

Tracking Condors: Steady Improvements Lead to Significant Help in Recovering the Species

I placed lightweight, radio transmitters on Turkey vultures for the first time in 1979 during my Masters work that focused on the development of reintroduction techniques for vultures with the hope for eventual application on condors. Encouraged with the results I later refined the wing or "patagial" tag on Andean condors to the point that it could be safely used on California condors. Combining the vinyl, numbered ID tag with the transmitter out on the wing made sense because the shape and behavior of condors makes the traditional backpack harness ill fitting and dangerous. The large dark scapular feathers on the back of the birds also interfered with energy efficiency of the solar paneled units while the wing mounted transmitters functioned better.

As an addition to standard field investigation, the patagial-mounted transmitters helped our early investigations into the reasons for the California



Young condors take only hours to a couple of days before adjusting to the wing ID tags. The lightweight transmitter (Argos/GPS PTT) is also well tolerated with the birds even preening the antenna like a feather on occasion.

Photo courtesy of Mike Wallace

condor's population decline. Among other mortality factors, several condors were discovered dead or dying from lead poisoning; without the use of radio tracking, this would have gone undetected. The realization of the extent and variety of mortality factors by the mid 1980's led to the controversial decision to capture the remaining flock of condors in 1987 and bring them to the relative safety of the Los Angeles and the San Diego Zoo's Wild Animal Park.

Our captive management techniques of inducing more eggs out of pairs by removing the first and sometimes the second egg and later raising them using puppets has made the critical difference in this otherwise slow breeder. Contrary to the critics' predictions, the success of the breeding program has been on schedule with the first breeding beginning in 1988 and releases back to the wild beginning in 1992. Today we have nearly 250 condors in the world and are steadily approaching our goal of 450.

Since the early 1980s the programs to restore California and Andean condors relied heavily on radio-telemetry technology as an important technique to manage the reintroduction efforts of both species but even with improvements with power and longevity, the method remained labor intensive. The steady increase in the number of condors from two in 1992 to over 100 in the wild today and their steadily increasing range, as they become more experienced flyers, has made it more

and more challenging to give adequate coverage to each bird.

In early 1997 Luis Jacome of the Buenos Aires Zoo and I approached Paul Howey about the possibility of placing a PTT on a condor's wing. The maximum weight of the radio transmitter/ID tag combination was no greater than 65 grams with lighter weights being preferred.

As a first test in 1997, Paul sent me a modified 35g PTT that I tested on the wing of a captive Andean condor at the Los Angeles Zoo. Seeing no apparent transmission issues, Microwave Telemetry produced the first 5 patagial, satellite transmitters that were tested on condors released to the wild in Argentina. Since then Luis Jacome and his staff working out of the Buenos Aires Zoo have released 38 Andean condors in Argentina, Bolivia, Chile and Venezuela with 29 of them wearing satellite transmitters.

On April 8, 2000 we placed the same design PTT on the first California condor. AC8, a founder that had ceased to reproduce in captivity, was given her freedom in the hopes that some of her latent wild behavior would rub off on the growing population of captive produced condors released in Southern California. Several more PTTs have been placed on California condors since then, particularly by the Ventana Wilderness Society directed by Kelly Sorensen. The data collected has begun to piece together the development of the condor's new range in California. Yet, the quantity and accuracy of locations (often within a kilometer or two) with the Argos based PTTs made it difficult to justify the expense on more than a few birds.

With the combination of GPS technology and the Argos satellite system came several improvements to the world of tracking and management of released condors. Solar powered, patagial GPS PTTs were developed by Microwave Telemetry that weigh less than 50 gm after the vinyl ID tag is attached. The first GPS PTT was

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Two transmitters on each bird provides a backup when one eventually fails, giving us time to retrieve the bird for refitting. If an Argos/GPS PTT is available for a bird then a conventional transmitter is placed on the other wing.

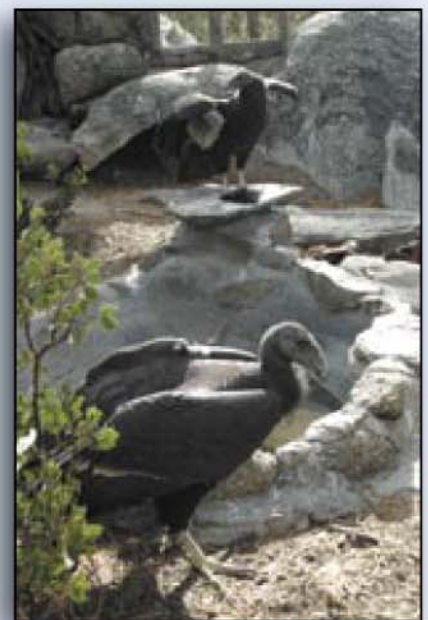


Photo courtesy of Mike Wallace

After transport from the zoo, young condors spend several weeks to months acclimating to the natural surroundings of the release site before going free. With some birds and food always in the pen it is relatively easy to re-trap the free flying condors to change a transmitter or for medical reasons.