

REPORT FROM THE FIELD

Golden eagles, sagebrush country, and the Spirit of the American West

By Dr. Charles R. Preston

“Wait till you hear what we saw today,” shouted an excited Patrick Rodgers from across the Buffalo Bill Historical Center’s employee parking lot as I was walking toward my vehicle late one afternoon in early June. Patrick is one of our summer interns from the University of Wyoming’s Berry Center for Biodiversity Conservation. He and fellow intern Nathan Horton were recruited to help with the establishment of our Greater Yellowstone Raptor Experience live raptor program under the direct supervision of Assistant Curator Melissa Hill.

While we were constructing the mews (raptor housing facilities) and waiting for all appropriate state and federal permits, Patrick and Nathan were able to gain some experience observing raptors in the field, by assisting our Golden Eagle Posse of citizen science volunteers. One of the interns’ duties was to monitor a golden eagle

nest in the Bighorn Basin as part of our ongoing Golden Eagle/Sagebrush-steppe Ecosystem Initiative.

“So, what *did* you see today?” I asked. “We watched one of the eagles take a pronghorn almost under the nest!” Patrick answered, and proceeded to tell me the whole story that he and Nathan later recounted for our golden eagle web blog. Here is an excerpt from their report:

“We arrived at the nest on a beautiful and calm morning to find the chick up and about with one of the adults in the nest. On this day of observation, we learned a very important lesson in pronghorn parenting: Never try to conceal your fawn in sagebrush three hundred yards from an active golden eagle nest.

At 10:15, we observed one of the adult eagles leave the chick in the nest and make a landing

three hundred yards in front of our vehicle. The landing was not a typical, smooth landing of a golden eagle; rather, it was rough with wings spread wide for balance followed shortly by the use of the beak to tear and pull on the prey on which it had landed. Then, from the nearby draw, coming at full speed, three pronghorn antelope chased the eagle off its kill. Fifty yards from our vehicle, the eagle landed atop a telephone pole where it sat a few minutes before slicing and flying off for another attempt to enjoy its recently-killed meal.

We observed the entire ordeal play out as the two eagles swooped down to the kill and feed, and then the pronghorn would return (an estimated five to eight times) with relentless persistence to attempt to chase them away. We were both in awe at the fact that this could

The still vast, virtually intact sagebrush-steppe ecosystem of Wyoming’s Bighorn Basin remains a stronghold for the golden eagle and the Spirit of the American West. Photo by C.R. Preston.

be a pronghorn kill and waited patiently for a view of the prey.

After about four hours, one of the adult eagles dragged a bloody and partially eaten pronghorn fawn on top of a large sagebrush. Both eagles fed on the fawn—one feeding until its crop bulged to a softball size projection on its chest. He guarded the dead fawn for a little over two hours before we reluctantly left the spectacle before us. It was amazing and inspiring to see the persistence of the pronghorn and the power of the golden eagle, and it was a special reminder of the importance of this keystone species in the invaluable sagebrush-steppe of Wyoming.”

You can access their entire report and the full season’s blog at www.goldeneaglebbhc.wordpress.com.

The incident Nathan and Patrick witnessed was at once exhilarating, distressing, and enlightening. It’s a fact of nature that some individuals die so that other individuals live. In this case, the parent eagles from this nest took the life of a newborn pronghorn fawn to support their own family. One of the earliest memories of my childhood was watching an American Robin rip an earthworm from its home in our lawn and carry it away to feed its young.

As I wrote in the 2004 book

Golden Eagle: Sovereign of the Skies, featuring Gary Leppart’s spectacular photography (Graphic Arts Center Press), my early observations of predation more than fifty years ago left me with a sense that the world was much bigger, more dangerous, and far more exciting than I had before imagined. These early experiences and many since continue to fill me with an addiction to adventure and an overpowering urge to explore how nature works.

As with so many others who were raised in different parts of the United States, my penchant for adventure and the urge to explore nature led me to the American West—particularly the northern Rocky Mountains and Great Plains region—first to hunt big game and then to study and take up residence. Lessons and experience

gained from the American West have helped shape the identity and character of our nation. I’ve always felt that the powerful, untamed, yet hard-to-define Spirit of the American West arises from the vast, unbroken landscapes and large, wide-ranging wildlife species characteristic of this region that has shaped human cultures for at least twelve thousand years.

Raptors, and particularly the magnificent and widely revered golden eagle, embody the Spirit of the American West and provide charismatic and ecologically relevant vehicles to discover the interconnected nature and culture of the West. The equally iconic sagebrush-steppe is the stronghold for golden eagles in North America and has rapidly declined in range and quality over the past few decades.



Golden Eagle Posse member Dale Schrickling caught this handsome parent watching over a nestling. Photo by Dale Schrickling.

The Buffalo Bill Historical Center, located in the heart of what remains of the authentic American West, is uniquely positioned by virtue of its geographic location, broad expertise, and diverse resources to explore, document, and showcase the golden eagle and sagebrush-steppe and their connection to the Spirit of the American West from a variety of perspectives. In response to severe declines in sagebrush-steppe environments and reported golden eagle population declines in parts of the western United States, the U.S. Fish & Wildlife Service and state wildlife agencies throughout the region have identified the golden eagle as an important species to monitor and study.

So, in 2009 we launched a long-term, scientific study and suite of educational programs involving golden eagle ecology in sagebrush-steppe environments of the Greater Yellowstone region, stretching from Yellowstone National Park eastward to the Bighorn Basin. (We've reported on previous field seasons in past *Points West* articles, fall issues 2009 and 2010). Our study is designed to determine annual and geographic variation in nest occupation, along with success and productivity in relation to a variety of weather, landscape, and human activity factors. We are also documenting food habits and individual behaviors, and have begun capturing and marking birds to determine site fidelity and survivorship.

Each year of our research brings surprises and new insights, but 2011 has been an especially interesting year. We have now identified nearly seventy different golden eagle nesting

territories in our Bighorn Basin study area alone. Each of these territories contains two or more alternate nests. Although a golden eagle pair tends to occupy the same nest territory from year to year, they do not necessarily attempt to breed and raise a family each year. Some territories may be abandoned and unoccupied for several years. Thus, out of seventy nesting territories, only a fraction might be active in a given year.

During each of the first two years of our study, about half of our nesting territories included eagle pairs attempting to raise a family. Of these, a fairly high percentage successfully raised two eaglets. In 2011, however, only about a quarter of our golden eagle nesting territories were active with pairs raising a family. A very small percentage of these nests produced more than one eaglet. So, why is 2011 so different from the preceding two years?

We can't yet answer that question with certainty, but we have some clues. First, cottontails and white-tailed jackrabbits have absolutely dominated our eagles' diets each year. In addition to monitoring the eagle population, we've also monitored cottontail and jackrabbit numbers in our study area. Our preliminary results from 2011 provide evidence that this year's cottontail and jackrabbit populations are much lower than in recent years.

We've also noticed a wider variety of prey species showing up in the diet—notably songbirds and ground squirrels. As evidenced by the report of our interns, pronghorn fawns are occasionally taken by eagles, but they are not available to eagles early

in the nesting season and show up infrequently in the diet even in 2011.

The greater sage-grouse, fairly abundant in our study area, is an ideal-sized prey for the golden eagle. But, this species has rarely shown up in the eagle nesting diet during our study. Thus, reduced availability of rabbits—apparently critical eagle prey in our study area—may help explain the downturn in eagle reproductive activity in 2011.

Rabbit and hare populations are known to exhibit dramatic year-to-year fluctuations independent of weather and other factors in many different environments. We will continue to examine the effects of prey availability, weather (which this year has so far been marked by a greater than average amount and duration of snow and especially cool, wet weather in spring and early summer), and increased human activity on golden eagles in the Bighorn Basin and other parts of the Greater Yellowstone region in future years to better understand and conserve the once vast sagebrush-steppe ecosystem that has helped shape the American identity.

As any wise hunter or wildlife observer knows, nature reveals herself piece by piece through time and place. Only the patient observer, willing to spend adequate time to consider how all the jigsaw pieces fit together, will be able to construct a lucid picture of nature's intricate puzzle.

We are grateful to the U.S. Bureau of Land Management and the Wildlife Heritage Foundation of Wyoming for supporting our research on golden eagles and helping us showcase both the natural and cultural associations

of this magnificent animal and its home to a national audience. This interdisciplinary program connects to every aspect of the Buffalo Bill Historical Center and is helping to position the Center as the premier national source for authoritative information on the American West and a force to promote and preserve the Spirit of the American West.

A prolific writer and speaker, Dr. Charles R. Preston serves as Senior Curator of the Buffalo Bill Historical Center and Founding Curator in charge of its Draper Museum of Natural History. He is an ecologist and conservation biologist who explores the influence of climate, landscape, and human attitudes and activities on wildlife, and is widely recognized as a leading authority on wildlife and human-wildlife relationships in the Greater Yellowstone region. He formerly served as Chairman of the Department of Zoology at the Denver Museum of Natural History, and before that, as Associate Professor of Biological Sciences at the University of Arkansas at Little Rock. He's written numerous articles and three books: Golden Eagle: Sovereign of the Skies; Wild Bird Guide: Red-tailed Hawk; and his latest, An Expedition Guide to the Nature of Yellowstone and the Draper Museum of Natural History.

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Golden Eagle Posse member Anne Hay captured this remarkable image of a golden eagle parent leaving her nest in early June 2011. Photo by Anne Hay.



Research Assistant and pilot Richard Jones conducts flights to survey golden eagle nests twice each nesting season. Photo by Richard Jones.