

carry a "small rodent" over a distance estimated at one mile (1.6 km) until it disappeared over woodland, presumably to feed young birds, near Port Philip bridge, Nova Scotia (45°51'N, 63°44'W). The same files also included nine references to Merlins preying on small birds during the nesting season or carrying avian prey to their nests. Thus, mammals were reported in one quarter of the 12 cases in the Maritimes where prey of nesting Merlins was classified.

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Marten, *Martes americana*, Predation on a Northern Goshawk, *Accipiter gentilis*

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The site where a Marten *Martes americana* killed a Northern Goshawk *Accipiter gentilis* was found during snowtracking in the taiga of western interior Alaska. The Marten dragged the raptor >0.5 km before beginning to feed on it. Although Martens are known to prey on passerines and gallinaceous birds, this is apparently the first report of one attacking and consuming a raptor.

Key Words: Marten, *Martes americana*, predation, Northern Goshawk, *Accipiter gentilis*.

While snowtracking a Marten for a study of habitat use in post-fire seral stages of the Alaskan taiga (64°40'N, 154°00'W), the junior author found evidence that a Marten had located and killed a Northern Goshawk after a 5 m stalk and short (2 m) struggle. The Goshawk had apparently been perched ca. 20 cm above the snow on a leaning dead Black Spruce, *Picea mariana*, tree 10 cm in diameter. The perch was in a strip of mature coniferous forest (ca. 100-115 yrs old, canopy cover ≥50%) consisting primarily of Black Spruce and Larch, *Larix laricina*, adjacent to regrowth from a 1966 fire (canopy cover <50%). A gray pellet (ca. 2 cm × 7 cm) was found at the kill site, suggesting that the Goshawk may have been preoccupied with regurgitating (Craighead and Craighead 1956: 126). The Marten dragged the Goshawk for >0.5 km (paced trail): 165 m through mature coniferous forest; 106 m in the sparse regrowth of the burn; 73 m along a ridge of unburned Quaking Aspen, *Populus tremuloides*, in the burn; and then 225 m into another strip of mature

coniferous forest. The Marten pulled the Goshawk carcass into a hole and dismembered it under the snow. Blood, a few downy feathers, and a lower leg were found at this site, and a primary feather was found along the drag trail. (T. Swem, U.S. Fish and Wildlife Service, Fairbanks, Alaska, identified the Goshawk as an adult female based on plumage and tarsus size.) Tracking conditions were excellent; a light, granular snowfall (ca. 0.5 cm) had occurred three days before (15 February 1993), the sky was clear, and no drifting of the tracks had occurred since the snowfall. The junior author returned to the feeding site the following day with a shovel, but the subnivalian spaces were extensive, and no further remains of the Goshawk were found.

Marten diets are composed largely of microtine rodents and Snowshoe Hares, *Lepus americana*, during winter in North America (see Slough et al. [1989] and the review of food habits studies in Strickland and Douglas [1987]). They are known to seasonally prey on a variety of passerine and gallina-

ceous birds, but we found no mention of raptors in the Marten diet. However, Martens are opportunistic scavengers (Strickland and Douglas 1987), so birds of prey could occur in their diet. Moving large prey to secluded or subnival feeding sites is not uncommon in Martens (Pulliainen 1981a; Henry et al. 1990). We also found no records of raptors in the diet of Fishers, *Martes pennanti* (Powell 1982: Table 9; Douglas and Strickland 1987), even though the Fisher (2-4 kg) is larger than the Marten (0.8-1.2 kg). However, Paragi (1990:100) noted the foot of a juvenile raptor (species not determined) at the rest site of a female Fisher with kits.

Known avian predators of martens, *Martes americana* and *Martes martes*, include Great Horned Owls, *Bubo virginianus* (Grinnell et al. 1937 in Hargis and McCullough 1984; G. Bamford, Kobuk, Alaska, personal communication); Golden Eagles, *Aquila chrysaetos* (Nyholm 1970; Huhtala et al. 1976 in Pulliainen 1981b; Korpimäki and Norrdahl 1989); and possibly Eagle Owls, *Bubo bubo* (Pulliainen 1981b). Mean weight of Golden Eagles and Eagle Owls from Eurasia (Korpimäki and Norrdahl 1989) and of Great Horned Owls (Craighead and Craighead 1956: 427) is generally greater than that of Martens. Northern Goshawks are of similar weight as Martens (Craighead and Craighead 1956: 427; T. Swem, in correspondence); however, weasels, *Mustela* spp., were the only mustelid found in their diet (Craighead and Craighead 1956: 287; Schnell 1958: 384).

The dark pelage of Martens makes them conspicuous against the snow, and some studies have suggested that Martens avoid habitats of little or no overhead cover in winter because of avian predators (Herman and Fuller 1974; Pulliainen 1981b; Hargis and McCullough 1984). However, Magoun and Vernam (1986) and our on-going study (W. N. Johnson and T. F. Paragi: The relationship of wildfire to Lynx and Marten populations and habitat in interior Alaska. Annual Report, Calendar Year 1993. U.S. Fish and Wildlife Service, Galena, Alaska) have found that Martens may live entirely within recent burns (<10 years old) that have overhead cover limited mostly to fallen and leaning trees that had died in the fire. This coarse woody debris may provide Martens with sufficient access to subnival spaces as escape terrain from avian predators. Alternatively, Korpimäki and Norrdahl (1989) hypothesized that Martens and Mink, *Mustela vison*, maintain a dark winter coat because they have few avian predators, whereas smaller mustelids such as weasels evolved a white coat for winter because they are subject to predation by a larger suite of birds of prey.

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