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Sharp-shinned Hawk preys on a Marbled Murrelet nesting in old-growth forest.—Few details of the life history of the Marbled Murrelet (*Brachyramphus marmoratus*) are known. However, it appears that murrelets do not breed until about three years old, lay only one egg, and, like other alcids, are probably long-lived (Sealy 1974a, 1975; Evans and Nettleship 1985). Marbled Murrelets are unusual among the Alcidae because they nest primarily in old-growth coniferous trees, where the adult's mottled red-brown plumage camouflages it in moss- and lichen-covered branches (Binford et al. 1975, Quinlan and Hughes 1990, Singer et al. 1991). Murrelets exchange incubation duties and feed chicks most frequently during the low light levels of dawn. They typically are silent when approaching and departing from nests (Singer et al. 1991, Naslund 1993). After leaving the nest, murrelets sometimes erratically fly at rapid speed through the forest (unpubl. obs.). The cryptic coloration, secretive behavior and possibly predator-confusing flight pattern, suggests that predation pressures are important at murrelet nests.

Raptor predation on adult murrelets appears to occur with some regularity in coastal areas. Predators have included Peregrine Falcons (*Falco peregrinus*), Bald Eagles (*Haliaeetus leucocephalus*), and possibly Merlins (*F. columbarius*; Sealy 1975; Quinlan and Hughes 1992; J. Hughes, pers. comm.; L. Prestash and R. Burns, pers. comm.). Predation on Marbled Murrelet eggs and chicks has also been documented and may account for a large percentage of nest failures throughout the murrelets' range (Singer et al. 1991, Nelson and Hamer 1992). It appears that corvids are the major predators at murrelet nests. In California, a Steller's Jay (*Cyanocitta stelleri*) took a young murrelet chick from an unattended nest, and an embryo or part of an adult murrelet was carried away from a murrelet nest by a Common Raven (*Corvus corax*; Singer et al. 1991, Naslund 1993). In the Pacific Northwest, a Great Horned Owl (*Bubo virginianus*) preyed on a Marbled Murrelet nestling, and predation was found to be the primary cause of nesting failure (Nelson 1991, Nelson and Hamer 1992). Here we describe predation of an adult Marbled Murrelet at its nest in old-growth forest by a Sharp-shinned Hawk (*Accipiter striatus*).

While conducting dawn surveys of Marbled Murrelet habitat (see Paton et al. 1990) throughout Naked, Peak, and Storey islands in Prince William Sound, Alaska, we recorded all murrelets seen or heard during a 2-h period beginning 90–105 min prior to official sunrise. One survey, approximately 180 m from the ocean and 120 m in elevation, was conducted on Storey Island. The dense stand of western hemlock (*Tsuga heterophylla*), Sitka spruce (*Picea sitchensis*), and mountain hemlock (*T. mertensiana*) at this site included trees more than a meter in diameter at breast height (dbh). Trees in this stand were among the largest observed on this group of islands (for the largest 20% of trees >10 cm dbh in a 25 m radius plot, $\bar{x}$ = 83 cm dbh; Kuletz et al., unpubl. data). Canopy closure was approximately 85%, and there was a sparse understory of blueberry (*Vaccinium alaskensis*), rusty menziesia (*Menziesia ferruginea*), salmonberry (*Rubis spectabilis*), a variety of ferns, and thick moss on the trees and ground. Large moss-covered platforms were common on trees more than 70 cm dbh.

At 04:33 h ADT (38 min before official sunrise) on 11 July 1991, DKM heard a sharp keer call and the characteristic wingbeat sound of a murrelet landing in a tree about 40 m away. About 5 sec later, murrelet wingbeats were heard moving away from the tree, heading toward the ocean. After approximately one min, a Sharp-shinned Hawk called, followed immediately by another sharp keer call and murrelet wingbeats. At 04:44 h (still twilight and 27 min before sunrise), loud wing sounds revealed a murrelet again flying into the tree. It immediately flew out and for 3–5 sec the loud flapping of its wings could be heard descending slowly toward the ground. After 15 min, at the survey's conclusion, a Sharp-

shinned Hawk was observed on the ground in the vicinity of earlier activity and was flushed from a Marbled Murrelet. The dead murrelet was a 200-g adult male with an empty stomach and a large (35 × 20 mm) vascularized brood patch. The size of the brood patch indicated current or recent incubation (see Sealy 1974b). A 3-cm patch of breast feathers had been plucked by the hawk. Based on size and plumage, the Sharp-shinned Hawk was an adult female, which probably belonged to a pair observed in the same area during the previous afternoon. Three upper canopy trees in the vicinity were climbed, but no murrelet nest was found.

Sharp-shinned Hawks prefer large nest trees that provide cover and physical protection from predators (Clarke 1982, Reynolds et al. 1982). Therefore, it was not unusual to find them nesting in proximity to Marbled Murrelets. However, the murrelet was among the largest prey taken by a Sharp-shinned Hawk (McAtee 1935) and probably matched or exceeded the weight of the hawk (range of female Sharp-shinned Hawk masses: 120–210 g; Palmer 1988).

This is the first confirmed account of predation on an adult Marbled Murrelet at its nest. Compared to predation on eggs or nestlings, the loss of breeding adults may have a greater impact on the population of this potentially long-lived and slow-reproducing species. Along with breeding experience, nest site quality is probably critical to breeding success. Predation may be a major factor in determining the quality of a nest site. Vegetation and habitat characteristics (e.g., cover provided by surrounding foliage, ease of accessibility, stand size, light levels, and other factors influencing bird visibility) may increase the quality of a nest site by reducing susceptibility to predation. Our observation documents that adult murrelets are vulnerable to predation at nests and helps to explain the murrelet's cryptic plumage and secretive behavior at nest sites. Predation has been implicated in the evolution of nocturnal and crepuscular activity patterns for other nesting alcids (McNeil et al. 1993). Similarly, Marbled Murrelets may visit inland nesting areas primarily during the low light levels of dawn and dusk to minimize threats from diurnal predators.

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Use of bait and lures by Green-backed Herons in Amazonian Peru.—Use of bait and lures by Green-backed Herons (*Butorides striatus*) has been documented in Africa (Boswall 1983, Walsh et al. 1985), the southeastern United States (Lovell 1958, Sisson 1974, Keenan 1981, Preston et al. 1986, Higuchi 1988a), Cuba (Boswall 1983), and Japan (Higuchi 1986, 1988b). Green-backed Herons have been observed using both lures (e.g., feathers, fruit, flowers) and potential food items (e.g., insects and crackers) as bait to attract fish (reviewed in Higuchi 1986). Sisson (1974) photographically documented the use of bait in Florida. The use of bait and lures is an apparent case of true tool use (Higuchi 1986, 1988b). In this note, I document the use of bait and lures by Green-backed Herons at a site in the western Amazon basin of Peru.

The observations reported here were made in the vicinity of the Cocha Cashu Biological Station in the lowland (300–350 m) section of the Manu National Park of southeastern Peru (11°55′S, 77°18′W). Cocha Cashu is an oxbow lake of the Manu River in an extensive area of undisturbed floodplain forest (see Bolster and Robinson 1990 for a description and map of the study area). All observations of bait fishing occurred during an eight-day period, 3–10 November 1988. Observations were made from boats through 10× binoculars. The first bird observed using bait was photographed using a 500-mm lens (photographs available upon request from the author). On 10 November 1988, I paddled the canoe slowly around the margins of the lake in an effort to determine how many individuals were using lures