First Record of a Least Weasel, *Mustela nivalis*, on the Kenai Peninsula, Alaska

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FIRST RECORD OF A LEAST WEASEL, *MUSTELA NIVALIS*, ON THE KENAI PENINSULA, ALASKA

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We report the 1st verifiable account of a Least Weasel, *Mustela nivalis*, on the Kenai Peninsula, Alaska, despite extensive collecting efforts dating back over 100 y. In mid-October 2008, a female *M. nivalis* (University of Alaska Museum [UAM] 79700; http://arctos.database.museum/home.cfm) was killed by a dog north of Kachemak Bay, just outside the city limits of Homer, Alaska (UTM Zone 5N, 588856 E, 6617140 N; datum: WGS 84). The nearest voucher specimen of a *M. nivalis* was collected in Spenard, west of Anchorage (MacDonald and Cook 2009), which is approximately 250 km by land from Homer. The Spenard specimen, MSB 85691, is archived in the Museum of Southwestern Biology's mammal collection. Because the weasel was caught far inland on the peninsula, we believe that it does not represent an anomalous extralimital occurrence but rather an individual from a population that has avoided detection, at least via a voucher specimen, for over a century.

Mustela nivalis has a circumboreal range throughout the Holarctic (Sheffield and King 1994). Although widely distributed, it is considered rare in North America (Sheffield and King 1994) and was not previously known from the Kenai Peninsula (Manville and Young 1965; Cook and MacDonald 2004). However, we are aware of 2 anecdotal sightings of Least Weasel on the Kenai Peninsula (T Bailey, Kenai National Wildlife Refuge, Soldotna, AK, pers. obs.; J McDonough, Pratt Museum, Homer, AK, pers. obs.). The distribution of *M. nivalis* may be influenced by the presence of its larger-bodied competitor and occasional predator, the Ermine (*Mustela erminea*), and by the density and composition of its small rodent prey (Erlinge and Sandell 1988). *M. nivalis* also is vulnerable to extirpation during localized rodent declines (King and Moors 1979).

The Kenai Peninsula (23,300 km^2) is in south-central Alaska, and is separated from the mainland by a 16 km isthmus between Cook Inlet on the west and Prince William Sound on the east. The peninsula is home to the Kenai Fjords National Park (2500 km^2), the Kenai National Wildlife Refuge (7700 km^2), and a portion of the Chugach National Forest (5200 km^2). Despite several collecting expeditions dating back to the early 1900s (Osgood 1901; Allen 1902, 1904), recent inventories (Quinlan 1978; Walker 1978; Fuller 1981; Cook and MacDonald 2004; McDo-

nough and Olson 2007), and small mammal studies (Bangs 1979, 1984; Williams 1999), this is the 1st confirmation of the existence of *M. nivalis* on the peninsula. Furthermore, other species of small mammals with wide distributions on the mainland have not been documented on the Kenai Peninsula (Rausch 1961; MacDonald and Cook 2009). These include the Yellow-cheeked Vole (*Microtus xanthognathus*), Brown Lemming (*Lemmus trimucronatus*), Meadow Jumping Mouse (*Zapus hudsonius*), Collared Pika (*Ochotona collaris*), Arctic Ground Squirrel (*Spermophilus parryii*), Northern Flying Squirrel (*Glaucomys sabrinus*), and American Water Shrew (*Sorex palustris*). It is unknown whether these species have not been documented on the Kenai Peninsula because the geographic bottleneck has prevented their establishment, or if there is simply a need for more comprehensive inventories.

Least Weasels have been under-represented in small mammal inventories in Alaska because they can exist at low densities depending on prey populations (King and Moors 1979), they are not readily captured in traps designed for small rodents and shrews, and they are rarely caught with traditional methods used by commercial trappers for the larger mustelids, American Mink (*Neovison vison*) and American Marten (*Martes americana*). As a testament to this challenge, a recent inventory of small mammals (McDonough and Olson 2007) using an array of Sherman live traps, snap traps, and pitfall traps totaling over 16,000 trap nights in 8 locations across the Kenai Peninsula resulted in the capture of over 1700 individuals representing 10 species, but only 1 *M. erminea*, and no *M. nivalis*. UAM holds 605 specimens of *M. erminea*, yet only 55 specimens of *M. nivalis*, further demonstrating the difficulty in successfully obtaining a voucher specimen of this species. Similarly, as reported in MacDonald and Cook (2009), there are nearly 10 times as many known voucher specimens of *M. erminea* from Alaska in museums worldwide as there are of *M. nivalis*.

This 1st record of *M. nivalis* on the Kenai Peninsula underscores that our knowledge of the fine-scale distribution of this species in Alaska remains limited. The value of diverse and comprehensive natural history collections can not be overstated (Suarez and Tsutsui 2004). Small mammal inventories especially targeting *M. nivalis* and the other small mammal species not yet documented on the peninsula should continue in order to determine species presence and current distribution; particularly given the potential geographic bottleneck limiting dispersal between the peninsula and 'mainland' Alaska and the concomitant possibility of endemic lineages restricted to the former. Baseline information on the distribution of *M. nivalis* and its prey will help ensure that long-term monitoring and future research can be conducted.

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LITERATURE CITED

ALLEN JA. 1902. List of mammals collected in Alaska by the Andrew J. Stone expedition of 1901. American Museum of Natural History. Bulletin 16:215–230.

ALLEN JA. 1904. Mammals collected in Alaska by the Andrew J. Stone Expedition of 1903. American Museum of Natural History. Bulletin 20:273–292.

BANGS EE. 1979. The effects of tree crushing on small mammal populations in south central Alaska [thesis]. Reno, NV: University of Nevada. 80 p.

BANGS EE. 1984. Summer food habits of voles, *Clethrionomys rutilus* and *Microtus pennsylvanicus*, on the Kenai Peninsula, Alaska. Canadian Field-Naturalist 98:489–492.

*COOK JA, MACDONALD SO. 2004. Mammal inventory of Alaska's National Parks and Preserves: Kenai Fjords National Park, Southwest Alaska Network Inventory and Monitoring Program: USDI National Park Service. 34 p. Available from: Kenai Fjords National Park, P.O. Box 1727, Seward, AK 99664.

ERLINGE S, SANDELL M. 1988. Coexistence of stoat, *Mustela erminea*, and weasel, *M. nivalis*: social dominance, scent communication, and reciprocal distribution. Oikos 53:242–246.

FULLER TK. 1981. Small mammal populations on the Kenai Peninsula, Alaska. Northwest Science 55: 298–303.

KING CM, MOORS PJ. 1979. On co-existence, foraging strategy and the biogeography of weasels and

stoats (*Mustela nivalis* and *M. erminea*) in Britain. Oecologia 39:129–150.

MACDONALD SO, COOK JA. 2009. Recent Mammals of Alaska. Fairbanks, AK: University of Alaska Press. In press.

MANVILLE RH, YOUNG SP. 1965. Distribution of Alaskan Mammals. Circular 211. Washington, DC: US Fish and Wildlife Service. 74 p.

*MCDONOUGH TJ, OLSON LE. 2007. Baseline survey of small mammal species and their distribution across the Kenai Peninsula. Alaska Department of Fish and Game. Federal Aid Report T-1-6.1. 2 p. Available from: Department of Fish and Game, P.O. Box 115526, Juneau, AK 99811.

OSGOOD WH. 1901. Natural history of the Cook Inlet Region, Alaska. North American Fauna 21:51–81.

*QUINLAN SE. 1978. Species composition and relative densities of small mammal populations and white spruce succession on the Kenai Peninsula. Chugach National Forest: USDA Forest Service. 21 p. Available from: US Forest Service, 3301 C Street, Anchorage, AK 99503.

RAUSCH RL. 1961. Notes on the collared pika, *Ochotona collaris* (Nelson), in Alaska. Murrelet 42:22–24.

SHEFFIELD SR, KING CM. 1994. *Mustela nivalis*. Mammalian Species 454:1–10.

SUAREZ AV, TSUTSUI ND. 2004. The value of museum collections for research and society. BioScience 54: 66–74.

*WALKER RW. 1979. Kenai Area Wildlife Inventory. Chugach National Forest: USDA Forest Service. 108 p. Available from: US Forest Service, 3301 C Street, Anchorage, AK 99503.

WILLIAMS D. 1999. Response of small mammal populations to spruce bark beetle infestation and logging on the Kenai Peninsula, Alaska [thesis]. Stillwater, OK: Oklahoma State University. 82 p.

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