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Wolves (*Canis lupus*) in northeastern Minnesota cached six radio-collars (four in winter, two in spring-summer) of 202 radio-collared White-tailed Deer (*Odocoileus virginianus*) they killed or consumed from 1975 to 2010. A Wolf bedded on top of one collar cached in snow. We found one collar each at a Wolf den and Wolf rendezvous site, 2.5 km and 0.5 km respectively, from each deer's previous locations.

Key Words: Wolf, *Canis lupus*, White-tailed Deer, *Odocoileus virginianus*, caching, radio-collars, den, homesite, Minnesota.

Wolves (*Canis lupus*) cache food in summer when they travel alone or in small groups (Murie 1944, Cowan 1947, Magoun 1976; Mech and Adams 1999). Caching stores excess food, protects it from scavengers and maggots, and provides a buffer during periods of prey scarcity (Mech 1970). However, caching by free-ranging Wolves has not been reported during winter (Peterson and Cuicci 2003). This is not surprising because much of the Wolf literature is based on forest-dwelling Wolves that have primarily been observed from small aircraft during winter, conditions that have precluded detailed observations of caching. Wolves do return to old kills in winter and conceivably may uncover caches made earlier (Mech 1966).

In a long-term radio-telemetry study of White-tailed Deer (*Odocoileus virginianus*) preyed upon by Wolves in northeastern Minnesota (48°N, 91°W; Nelson and Mech 1986), retrieving the collars of radio-collared deer killed by Wolves revealed that Wolves cached radio-collars. Aerially locating deer 1-3 days/week and retrieving radio-collars of killed deer within 24 hours of discovery presented an unbiased method to document caching in winter, as well as during other seasons.

Of 202 radio-collared deer killed and/or consumed by Wolves during 1975-2010, Wolves cached the collars of six (3%) deer, one each in January, April, August and November, and two in March. Wolves buried four collars in 25-76 cm of snow and two in soil covered by duff and leaf litter. The collar was still attached to the neck and head of research animals for two collars buried in snow, and one of those was beneath a Wolf bed. We found one collar 200 m from the kill site and another in a Wolf summer homesite 500 m from the deer's location just before being killed, although the kill site was not found. Of the remaining 196 radio-collared deer, Wolves in April and May (0-15 cm snow) carried and dropped two collars 300 and 400 m from kill sites. We found a third collar dropped at a Wolf den the first week in April, 2.5 km from the deer's previous 26 January–March locations, and like the previous homesite observation, the kill site was unknown.

Our observations document that Wolves make caches during winter and confirm that Wolves will bed on top of their caches, behavior reported for the Red Fox (*Vulpes vulpes*, Mech 1967) but only suspected for Wolves (Mech 1970).

Presumably caching a radio-collar must be far less frequent than caching food because a collar has no nutritional value. As a nonfood item, it is unclear why Wolves would cache a radio-collar, although, deer hair, blood, scent, and bone-like rigidity of the collar could conceivably play a role in eliciting caching behavior. However, well-fed captive Wolves carry away and cache nonfood objects belonging to their caretakers (Schmidt, International Wolf Center, personal communication). Carrying a radio-collar for considerable distances appears similar to this behavior, which suggests that aspects of caching behavior may be more complex than simply a response to nutritional pressures. Awareness of and attraction to physical objects may be a deep-seated trait in the genome. Hiestand (1989) found that Wolves spontaneously oriented to physical objects in fewer experimental trials than dogs (*Canis familiaris*), a finding corroborated by observations of captive Wolves (Fentress 1967, 1992; MacDonald 1980, Zimen 1981). The selective breeding of dogs for retrieving objects for humans is evidence that possession of objects plays a role in canid social behavior. Because Wolves are the progenitors of dogs, the propensity for this trait must have its origins in the Wolf genome.

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