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### GOLDEN EAGLES NESTING IN MEADE COUNTY, KANSAS

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Attempts are currently underway to reintroduce the Golden Eagle, *Aquila chrysaetos*, to some of its previous nesting areas in Kansas. This paper is a documentation of existing nest sites in Meade County, Kansas, and a discussion of Kansas Golden Eagle nests in the literature.

Stearns (1977) reported the first active Golden Eagle nests in Kansas since 1891, and suggested that the "Golden Eagle may be a more common breeder than is generally believed".

Dr. G. K. Rumsey reports in Goss (1886), a pair of Golden Eagles which nested for several years in southeastern Comanche County on a high gypsum ledge. Goss felt the late and rapid settlement of Comanche County had put a stop to their breeding there.

Five separate nesting sites have recently been identified in Meade County. These five sites are occupied by at least three nesting pairs of eagles. Two sites have multiple nest structures making a total of seven nesting structures being identified. Five of the seven



**FIGURE 1.** Typical Golden Eagle nest site in Meade County, Kansas, built on a north-facing cliff only one or two meters from the top.

sites are occupied by at least three nesting pairs of eagles. Two sites have multiple nest structures making a total of seven nesting structures being identified. Five of the seven are on north facing caliche cliffs (figure 1) while the remaining two are in large plains

cottonwood (*Populus sargentii*) trees. The cliff sites are very unstable and are subject to sloughing during rainy weather.

Thompson and Ely (1989) note that each pair of Golden Eagles may occupy up to 35 square miles of home range and may alternate among several nesting sites in the same area or rebuild and use the same nest in successive years. Bent (1937) noted a pair of eagles alternating among two nest sites on cliffs and Stearns (1977) notes two cliff site nest structures within nine meters. Stearns did not suggest the sites were being used alternately from year to year. Three of the Meade County nest sites with four structures are within 5.6 km of each other (two are within .8 km).

Stearns (Ibid) noted that one nest constructed in a plains cottonwood tree was con-



**FIGURE 2. Golden Eagle eggs in a Meade County, Kansas nest. The nest lining below the eggs consists almost entirely of Small Soapweed fronds and Cottonwood twigs.**

structed mainly of cottonwood twigs and branches. It also contained stems and branches of summer cypress (*Kochia scoparia*) and was lined with small soapweed (*Yucca glauca*).

Bent (1937) noted an Arizona nest contained soapweed roots and was lined with grasses, weeds, strips of inner bark and other soft fiber. Bent also noted a nest taken over by Red-tail Hawks, *Buteo jamaicensis*, was lined with strips of yucca. James B. Dixon in Bent (Ibid) says "I have never yet found a nest that did not have dagger leaves in it, and in some places the birds must have carried them for some distance." Dagger leaves would be from the soapweed genus *Yucca*. Dixon also notes the California nests he examined contained pepper and eucalyptus leaves and suggests these may either fumigate the nest "or be distasteful to bugs and lice of all kinds."

The Meade County nests which have been closely examined were constructed mostly of sand sagebrush (*Artemisia filifolia*), and a few sticks of plains cottonwood (figure 2). They were lined with small soapweed fronds and flower shoots of mentzelia, *Mentzelia nuda* var. *stricta*. Incidental items include bitterweed, *Hymenoxys acaulis*, broom snakeweed *Gutierrezia sarothrae*, and russian thistle *Salsola kali*. Perhaps the sand sagebrush, broom snakeweed and mentzelia serve to clean the nest of various parasites.

Stearns (1977) notes that one of the nests examined in northwest Kansas was on a north-facing cliff. Five of the seven nest structures in Meade County were also on north-facing cliffs. Many other cliffs facing other directions exist nearby but none contain nest structures. Three active cliff nests and one inactive nest were checked for orientation using a hand compass (figure 4). Considering the early nesting of this species, a northerly orientation would seem to subject the nest to a harsh environment. Some other benefit must outweigh the winter winds and blizzards which buffet these cliff sites. Perhaps shade for the young (figure 3) in June and July or protection from hot southwesterly winds later in the season holds a significant ecological advantage.

All seven nest structures in Meade County are in close proximity to Black-tailed Prairie Dog (*Cynomys ludovicianus*) towns. Stearns (Ibid) noted one nest contained the



**FIGURE 3. One week old Golden Eagle chick in Meade County, Kansas nest. Note the half eaten cottontail rabbit in the nest.**

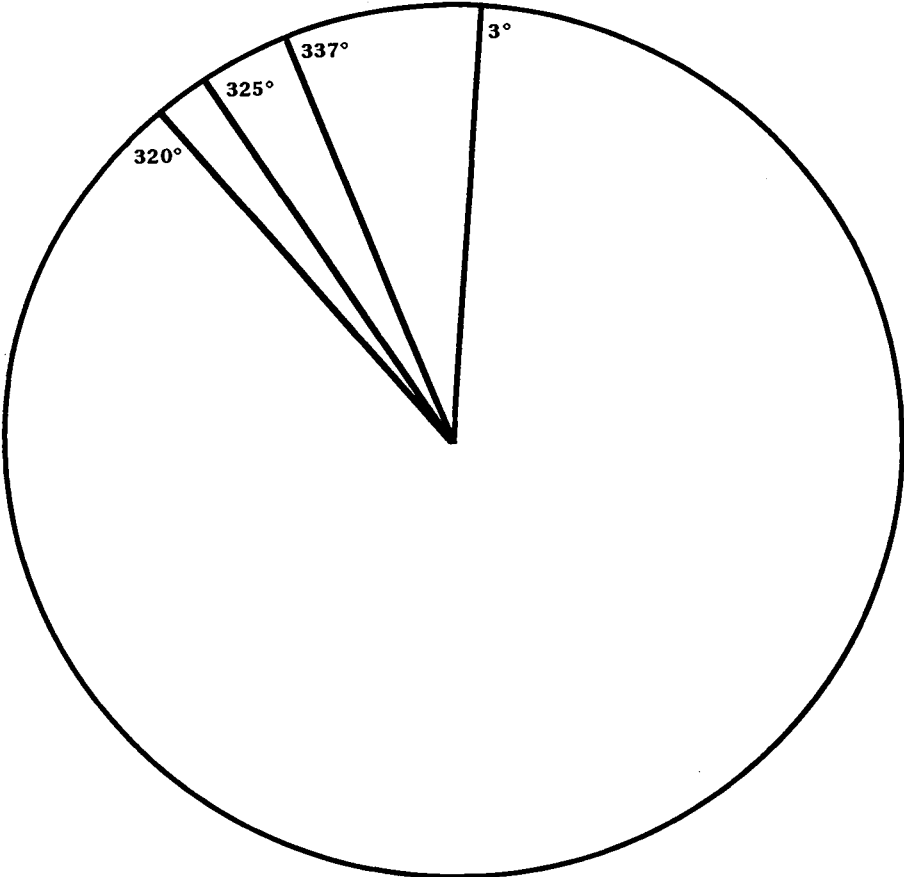
remains of three prairie dogs. Cameron in Bent (1937) discusses the destruction of prairie dogs by Golden Eagles, and says that one pair living near a prairie dog town "always had one or two of these animals in their nest." He suggests that a nesting pair and their young could consume 636 prairie dogs during the seventy-four days needed from nest building to fledging. The first nest found in Meade County contained the remains of several prairie dogs along with other food items to be discussed later.

There is evidence of a close association between Golden Eagles and prairie dogs in Meade County. Most of the Golden Eagle sight records for Meade County have occurred at prairie dog towns, especially during the winter months when nonresident eagles enter the area.

Massive poisoning efforts were undertaken in Meade County in recent years to reduce prairie dog populations. Much care is taken by the Kansas Department of Wildlife and Parks to insure that the Black-footed Ferret, *Mustela nigripes*, is not harmed by such poisoning efforts. Little consideration is given to eagles. Modern chemicals such as phostoxin and fumitoxin now being used for eradication have less effect on the food chain, but destructive chemicals such as strychnine are still available in various forms. On 30 April 1990, a nest in a large cottonwood tree contained a dead adult Golden Eagle.

This nest is less than 100 meters from a prairie dog town poisoned by strychnine. Although death may have resulted from other causes, there is strong evidence of secondary strychnine poisoning. The individual who poisoned the prairie dogs told me the poison grain was broadcast using a pickup truck and the next morning the area was littered with dead bodies. Well over 2000 hectares were eliminated in one strychnine laced grain operation.

Considering the economic damage a prairie dog town does to a ranch, and the incentive to poison these areas, there may be a need for state agencies (or federal) to purchase easements on these areas to insure the protection of the food chain involving



**FIGURE 4. Orientation of four Golden Eagle nest sites in Meade County, Kansas. Nest site selection shows a decided preference for north-facing cliffs.**

prairie dogs and Golden Eagles. Similar easements are being used to protect wetland areas in Kansas.

Other food items besides prairie dogs found in the Meade County nests include Mallards (*Anas platyrhynchos*), Western Meadowlark (*Sturnella neglecta*), Black-tailed Jack Rabbit (*Lepus californicus*), and Desert Cottontail (*Sylvilagus audubonii*). Stearns (1977) found the remains of a Ring-necked Pheasant (*Phasianus colchicus*), in one of his nests.

Of the five nest sites located in Meade County, three were active in 1991. One tree site was subsequently destroyed during a wind storm and no evidence of renesting has been found. The other two active sites are cliff sites (including the site where the dead eagle was found).

One cliff site has been destroyed due to sloughing off of the face of the cliff. The remaining sites are in good condition and will likely be used in the 1992 nest season.

Stearns (1977) found a newly hatched chick and an unhatched egg on 3 May and a chick on 27 May estimated to be six weeks old. In Meade County, two young chicks were found on 4 April which were about the size of a meadowlark. The second and smaller chick was gone on 8 April. In another nest, one newly hatched chick (the shell halves were still in the nest unbroken) was found on 8 April. Yet another nest still had two unhatched eggs on 16 April. This suggests egg laying begins on or about 1 March and hatching about 1 April. Bent (1937) lists 272 egg records from California to Texas ranging from 9 February to 19 May. An additional 136 records exist from 26 February to 24 March. According to Bent, the usual set of eggs is two and the incubation period is 28 to 35 days.

The nesting Golden Eagles seem to prefer open rangeland. Human activity, however, does not seem to have a major negative influence. One nest is within 200 meters of a major highway and all of the remaining sites are in very close proximity to oil field sites and ranch roads. One nest which was active in 1991 had an oil well drilled in December 1990 within a few hundred meters.

Bent (Ibid) states that Golden Eagles mate for life. It is possible that they also use the same nest site or series of sites for life. Landowners tell me one Meade County nest has been active for 12 years, one for six or seven years, and another about five years. Evidence can also be found where numerous sites have been destroyed over the years due to sloughing of cliff sites.

Golden Eagles are not rare in Meade County and are probably not as rare in Kansas as once thought. There is need for more documentation and investigation on Golden Eagles in the state and a need to mark individuals for age and movement patterns.

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### THE STATUS OF THE BARRED OWL *Strix varia* IN KANSAS

By Eugene A. Young

The Barred Owl (*Strix varia*) is a common resident in the eastern one-third of Kansas with valid records reported as far west as Phillips, Rush, Kiowa, Comanche, Ford and Meade counties (Thompson and Ely 1989). Sight records from Ellis (Ely 1971), Russell and Stevens counties are doubtful (Ely pers. comm.). Breeding records are few and they exist west to Washington and Cowley counties (Ely pers. comm.) (figure 1). Goss (1891) considered the Barred Owl as one of the most common owls in Kansas. Tordoff (1956) reported the status as unknown in the west while Johnston (1965) thought it was probably absent. The Barred Owl is resident throughout the eastern one-third of the Great Plains (Johnsgard 1979). They frequent densely wooded areas, and are often associated with riverine forests.

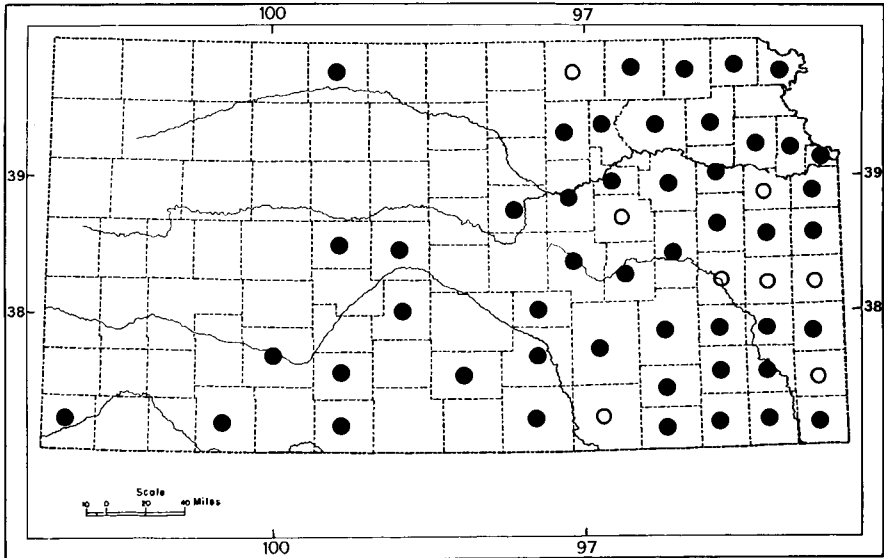
On 1 November 1992, in Morton County, Kansas, a Barred Owl was attracted to a taped call along the Cimarron River (T34S, R42W, W ½ Sec. 4), 7.5 mi. north of Elkhart, along State Highway 27. Tapes of Great Horned Owl (*Bubo virginianus*) followed by Eastern Screech Owl (*Otus asio*) were being played when a large owl flew into a cottonwood (*Populus deltoides*) about 5m away. The owl didn't respond vocally to either the Great Horned Owl or Eastern Screech Owl recording. A spotlight on the owl showed it to be a Barred Owl. A Barred Owl tape was played and the owl responded with a partial call ("who-cooks-for-you") and flew to the west about 25m. The Barred Owl re-

sponded to recordings two more times before flying west across the highway.

On 3 November 1992, the area was visited again. A Barred Owl was attracted to a tape of its call at the base of Point of Rocks (6.5 mi. north, 3 mi. west Elkhart, T34S, R43W, Sec. 12 and 13). This owl only gave partial calls to recordings and was very wary. It could not be visually located. This bird responded to two or three taped calls before becoming silent. On 3 November, 1993, a dead Barred Owl was found near the highway, just a few meters from the first record for this species on 1 November. On subsequent November visits to the Cimarron River, there were no additional records for this species.

As far as is known, these are the western-most verified records of this species in Kansas. Max C. Thompson (pers. comm.) and Sebastian Patti believed they heard a *Strix* owl on a visit to the same area along the Kansas/Colorado (just inside the Colorado Line) border in November 1991.

Sutton (1967) recognized two races of the Barred Owl occurring in Oklahoma. All specimens except one were believed to be of the southern race *Strix varia georgica*. One



**FIGURE 1.** The distribution of the Barred Owl in Kansas. Dark circles are county records and open circles are county breeding records.

specimen from Osage County was considered the northern nominate race *Strix v. varia*. He believed the breeding population in Oklahoma was probably intermediate between the two. In Kansas Tordoff (1956) and Johnston (1965) considered *georgica* to inhabit the southeastern part of the state and *varia* elsewhere. *Georgica* is the dominant race in northern Texas although two specimens are reported as *varia* (Oberholser 1974). *Varia* is the race reported by Bailey and Niedrach (1965) from eastern Colorado.

Five specimens in the Southwestern College Museum of Natural History from Cowley County, Kansas, show variations between the two forms. Specimens SC 7974-7975 show intermediate characteristics between the two races; SC 7972-7973 are *georgica* and SC 8038 is *varia*. The specimen obtained from Morton County appears to be of the southern race *georgica*. This indicates that movement of the Barred Owl into southwestern Kansas may be from the southeast rather than northeast.

There are sight records for Texas as far west as Potter, Randall and Lubbock counties, and a specimen from Gray County (Oberholser 1974). These counties are south and slightly west of Morton County in the Texas panhandle. In Oklahoma the Barred Owl is a resident of the eastern and central part of the state with westernmost

records in Woodward (specimen), Dewey (specimen), Roger Mills, Custer (specimen), Kiowa, Tillman, and Jackson counties (Sutton 1967, Wood and Schnell 1984, Baumgartner and Baumgartner 1992). These counties are south of Meade County, Kansas. Bent (1938) reported the range for *S. v. varia* as far west as eastern Colorado and western Oklahoma (Kenton), however there are no details given for the Kenton area although he mentions the record for eastern Colorado where it formerly nested in Phillips County in 1897 and was considered a rare visitant into eastern Colorado (see Bailey and Niedrach 1965). The A.O.U. Checklist (1961) reported the same range as "to western Oklahoma (Kenton)" evidently based on Bent (1938). *S. v. georgica* was reported as a resident in central Arkansas and eastern Texas. (A.O.U. 1961). Baumgartner and Baumgartner (1992) said there were no records of the Barred Owl for the Oklahoma panhandle.

These records from Morton County may represent an expansion of the range of the Barred Owl westward, or northward in the southern region of the Great Plains. They are expanding their range southward in the northwestern U.S. (Farrand 1985). Attempts to call up *Strix* owls in the Oklahoma panhandle, primarily the Black Mesa from September-November 1992 were unsuccessful. More data is needed on the abundance and the subspecific populations occurring in the region.

In Kansas the Barred Owl should be considered a common permanent resident in the eastern third of the state and a local low density resident in the central portion. Status in the west is still uncertain but certain records (Ely pers. comm.) along with these Morton County records indicate that it is probably a rare visitant to the southwest.

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