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Michael W. Perkins

William J. Lindsey

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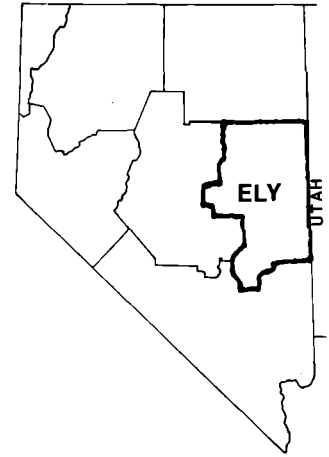
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Nesting studies of Ferruginous Hawks in the Ely BLM District, Nevada

Michael W. Perkins and William J. Lindsey



In the spring of 1981, the Ely District of the Bureau of Land Management, located in northeastern Nevada, initiated a study of the Ferruginous Hawk (*Buteo regalis*) and other tree-nesting raptors. The purpose of the study was to document as many Ferruginous Hawk nest sites as possible, as the tremendous rise in seismic, geophysical and geothermal activity (energy and mineral exploration) within the District has increased the likelihood that disturbances could occur near an active nest and perhaps result in nest abandonment. Knowledge of the locations of active nests will allow for protection of the nest sites during courtship, incubation and fledging of the young birds. The study was planned, organized, and conducted by Mike Perkins, District Wildlife Specialist, with the assistance of Bill Lindsey, Egan Resource Area Range Conservationist.

In 1981, we found 27 Ferruginous Hawk nest sites. All of the sites were located in Utah juniper (*Juniperus osteosperma*) on slopes dominated by big sagebrush (*Artemisia tridentata*) or black sagebrush (*A. nova*) within 2 miles of a white sage (*Ceratoides lanata*) community. The nest sites were in "stringers" (i.e. lines of trees extending down the slope of a hill). Most of the active nests were located at the extreme lower end of the stringer, a placement which may help the hawks to see prey on the valley floor. At the time of banding, the nestlings were 21-23 days old, the average number of young per nest was 2.81, ranging from 1 to 5. Seventy-seven nestlings were observed, 76 were banded, 1 young flew from the nest as approached. No loss of eggs or young was documented. Of 76 nestlings banded, 73 were typical (light phase) and 3 were melanistic (dark phase). All birds were banded on the left tarsus with U.S. Fish and Wildlife Service bands.

Other raptor nests located included that of a Swainson's Hawk (*Buteo swainsoni*), one of the only nests of this species documented on public land in Nevada (G. Heron, personal communication). In addition to the Ferruginous Hawks, 24 nestlings of 7 other species were banded during 1981 (Perkins, M.W., 1982. *N. Am. Bird Bander* 7:105-106). To date, 4 band returns have been received — 3 from Ferruginous Hawks and 1 from a Great Horned Owl (*Bubo virginianus*). The owl was killed on the road about 13 km from the banding site, 1½ months after banding. Two Ferruginous Hawk band returns came from areas believed to be winter range — 1 from Pinedale, Navajo County, Arizona and the other

from Red Hill, New Mexico. The other return came from a bird in Diamond Valley, Nevada. This bird was banded 2 years earlier, less than 65 km to the east of the encountered area and approximately on the same latitude.

In an attempt to find more nesting Ferruginous Hawks, and to further document migration corridors and wintering areas, we extended the study into the 1982 breeding season. We modified and refined our nest location procedures by focusing only on areas containing the juniper stringer habitat described previously. In 1982 the team found 65 active Ferruginous Hawk nest sites, 56 in the Egan Resource Area, where most of our search efforts were concentrated, and 9 in the Schell Resource Area. All nests were in juniper trees, and most (60) were in live trees. The height of the nests above the ground ranged from 1.5 m to 5 m, averaging 3.7 m. Of the 167 nestlings sighted on these nests, 149 were banded; 18 flew away as their nests were approached. Brood size averaged 2.56 per nest, ranging from 1 to 4. The nestlings included 156 typical and 11 melanistic birds. One nest in Newark Valley, constructed in the spring of 1981, was occupied by an adult previously banded on the left tarsus. The bird was brooding 3 nestlings.

We noted with interest that 40 (61.5%) of the nests were on west-facing slopes, whereas only 12 (18.5%) were located on east-facing slopes, even though ample nesting habitat was available on both types of slopes. The remaining 13 nests were located in valleys containing buttes or outcrops. Reasons why the birds selected nest sites on west-facing slopes are not entirely clear, although one possibility is increased exposure to sunlight, which could be especially important during the incubation period. Another possibility is more rainfall (hence greater production of plants used by prey species) on western than eastern slopes due to the rainshadow effect of prevailing westerlies striking the north-south oriented mountain ranges.



Typical Ferruginous Hawk nest site, foreground, with white sage vegetation type in background.



Removing a nestling Ferruginous Hawk — for banding — from nest in Newark Valley, Nevada.



Mike Perkins, left, and Bill Lindsey, right, banding Ferruginous Hawk nestlings in Long Valley, Nevada.

Prey species that were noted at active sites included: Townsend Ground Squirrel (*Spermophilus townsendi*), Least Chipmunk (*Eutamias minimus*), Whitetail Antelope Squirrel (*Ammospermophilus leucurus*) parts of Blacktail Jackrabbit (*Lepus californicus*) and Pygmy Rabbit (*Sylvilagus idahoensis*). All of these species utilize seeds and leaves of the native grasses, bottlebrush squirreltail (*Sitanion hystrix*), Indian ricegrass (*Orozopsis hymenoides*), and Sandberg bluegrass (*Poa sandbergii*), which are relatively abundant in white sage communities. A half-eaten Longtail Weasel (*Mustela frenata*) was also found at one nest site in Newark Valley. In all cases, Ferruginous Hawks preyed more frequently on ground squirrels than on lagomorphs.

As previously mentioned, the average number of young per nest site in the 1981 study was 2.81. No mortality of nestlings was documented. The average age of nestlings at the time of banding was 21 to 23 days old. In 1982, the average number of young fledged per nest site was 2.52. Banding of nestlings in the 1982 study included the following observations: 7 unhatched eggs were found in active nests, possibly the result of the cold, wet spring weather; embryonic development was not checked. Three melanistic birds judged to be 2½ to 3 weeks old were stolen from one nest; tire tracks led to the nest. One nestling, about 2 weeks old, fell from a nest in Steptoe Valley and apparently starved. Two others, about 3 weeks old, apparently starved in a nest in Butte Valley. Eight nestlings, between 3 and 4 weeks old, were found partially eaten within a few meters of their nests; the hawks were presumably killed by Great Horned Owls. Parts of the back, liver, kidneys, and lungs were eaten in all 8 cases.

We found 263 inactive Ferruginous Hawk nests during the 1982 study. In areas of native vegetation, the ratio of inactive to active nests was 3.2 to 1. However, in areas close to crested wheatgrass (*Agropyron cristatum*) seedlings the ratio was 24.2 to 1. We believe this to be the result of too few prey to sustain a greater number of active nests in areas close to vast monotypes such as crested wheatgrass seedlings. The Swainson's Hawk nest found in the 1981 study was discovered blown out of the nest tree in 1982. Although 3 adult Swainson's Hawks were seen in the area of this nest twice during the 1982 season, and although an extensive search was carried out, no new nest was found.

The study will be continued in 1983 to follow trends in the nesting success of Ferruginous Hawks in the Ely District.

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Ely BLM District Office, Star Route 5, Bx 1, Ely, Nevada