

*Pest Conf.* 8:206–213; Graham 1986, *Scott. Birds* 14:86; Phillips and Blom 1988, *Proc. Vertebr. Pest Conf.* 13:241–244; Phillips et al. 1996), adult domestic sheep and lambs (Svendson 1980 *Var Fuglefauna* 3:20–26 Hewson 1984, *J. Appl. Ecol.* 21: 843–868; Scrivner et al. 1990, Univ. Calif. Hopland Field Stn. Publ. No. 101:10–13) and adult reindeer (Nybakk et al. 2000). Although large prey are most often selected in inverse relationship to the availability of smaller prey (e.g., Steenhof and Kochert 1988), killing of livestock can occur even when small otherwise preferred prey such as jackrabbits (*Lepus* spp.) and ground squirrels (*Spermophilus* spp.) are readily available (Phillips et al. 1996). Likewise, Nybakk et al. (2000) documented winter and early spring predation on semidomesticated reindeer calves and does. Halda (1983, *Fauna* 36:101) reported late winter and early spring Golden Eagle predation on mature roe deer. Tigner (1973, *Southwest. Nat.* 18:346–348), Goodwin (1977, *Auk* 94:789–790) and Deblinger and Alldredge (1996) all reported eagle attacks on adult and fawn pronghorns in spring. Northeast (1978) and Rebecca (1986) reported winter and spring attacks on red deer; Lawson and Johnson (1982, Pages 1037–1055 in J.A. Chapman and J.A. Feldhammer [Eds.], *Wild mammals in North America: biology, management and conservation*, Johns Hopkins Univ. Press, Baltimore, MD U.S.A.) reported predation on bighorn sheep lambs (*Ovis canadensis*) and Wigal and Coggins (1982, Pages 1008–1020 in J.A. Chapman and J.A. Feldhammer [Eds.], *Wild mammals in North America: biology, management and conservation*, Johns Hopkins Univ. Press, Baltimore, MD U.S.A.) reported killing of mountain goat (*Oreamnos americanus*) kids.

Seasonal differences in prey selection by eagles, especially as they might reflect changes in nutritional requirements, have not been well investigated (Seguin and Thibault 1996) and the available evidence is somewhat contradictory. Some studies, for example, suggest that large prey are favored early in nesting (Fernandez and Ceballos 1990, *Ornis Scand.* 21:236–238). Others suggest that such prey are unimportant for nesting birds but instead are favored by overwintering eagles (Mollhagen et al. 1976, *J. Wildl. Manage.* 36:784–792). Because there are data consistent with the possibility that prey-size selection by mammalian predators may be influenced by the number of offspring being fed (Till and Knowlton 1983), it might be worthwhile to investigate whether there is evidence of a similar facultative response expressed by raptors.

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## GOLDEN EAGLE PAIR KILLS FERRUGINOUS HAWK IN WYOMING

We saw a pair of Golden Eagles (*Aquila chrysaetos*) kill a lone adult Ferruginous Hawk (*Buteo regalis*) in Thunder Basin National Grassland (TBNG) in East Central Wyoming on 20 June 1999. The attack took place around 1100 H in the Rochelle Hills area (43°52'18"N, 105°01'42"W). We were sitting in a stopped vehicle and watched the attack from 0.8 km away. The eagles alternatively dove upon the hawk as it flew less than 7 m from the ground. The attack lasted about 25 min from the time we first observed it and consisted of five dives by each eagle. The attack sequence entailed one eagle diving on the hawk followed within 30 sec by the second when the hawk was occupied with the first eagle. The Ferruginous Hawk either rolled onto its back exposing its talons to the diving eagles or turned sharply to avoid contact. On the fifth attempt, the second eagle hit the hawk in the air. The eagle continued to hold onto the dead hawk as they fell to the ground where the eagle mantled the hawk. Previous literature indicated this tandem hunting strategy used by eagles taking black-tailed jackrabbits (*Lepus californicus*) and a red fox (*Vulpes fulva*) in which one eagle either flushed the prey or diverted its attention while the second eagle attacked (Hatch 1968, *Blue Jay* 26: 78–80, Collopy 1983, *Auk* 100:747–749). We did not determine the sex of the eagle that made the kill. The second eagle landed 2 m away and both eagles remained on the ground for 5 min. Neither eagle consumed any of the carcass and the pair flew off together. We watched the event from a distance and did not harass the eagles forcing them to abandon the kill. Neither eagle appeared disturbed for any reason but remained calm during the time spent on the ground and as it flew away.

Golden Eagles prey upon a variety of species ranging in size from small rodents to ungulates such as antelope (*Antilocapra americana*) and mule deer (*Odocoileus hemionus*) (Hogstrom and Wiss 1992, *Ornis Fenn.* 69:39–44, Watson et al. 1993, *Ibis* 135:387–393, Deblinger and Alldredge 1996, *J. Raptor Res.* 30:157–159). Golden Eagles have attacked

other birds of prey for a variety of reasons including food robbing, predation, and nest defense (Hays 1987, *J. Raptor Res.* 21:87–5, Ferrer 1990, *J. Raptor Res.* 24:210–218; Clouet et al. 1999, *J. Raptor Res.* 33:102–109). In TBNG, Golden Eagles and Ferruginous Hawks often pursue similar prey species, primarily the black-tailed prairie dog (*Cynomys ludovicianus*) and several lagomorphs. We wondered if the eagles might be defending a food source from a potential competing species but it did not seem likely.

Nest defense was examined as a possible explanation for the attack. A search of the area did not reveal any nest but it may have been overlooked due to irregular terrain. Even though a nest was not located, nest defense seemed to be the logical explanation for this attack. Protection of nestlings may have been the reason for the attack even though Ferruginous Hawks have not been known to take Golden Eagle nestlings. Golden Eagles do aggressively defend their nesting territory from other raptor species (Watson 1997, *The Golden Eagle*, T. & A.D. Poyser, London, U.K.). The Golden Eagle pair may have been protecting its nest from a perceived threat.—**Matt L. Buhler, Jake H. Powell, and Stanley H. Anderson, Wyoming Cooperative Fish and Wildlife Research Unit, P.O. Box 3166, University of Wyoming, Laramie, WY 82071 U.S.A.**