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We report three instances of Wolf predation on mustelids in Alaska; two involved Wolverines and another involved an American Marten. Such observations are rare and in previous studies usually have been documented indirectly. This account provides insight into the potential role of Wolves in influencing mesocarnivore communities in northern environments.


**Account 1:** On 20 March 1983 (1330 PST), during an aerial sex and age composition survey for Moose (*Alces alces*), we observed an adult Wolverine in the top of a large cottonwood (*Populus trichocarpa*) tree along the Chilkat River near Haines in southeastern Alaska (59° 37'N, 135° 55'W). Near the base of the tree was a pack of at least five Wolves in an area of blood-stained snow where the Wolves appeared to have been digging. One Wolf was observed with a juvenile Wolverine in its mouth. A few of the other Wolves were digging in the snow at what we suspected was a Wolverine den site, while another Wolf was lying down a short distance from the activity. Our impression was that the Wolves found the Wolverine den by chance and were in the process of digging it out to get to the kits. We were unable to determine if the Wolves actually consumed any of the kits, but judging from the extent and dispersion of blood on the snow, more than one kit had been killed.

**Account 2:** We believe Wolves were responsible for the death of a yearling female Wolverine in an area of light spruce (*Picea spp.*) forest and tundra vegetation in the Nelchina Basin in southcentral Alaska (62° 41'N, 147° 45'W). On 1 June 1997, while radio-tracking Wolverines as part of a population ecology study (Golden 1997), we observed a Wolf circling a yearling female Wolverine whose radio collar was on mortality mode and which showed no sign of movement (S. D. Bowen, Alaska Department of Fish and Game, personal communication). This was the first day we had detected her radio signal on mortality mode since she was last seen alive on 15 May 1997. We retrieved the carcass by helicopter on 2 June 1997. While the carcass was being loaded onto the helicopter, two Wolves stood within 300 m barking and howling (J. W. Testa, Alaska Department of Fish and Game, personal communication). The necropsy revealed five puncture holes in the skin, three in the chest and two in the groin, which may have been made by canine teeth of Wolves. Its chest was crushed laterally on the ventral side, resulting in several broken ribs. Although the carcass was in an advanced state of decomposition, it was intact and no part of it had been consumed. These observations plus the behavior of the Wolves and the timing of the death in late May suggest Wolves attacked and killed the Wolverine, possibly in defense of a wolf den site.

**Account 3:** On 8 June 2000 (1222 ADT) during a telemetry re-location flight, we observed a radio-
collected, solitary female Wolf in mixed-spruce (P. glauca and P. mariana) forest vigorously digging in moss-covered, hummocky soil, near Old Man Lake, Alaska (62° 31’N, 146° 81’W). As we circled the Wolf, we noticed one American Marten escaping through the forest ~15 m away as the Wolf continued digging in the original location. Subsequently, after ~2 minutes of digging, we observed the Wolf drag another Marten with its jaws from the underground cavity that it had been excavating. The Wolf then repeatedly bit, shook and dropped the Marten 4–5 times until the Marten stopped moving, at which time it was presumed dead. The Wolf first stood guarding, and then rolled on the carcass until we terminated our observation at 1231 (ADT).

Our observations indicated, to the extent possible, that Wolves did not feed on the carcasses of the Wolverines they had killed, a behavior noted by others (Burkholder 1962, Boles 1977). We can only speculate on the basis of that behavior, but ultimate explanations might include: elimination of competitors (Burkholder 1962, Boles 1977). We can only recognize the role that even limited predation might exert on their population dynamics. Thus, in such cases, anecdotal accounts of predator-specific mortality provide valuable insights into the range of influence that Wolves might exert on mesocarnivore communities in relatively undisturbed northern environments.

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We report the capture of several unusual fish at a hydroelectric generating station, Annapolis Royal, in the Annapolis Estuary, Nova Scotia, during the fall of 1999. These include a Meek’s Halfbeak, *Hyporhamphus meeki*, captured on 23 September, 1999, which is either the first or second record of this species in Canada, and is the first record in 50 years. A Flying Gurnard, *Dactylopterus volitans*, captured 28 September 1999, is a first record for the Bay of Fundy. Additionally, three Bluefish, *Pomatomus saltatrix*, and one Fourbeard Rockling, *Enchelyopus cimbrius*, were reported for the first time from the Annapolis Estuary during 1999.


The Annapolis Basin in Nova Scotia is home to the western hemisphere’s only tidal hydroelectric generating station, located in Annapolis Royal (44° 45’N, 65° 31’W). As such, fish assemblages within the estuary are well studied, during both pre-operational stock assessments and surveys (e.g., Melvin et al. 1985; Jessop 1976), and several assessments of fish passage facilities at the generating station (e.g., Gibson 1996). During 1999, several unusual fish specimens were captured while testing the effectiveness of an ultrasound fish diversion system at the station (Gibson and Myers 2000). A Meek’s Halfbeak, *Hyporhamphus meeki*, captured on 23 September, 1999, is either the first or second record of this species in Canada, and is the first record in 50 years. A Flying Gurnard, *Dactylopterus volitans*, captured 28 September 1999, is a first record for the Bay of Fundy. Other unusual specimens captured at this location during September 1999 include three Bluefish, *Pomatomus saltatrix* and one Fourbeard Rockling, *Enchelyopus cimbrius*. While these latter species occur regularly in the Bay of Fundy (Scott and Scott 1988), these species have not been reported previously in the Annapolis Estuary.

*Hyporhamphus* spp. are planktivorous fish characterised by a very long lower jaw and short upper jaw. The taxonomic status of western Atlantic *Hyporhamphus* was clarified by the description of a new species, *Hyporhamphus meeki*, by Banford and Collette (1993). This species ranges north from the Gulf of Mexico, and is a rare stray into the Gulf of Maine. It usually can be distinguished from its southern relative, *Hyporhamphus unifasciatus*, by having a greater number of total gill rakers on the first (31 to 40) and second arches (20 to 30), and having a ratio of preorbital length to orbit diameter greater than 0.70 (Banford and Collette 1993). Contreras-Balderas et al. (1997) suggest the species can be distinguished using the shape of the lateral band. The specimen reported herein is unusual in having 29 gill rakers on right first arch and 23 gill rakers on the right second arch, both of which are low for this species. The identifying characteristic for this specimen is the ratio of preorbital length to orbit diameter, which equals to 0.74 (Bruce Collette, personal communication).

One previous record of *Hyporhamphus* sp. exists for eastern Canada. This specimen, reported as *Hyporhamphus unifasciatus*, was captured in a