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Science Soaring with Eagles

Researchers follow ‘Charlie’ to the Yukon to better understand the raptors’ breeding behavior and promote conservation efforts

Efforts are underway to increase the number of golden eagles in Northern Arizona. Researchers are concerned a drier, warmer climate may be changing the prey base – decreasing the number of small mammals that the eagles eat – and at the same time increasing populations of harmful insects that can be deadly to eaglets.

To make sure the large raptors are well fed, and to improve their chances to successfully reproduce, avian ecologist Tom Koronkiewicz with SWCA Environmental Consultants and a team of researchers are leaving roadkill – deer and elk carcasses – near nesting sites this winter.

They are also tracking the eagles to learn more about their breeding behavior. An adult female, Charlie, has them baffled. Koronkiewicz put a telemetry device on her a year ago. She was exhibiting signs of nesting, he says. But then, she took off for Canada.

“From December to February is the usual time when golden eagles lay their eggs. But Charlie did something a little bit different. She bailed,” he says. “She left her nesting area and beelined straight north to the Yukon. And that was not expected by any means. She got there around April and departed the Yukon in October. What is very unique about this is that we assumed she was going to breed that year, but instead, she departed.”

Charlie made the journey near Flagstaff to the Yukon in a matter of weeks, sometimes flying thousands of feet above the ground. Using cell phone technology, ecologists were able to download her location every 15 minutes when she was within cell phone coverage and learn where she was stopping along the way. Right now, Charlie is back on her nest on the CO Bar Ranch south of the Grand Canyon and researchers are again interested in the outcome for this year’s breeding season.

“Other eagles in the study area stay in Northern Arizona year ‘round,” says Koronkiewicz. “They are residents. They hold those nesting territories. They protect them, to the death sometimes. Those nesting areas are very, very important.”

He’s wondering how many golden eagles, like Charlie, demonstrate breeding behavior here, but may breed somewhere else. To study Charlie on her far northern visits, Koronkiewicz has recruited an ornithologist near the Yukon. “We hope he will be able to visit the presumed nest site and help us interpret some of these movements and interesting aspects of golden eagle demography here in the Southwest.”

Koronkiewicz is studying nine known nesting sites on Babbitt Ranch lands, which is considered some of the best golden eagle habitat in the Southwest because of the undisturbed, large areas of contiguous natural landscapes. He’s also testing for bugs that can be deadly to the young.

“Golden eagles in the nest have what we term ecto-parasites,” says Koronkiewicz.



Cell phone technology makes it possible to track eagles like “Charlie” from Northern Arizona to the Yukon.

“There are certain arthropods, ticks and mites. The mites are similar to our bed bugs that inhabit these nests used by breeding adults. They can detect when the nestlings hatch and attach themselves to get a blood meal to make more ecto-parasites. Oftentimes, we see that the nestlings can’t make it through that parasitic event, they become anemic. There’s a certain amount of paralysis that happens to these nestlings, and they succumb. They die at times.”

The researchers repel down steep cliff faces into the nests high above the grasslands while the eagles are away. Using ropes, the climbers strap themselves in and hang there for about an hour to collect samples of duff, sticks and prey remains that can be taken to a laboratory for examination.

As ecologists continue to learn more about golden eagle births, deaths and disease, we are hopeful the research will lead to discoveries that will boost golden eagle populations and advance conservation efforts.



Golden eagles feed on deer and elk carcasses placed in their territories by researchers.