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Ingestion of Lead Shot and Aluminum Bands by Bald Eagles During Winter in Nebraska

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Ingestion of lead shot and aluminum bands by Bald Eagles during winter in Nebraska.— The Bald Eagle (*Haliaeetus leucocephalus*) is a common winter resident along the Platte and North Platte rivers in southcentral Nebraska. Waterfowl are a major food of eagles during periods when fish are not readily available (Lingle and Krapu 1986). Eating ducks and geese can make eagles susceptible to lead poisoning, a significant cause of mortality of Bald Eagles in North America (Kaiser et al. 1980). Eagles ingest lead shot from waterfowl by eating shot imbedded in tissues or as part of the contents of digestive tracts. In this paper we describe the incidence of lead shot and Fish and Wildlife Service aluminum leg bands in regurgitated pellets of Bald Eagles along the Platte and North Platte rivers during the winters of 1978–79 and 1979–80. Documentation of aluminum bands in egested pellets was incidental to the evaluation of occurrence of lead shot.

Study area and methods.—Egested pellets were collected from 11 nocturnal communal roosts of Bald Eagles located along 370 km of the Platte and North Platte rivers in Nebraska. Pellets (N= 2858) were collected from the surface of the ground and snow below roost trees during 106 visits during 19 December 1978–28 March 1979 and 3 December 1979–14 March 1980. Each regurgitated pellet was examined for prey remains and the presence of lead shot. Food habits of Bald Eagles during winter in Nebraska were described by Lingle and Krapu (1986).

Results.—Of 2858 egested pellets, 1832 contained waterfowl remains (Lingle and Krapu 1986); 9 (0.3%) of the latter group also contained lead shot. Four and five pellets containing a single lead shot were found during 1978–79 and 1979–80, respectively. Of these nine pellets, three contained the remains of Mallards (*Anas platyrhynchos*), two contained Canada Geese (*Branta canadensis*), and four contained unidentified waterfowl. One pellet also had Ring-necked Pheasant (*Phasianus colchicus*) remains.

Other egested pellets contained 10 Fish and Wildlife Service aluminum leg bands: eight from Mallards, one from a Canada Goose, and one from a Green-winged Teal (*Anas crecca*). In addition, one web tag from a Canada Goose was found. The number of bands present in pellets reflects the importance of waterfowl in the diet during winter. Assuming each pellet represented the remains of an individual bird, the pellets contained the remains of 228 Canada Geese, 36 Green-winged Teal, 1059 Mallards, 14 Northern Pintail (*Anas acuta*), 4 Gadwall (*Anas strepera*), 3 American Wigeon (*Anas americana*), 1 Lesser Scaup (*Aythya affinis*), 3 Hooded Mergansers (*Mergus cucullatus*), 61 Common Mergansers (*Mergus merganser*), and 423 unidentified waterfowl (Lingle and Krapu 1986). These statistics probably overestimate the number of waterfowl consumed since several eagles may feed on a single carcass.

Discussion.—The incidence of lead shot in regurgitated pellets egested by Bald Eagles at nocturnal communal roosts along the Platte and North Platte rivers was lower (<1%) than at other studied sites in the midcontinent region. Griffin et al. (1982) reported 9% of the eagle pellets collected at Swan Lake NWR in north central Missouri contained lead shot.

At the Missouri site, eagles had access to large numbers of crippled and dead geese, which presumably were the primary source of lead shot. In South Dakota, Steenhof (1976) reported finding waterfowl remains in 285 of 363 egested pellets including 10 (2.7%) with lead shot. Based upon her observations, she concluded eagles obtained most of the waterfowl in upland fields. Likewise, at our Nebraska site, eagles ate waterfowl that had been feeding in upland fields (obtained by kleptoparasitizing other raptors [Jorde and Lingle, in press]). In March 1980, they also scavenged waterfowl that had died of avian cholera (Lingle and Krapu 1986).

Infrequent ingestion of lead shot by Bald Eagles in Nebraska probably stems from a low incidence of lead shot among waterfowl wintering along the Platte and North Platte rivers. The frequency of occurrence of lead shot in wintering waterfowl in Nebraska is not known; however, only about 1% of waterfowl wintering in the Texas High Plains region during the same period had lead shot in their digestive tracts (Wallace et al. 1983). It is probable that field-feeding Mallards obtained in lightly hunted uplands contain fewer lead shot than cripples or segments of the population feeding principally in wetlands where hunting activity and lead shot contamination are likely to be concentrated.

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