

# Scientific Research in the Mono Basin

*News from the Mono Basin Field Station and Beyond*

We're happy to report that the quiet of winter only goes as far as the front door of the up-and-running Mono Basin Field Station here in Lee Vining. With research projects in various stages of data gathering, data entering, and report writing, the full Field Station is a testament to the ongoing vitality of scientific research in the Mono Basin. And as demonstrated by Sean Boyd, of the Canadian Wildlife Service, there is much research from afar as well. Visit [www.monobasinresearch.org](http://www.monobasinresearch.org) for more on science in the Mono Basin!

## Eared Grebe counts on Mono Lake

*Sean Boyd, Ph.D. Research Scientist, Canadian Wildlife Service*

During the summer of 1995, I radio-marked Eared Grebes (*Podiceps nigricolis*) in south-central British Columbia, in part to determine how many molted on Mono Lake. In October of the same year, I detected about half of the marked birds at Mono Lake, and when I repeated this work again in 1996 the same pattern emerged.

While listening for radio signals during the aerial telemetry surveys I experimented with vertical photography to estimate grebe abundance and arrived at a protocol that produced an accurate total count with minimum variance. I used this protocol for 6 years (1996–2001) and California Department of Fish and Game continued the surveys in 2004. The radio-telemetry work in 1996 suggested that counted totals could be increased by 15–20% to account for submerged birds (See box). This means that there were almost 2 million grebes on

Mono Lake in October 1997.

The 1998 decrease to only 0.9 million birds corresponded to a post-el nino year (winter 1997) in which tens or perhaps even hundreds of thousands of grebes perished in the Gulf of California.

By combining the Mono Lake total with that from Great Salt Lake (together these lakes support more than 95% of all North American Eared Grebes), the entire continental population can be tracked across years.

The October 2004 count was the lowest to date, and the reason for such a low count is unknown at this time. ❖

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| 1996: 1.7 million |
| 1997: 1.8 million |
| 1998: 0.9 million |
| 1999: 1.3 million |
| 2000: 1.8 million |
| 2001: 1.4 million |
| 2004: 0.8 million |

*Numbers of Eared Grebes on Mono Lake, accounting for submerged birds.*

## Ecology of Greater Sage-grouse in Mono County

*Melissa A. Farinha, United States Geological Survey*

Greater Sage-grouse (*Centrocercus urophasianus*) are similar to quail and other grouse species (known collectively as gallinaceous birds), in their basic morphology and life history characteristics. Their primary mode of transportation is walking rather than flight, they have precocial young (meaning they leave the nest immediately after hatching), and they nest on the ground. However, unlike most other gallinaceous birds, Greater Sage-grouse tend to be longer-lived and have a lower reproductive rate. They are considered to be a sagebrush obligate species, requiring large areas of healthy sagebrush (*Artemisia* spp.) for forage and cover. One of the most outstanding characteristics of the Greater Sage-grouse is the spring-time gathering and mating struts of the males on traditional strutting grounds, also known as leks.

We initiated our project in the spring of 2003 to gain a better understanding of the basic ecology of Greater Sage-grouse occurring in Mono County. The information we gather is shared with management agencies to improve conservation efforts for Sage Grouse in the region. Five study areas were established in Mono County based on previous knowledge of breeding populations. During the spring and fall, Greater Sage-grouse are caught and fitted with a small necklace-style radio-transmitter that is then used to monitor each marked individual. While birds are temporarily captured, several body measure-

ments are taken as well as a blood sample for contribution to genetic analyses. Locations of birds are taken year-round on a weekly schedule. There are now over 6,000 bird location points in our database, and 72 nests with associated habitat characteristics and outcomes recorded. Extensive vegetation samplings have been performed to characterize nesting and brood-rearing habitats. Currently we are in the process of collecting data on wintering habitats and movement patterns.

One of the goals of the study is to look at the home ranges and seasonal movements of the Greater Sage-grouse in the five study areas. Some of the preliminary analyses show there is little to no movement between the study areas, indicating that these populations are isolated to varying degrees. Additionally, snow depth dictates timing of movements to wintering grounds.

One of the more interesting wintertime behaviors we have encountered is the use of snow burrows. Burrows help to conserve energy required for thermoregulation in extreme winter conditions and provide cover from predators.

Much thanks to our partners in this project: California Department of Fish and Game, BLM, USFWS, LADWP, USFS Inyo and Toiyabe Forests, University of Nevada, Reno, Quail Unlimited, the Mono Lake Committee, and especially to the pilots of CDFG for their great support. ❖