

## 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



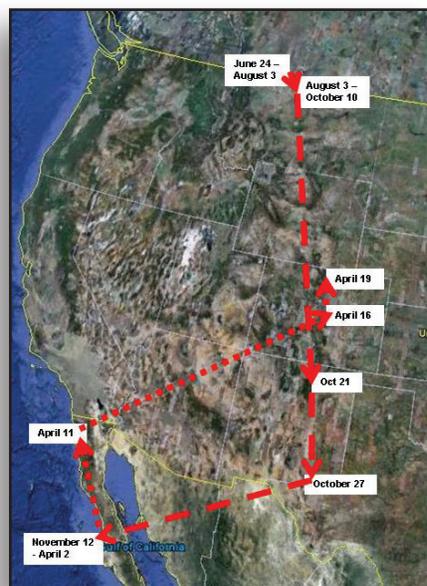
In the last issue of MTI Newsletter we told you about the southward migration from Canada of a Burrowing Owl wearing a 5g solar PTT-100. The winter and spring story of this owl is just as revealing with new information about the migration of this iconic prairie owl. To quickly recap, the transmitter 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.