

## Golden Eagle Fact Sheet

Golden Eagles (*Aquila chrysaetos*) are very large, dark brown raptors of the arid open country of Nebraska's Panhandle. Their natural nesting habitat is on cliffs and rock escarpments. Golden eagles may also nest on the largest trees of forested stands, but often choose a nesting location that allows an unobstructed view of the surrounding habitat.



**Adult Golden Eagle**



**Golden Eagle in Flight**



**Golden Eagle Nest**

The golden eagle gained protection under the Bald and Golden Eagle Protection Act in the Federal Register on June 8, 1940. This Act prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

### **Golden Eagle** (*Aquila chrysaetos*)

**Order:** *Accipitriformes*

**Family:** *Accipitridae*

**Status:** Protected by the Bald and Golden Eagle Protection Act

**Description:** L 32" W 80". Sexes similar. Adults dark brown in color, with paler, golden color on the back of the crown and nape, and some grey on the inner-wing and tail. Bill is grey and yellow. Un-feathered portions of the feet are also yellow. Juveniles tend to be darker, appearing black on the back, and occasionally have white patches forming a crescent marking on the wings.

**Habitat:** Arid open country with grassland for foraging. Golden eagles generally nest on cliffs and rock outcroppings. Often avoid nesting near urban areas and do not generally nest in dense forest habitat.

**Status/Range:** Found in the western quarter of the state. Golden eagles are a regular spring and fall migrant and winter visitor in central Nebraska, but they are not commonly observed in the eastern third of the state.

**Call:** Have a tendency to be silent, but can quietly "chirp", "seeir", "pssa", "skonk", "cluck", "wonk" and "hiss".

**Similar Species:** Can be mistaken for immature bald eagles, turkey vultures and hawks.

## Nebraska Transportation Habitat Assessment Protocol for Golden Eagle

### ***Background***

Golden eagles (*Aquila chrysaetos*) can be found in the tundra, throughout grasslands, woodland-brushlands, and forested habitat, south to arid deserts, including Death Valley, California (Kochert et al., 2002). They are aerial predators and eat small to mid-sized reptiles, birds, and mammals up to the size of mule deer fawns and coyote pups. They also are known to scavenge and utilize carrion. In Nebraska's Panhandle, golden eagles are found in arid open country with grassland for foraging, which covers approximately the western quarter of the state. These habitats are typically near buttes or canyons which serve as nesting sites. Golden eagle food sources often consist of prairie dogs and jackrabbits; however, eagles are opportunistic scavengers and will occasionally feed on any available animal carcass. Golden eagles are a regular spring and fall migrant and winter visitor in central Nebraska, but they are not commonly observed in the eastern third of the state.

Golden eagles build nests on cliffs, in the largest trees of forested stands, or on rock escarpments, allowing for an unobstructed view of the surrounding habitat (Beecham and Kochert 1975, Menkens and Anderson 1987, Bates and Moretti, 1994). Usually, sticks and soft material are added to existing nests, or new nests are constructed to create a strong, flat or bowl shaped platform for nesting (Palmer 1988, Watson 1997, Kochert et al., 2002). Golden eagles have been known to decorate multiple nests in a single year; continuing to do so until they lay eggs in a selected nest. The completed nest structure(s) can vary from large and multi-layered; or a small augmentation of sticks in caves with little material other than extant detritus (Ellis et al., 2009).

Golden eagles avoid nesting near urban areas and do not generally nest in densely forested habitat. Individuals will occasionally nest near semi-urban areas where housing density is low or in farmland habitat; however golden eagles have been noted to be sensitive to some forms of human presence (Pagel et al., 2010). Golden Eagles lay one to four eggs, with two eggs being common and four eggs being rare. The laying interval between eggs ranges between three to five days. Severe weather may delay the onset of egg-laying (Driscoll, 2010).

Phenology is not well understood in Nebraska; however nesting birds have been observed on eggs in April and young birds reported by the third week of May (Molhoff, 2001). The golden eagle breeding season generally occurs from mid-January to mid-September, but varies according to geographic area (Phillips et al., 1990, Verner et al., 1980).

Driscoll (2010) describes that breeding chronology begins with an increase in courtship flights and nest refurbishment in December and January. Some eagle pairs lay eggs as early as January; however, mid-February is more typical. Incubation is 45 days. Young hatch from mid-March through April and remain in the nest for 10 weeks, fledging in June. Fledglings remain in the breeding area for up to two months, during which the adults continue to feed them. Juveniles disperse from the breeding area during July and August.

### *Purpose*

Golden eagles are legally protected by the Bald and Golden Eagle Protection Act, the Migratory Bird Treaty Act and are considered a Tier II at-risk species (i.e., a species that is at-risk in Nebraska but doing well in other parts of its range) by the Nebraska Game and Parks Commission (NGPC) (Schneider et. al., 2011). The Nebraska Department of Roads (NDOR) and Federal Highway Administration (FHWA) has a need to demonstrate due diligence efforts that the transportation program is trying to avoid potential conflicts between eagles and potentially disruptive construction activities, as is already assessed and completed for bald eagles and migratory birds (Bald eagle survey protocol, 2007, NDOR APP, 2012). To document this effort for golden eagles, a habitat assessment process will be followed and coordinated with the NGPC and the U.S. Fish and Wildlife Service (USFWS).

### *Habitat Assessment Process*

1) Similar to our Species Evaluation Process for listed species, NDOR will determine if a proposed project occurs in a county within the most current available breeding range map (2012 example attached) and if there are known nest observations identified by NGPC's Heritage Program or the Breeding Bird Atlas within a 0.5-mile radius of the project.

2) In addition to range & nest location data, other types of desktop (GIS) information could be analyzed to determine whether the Limits of Construction are within 0.5-mile of the following golden eagle habitat indicators:

- Undeveloped
- Native grassland
- Trees
- Steep terrain
- Biologically Unique Landscapes (Pine Ridge, Wildcat Hills, Panhandle Prairies, Kimball Grasslands, Oglala Grasslands)
- Rocky escarpments
- Cliffs
- Rock outcrop
- Shortgrass prairie
- Sandhills dune prairie with 400 foot high rolling dunes
- Prairie dog towns

(3) If a **known** nest does occur within 0.5-mile of the project, or the habitat within 0.5-mile of the project appears to suggest a strong likelihood for golden eagle occupancy, a planned site visit prior to construction should take place:

It is recommended that the dates of the site visit should be sensitive to the local nesting (i.e. laying, incubating, and brooding) and conducted during weather conditions favorable for observing from medium to long range distances (+300—700 meters) (Pagel et al, 2010). There is some unknown proportion of golden eagles that nest in trees in the panhandle (<10%) but these nests are not always detected as cliff-dwelling nests are but usually they are found in

fairly remote locations (Joel Jorgensen, pers comm). It seems likely that these tree nests should be detected by following the bald eagle nest survey protocol.

(4) If nests are identified, follow up coordination with the Service and Commission should take place.

### ***Nest Surveys***

Golden eagle nests are typically large and distinctive, but may be well concealed and difficult to see against cliff faces and within rocky areas, or if in a tree, when trees have foliage. Nest surveys should complete a full inspection of rock escarpments, buttes, cliff faces, and large trees within 0.5-mile of the project in areas considered suitable habitat. Identified nests should be recorded using GPS. In addition to nests, any golden eagles observed during the survey and their behavior should be noted on the survey report. Potential nests should be observed from a distant location that does not disturb the eagles to confirm presence or absence of eagle activity. Nest surveys are to be conducted by a qualified biologist. Surveys resulting in a positive nest location will be sent to the NGPC and USFWS.

If construction will begin between February 1 and April 15, a nest survey must be completed at least 1, but not more than 14 days prior to construction. If construction will begin between April 15 and November 1, a nest survey completed in March is sufficient, as nests will likely already be constructed if nesting will occur that year. However, a nest survey may be completed at any time during this timeframe, as long as it is completed prior to construction. If golden eagles are nesting in the area, consultation with USFWS will be required, so it is in the project proponent's best interest to complete the survey and notify the agencies as early as possible.

### Identification resources

The field identification of North American eagles:

[http://www.globalraptors.org/grin/researchers/uploads/155/eagle\\_i.d.\\_1983.pdf](http://www.globalraptors.org/grin/researchers/uploads/155/eagle_i.d._1983.pdf)

Good examples of differences between species (i.e. feet, bills, feathers and pictures):

<http://www.hancockwildlife.org/forum/viewtopic.php?showtopic=132018>

### ***References***

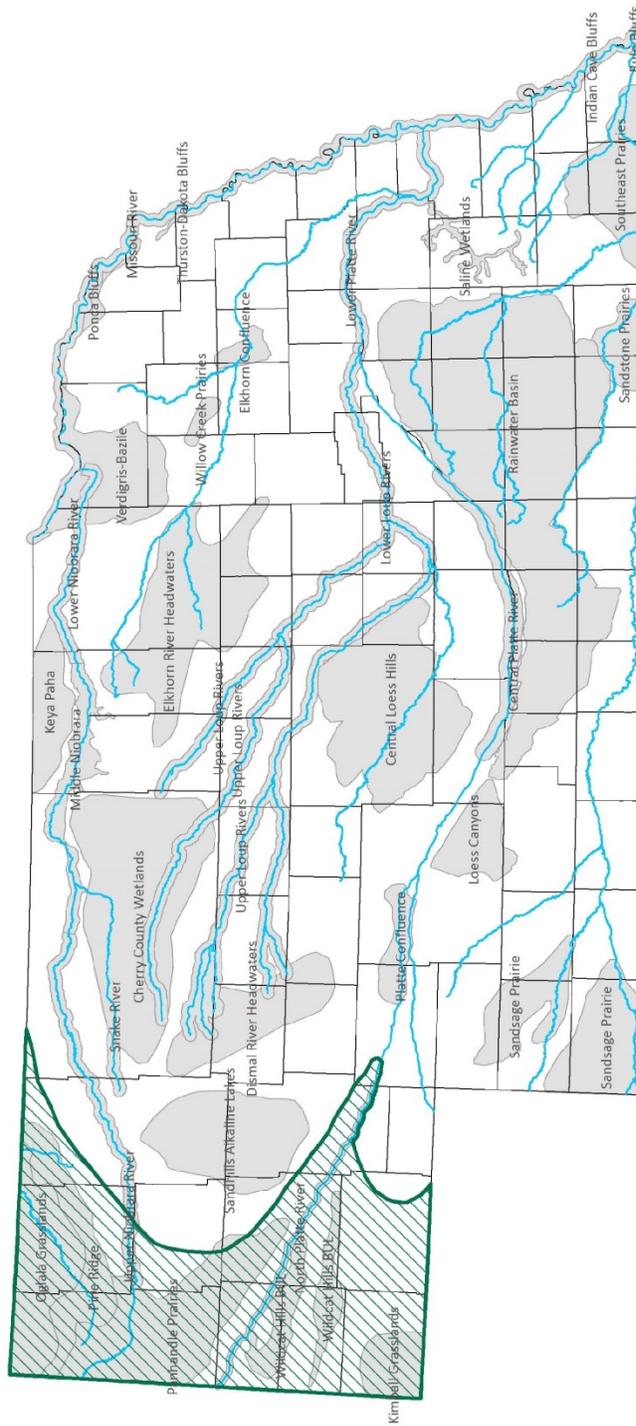
Bates, J. W., and M. O. Moretti. 1994. Golden Eagle (*Aquila chrysaetos*) population ecology in eastern Utah. *Great Basin Naturalist* 54:248-255.

Beecham, J.J. and M.N Kochert. 1975. Breeding biology of the golden eagle in southwestern Idaho. *Wilson Bull.* 87:506-513.

Clark, W.S. 1983. The field identification of North American eagles. *American Birds* 37: 822-826.

- Driscoll, D.E. 2010. Protocol for golden eagle occupancy, reproduction, and prey population assessment. American Eagle Research Institute, Apache Jct., AZ. 55pp.
- Ellis, D.H., T.Craig, E. Craig, S. Postupalsky, C.T. Larue, R.W. Nelson, D.W. Anderson, C.J. Henny, J. Watson, B.A. Milsap, J.W. Dawson, K.L. Cole, E.M. Martin, A. Margalida, and P. Kung. 2009. Unusual raptor nests around the world. *J. Raptor Res.* 43:175-198.
- Kochert, M. N., K. Steenhof, C. L. McIntyre and E. H. Craig. 2002. Golden Eagle (*Aquila chrysaetos*), *The Birds of North America Online* (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/684>
- Menkens, G.E., JR. and S.H. Anderson. 1987. Nest site characteristics of a predominantly tree-nesting population of golden eagles. *J. Field Ornithol.* 58:22-25.
- Molhoff, W. J. 2001. *The Nebraska Breeding Bird Atlas 1984-1989*. Nebraska Game and Parks Commission, Lincoln, NE.
- Pagel, J.E., D.M. Whittington, and G.T. Allen. 2010. Interim Golden Eagle inventory and monitoring protocols; and other recommendations. Division of Migratory Bird Management, U.S. Fish and Wildlife Service.
- Palmer, R.S. 1988. Golden eagle. In R.S. Palmer (ed.). *Handbook of North American birds*. Yale Univ. Press.
- Phillips, Robert L., Beske, Alan E. 1990. Distribution and abundance of golden eagles and other raptors in Campbell and Converse Counties, Wyoming. Fish and Wildlife Technical Report 27. Washington, DC: U.S. Department of the Interior, Fish and Wildlife Service. 31 p
- Schneider, R., M. Humpert, K. Stoner, G. Steinauer. 2005. *The Nebraska Natural Legacy Project: A Comprehensive Wildlife Conservation Strategy*. Nebraska Game and Parks Commission, Lincoln, NE.
- Verner, Jared, Boss, Allan S., tech. coords. 1980. *California wildlife and their habitats: western Sierra Nevada*. Gen. Tech. Rep. PSW-37. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station. 439 p.
- Watson, J. 1997. *The Golden Eagle*. T&AD Poyser, London.

# Current breeding range of Golden Eagle (*Aquila chrysaetos*)



Nebraska Natural Heritage Program,  
Nebraska Game and Parks Commission  
September 2012



Adult Golden Eagle (USFWS)



Immature Bald Eagle (USFWS)



Golden Eagle (USFWS)



Turkey Vulture (USFWS)