makes the recovery of the Burrowing Owl in Canada a Trilateral conservation issue. This will require cooperation similar to what we have seen in the study of this owl.



Annual movements and breeding dispersal of Burrowing Owl PTT 13242 during 2010-2011.