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# Canada's Endemic Mammals at Risk: Recent Taxonomic Advances and Priorities for Conservation

DAVID W. NAGORSEN

Mammalia Biological Consulting, 4268 Metchosin Road, Victoria, BC, V9C 3Z4, Canada, and Centre for Biodiversity and Conservation Biology, Royal Ontario Museum, 100 Queen's Park, Toronto, ON, M5S 2C6, Canada, email [mammalia@shaw.ca](mailto:mammalia@shaw.ca)

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**Extended Abstract:** Endemic species or subspecies that are confined to a political jurisdiction are a high priority for conservation and management. Of the 149 species of land mammals in Canada, only 5 are endemic with 3 of these listed as at risk nationally or provincially: Gaspé shrew (*Sorex gaspensis*), maritime shrew (*Sorex maritimensis*), and Vancouver Island marmot (*Marmota vancouverensis*). About 118 mammalian subspecies are endemic to Canada, many of which occur on islands. Twelve subspecies are listed as at risk. Four are designated nationally by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC): Newfoundland marten (*Martes americana atrata*), Peary caribou (*Rangifer tarandus pearyi*), Queen Charlotte Island ermine (*Mustela erminea haidarum*), and wood bison (*Bison bison athabasca*). Another eight that are endemic to British Columbian islands or the Cordillera of western Canada have not been assessed nationally but are listed by provincial agencies as being of conservation concern: Ilgachuz Mountains pika (*Ochotona princeps septentrionalis*), Ogilvie Mountains collared lemming (*Dicrostonyx nunatakensis*), Selkirk chipmunk (*Tamias minimus selkirki*), Triangle Island vole (*Microtus townsendii cowani*), Wynndel pocket gopher (*Thomomys talpoides segregatus*), Vancouver Island ermine (*Mustela erminea anguinae*), Vancouver Island water shrew (*Sorex palustris brooksi*), and Vancouver Island wolverine (*Gulo gulo vancouverensis*).

In this paper, I review the latest taxonomic information, including data from studies of mitochondrial DNA (mtDNA) and nuclear DNA, for these listed endemic mammals. I discuss the implications of this information on the taxonomic status of these mammals, and identify conservation priorities and data gaps that require more taxonomic research.

Of the three listed endemic mammalian species, only *S. maritimensis* appears to be a valid species. Data from mtDNA suggest that *S. gaspensis* is conspecific with *Sorex dispar* (long-tailed shrew), and *M. vancouverensis* may be a subspecies of the hoary marmot (*Marmota caligata*). Of the four endemic mammalian subspecies listed by COSEWIC, the only subspecies that is divergent in mtDNA is *M. erminea haidarum*, an island lineage of ermine that predates the last glaciation. Because it is also found on southern islands of the Alexander Archipelago of Alaska, it may not be a national endemic but would qualify as a regional endemic restricted to a few islands. *Martes americana atrata*, *R. tarandus pearyi*, and *B. bison athabasca* appear to be of postglacial

origin, and are differentiated in morphology and microsatellite DNA but not mtDNA. There are insufficient morphological and genetic data to assess the taxonomic validity of any of the eight provincially-listed subspecies. Highest priority for more taxonomic and genetic research are *Marmota vancouverensis*, *Mustela erminea haidarum*, and the eight endemics that are listed provincially.

Current taxonomic data suggest that Canada has only three endemic mammal species—two arctic collared lemmings (*Dicrostonyx richardsoni* and *D. ungava*) and *S. maritimensis*. None are at risk of extinction or are a conservation priority. Highest conservation priority is placed on endemic taxa that are listed under the *Species at Risk Act* (SARA): *Marmota vancouverensis*, *Mustela erminea haidarum*, *Martes americana atrata*, *R. tarandus pearyi*, and *B. bison athabascaae*. Even if it is reduced to a subspecies of *Marmota caligata*, *M. vancouverensis* will qualify as a designatable unit for ranking according to COSEWIC's guidelines for designating populations below the species level. Unless they qualify as SARA candidates, the eight provincially-listed endemics are destined for obscurity. However, given the history of extinctions on islands, any island endemic, even those not on species at risk lists, should be a priority for conservation. The highest incidence of mammalian endemism in Canada is on the Pacific islands of British Columbia where some 27 island endemics occur. These island endemics should be identified as priority taxa requiring close monitoring and more genetic research to assess their genetic distinctness in any provincial conservation/management strategy.