Long-tailed vole

Microtus longicaudus

Class: Mammalia
Order: Rodentia

Conservation Status

NatureServe:	*Agency:*	
G Rank: G5	USFWS:	IUCN: Least Concern
S Rank: S5	ADF&G: Species of Greatest Conservation Need	

Final Rank

Conservation category: **V. Orange**

V = unknown status and either high biological vulnerability or high action need

Category	Range	Score
Status:	-20 to 20	0
Biological:	-50 to 50	-38
Action:	-40 to 40	32

Higher numerical scores denote greater concern

Status - variables measure the trend in a taxon's population status or distribution. Higher status scores denote taxa with known declining trends. Status scores range from -20 (increasing) to 20 (decreasing). **Score**

Population Trend (-10 to 10) 0

Unknown.

Distribution Trend (-10 to 10) 0

Trends over the last 50 years are unknown. Modeling studies estimate that the distribution of long-tailed voles in Alaska has increased since the Last Glacial Maximum (~21,500 years ago; Hope et al. 2015) and this trend is expected to continue as the climate warms (Baltensperger and Huettmann 2015a; Hope et al. 2015).

Status Total: 0

Biological - variables measure aspects of a taxon's distribution, abundance and life history. Higher biological scores suggest greater vulnerability to extirpation. Biological scores range from -50 (least vulnerable) to 50 (most vulnerable). **Score**

Population Size (-10 to 10) -6

Unknown, but suspected large. Although populations may cycle dramatically, long-tailed voles are common and periodically abundant in suitable habitat (Macdonald and Cook 2009).

Range Size (-10 to 10) -8

Occurs from Southeast Alaska north to the Upper Porcupine River (ARCTOS 2016; ACCS 2017a). In central Alaska, its distribution is largely restricted to the eastern interior west to the White Mountains (Baltensperger and Huettmann 2015b; ARCTOS 2016). Estimated range size is ~219,320 sq. km., based on range maps from ACCS (2017a).

Population Concentration (-10 to 10) -10

Does not concentrate.

Reproductive Potential

Age of First Reproduction (-5 to 5) -5

Reproduces within first year of birth (Van Horne 1982; Smolen and Keller 1987).

Number of Young (-5 to 5) 1

In Alaska, litter size ranges from 2 to 8 (mean = 5) (Van Horne 1982; Smolen and Keller 1987). On Prince of Wales Island, females produced up to two litters per year (Van Horne 1982).

Ecological Specialization

Dietary (-5 to 5) -5

Opportunistic herbivore whose diet reflects seasonal availability (Van Horne 1982). In southeast Alaska, M. longicaudus eats seeds, berries, forbs, and grasses (Van Horne 1982). Bark and leaves may also be consumed in the winter (Smolen and Keller 1987). Interestingly, dietary analyses from island and mainland populations suggest that individuals exhibit varying degrees of omnivory depending on location (O'Brien et al. 2018).

Habitat (-5 to 5) -5

Inhabits a variety of habitats including tundra, grassy openings and clear-cuts, coniferous and coastal forests, riparian sites, shrub thickets, and rocky slopes (Van Horne 1982; Smolen and Keller 1987; Hanley 1996; Sullivan et al. 1999). This species has been reported from a variety of forest age classes and disturbance regimes i.e. from recently logged to old-growth (Van Horne 1982; Hanley 1996; Craig et al. 2015).

Biological Total: -38

Action - variables measure current state of knowledge or extent of conservation efforts directed toward a given taxon. Higher action scores denote greater information needs due of lack of knowledge or conservation action. Action scores range from -40 (lower needs) to 40 (greater needs). **Score**

Management Plans and Regulations (-10 to 10) 10

Voles are listed as unclassified game in Alaska with no closed season or bag limits (ADFG 2018c).

Knowledge of Distribution and Habitat (-10 to 10) 2

Distribution is somewhat understood. The limits of its range e.g. in central and southern Alaska are uncertain (ARCTOS 2016). Recently, surveys in central Alaska by Baltensperger and Huettmann (2015b) expanded the known western limit of this species. Statewide distribution models showed strong agreement with known occurrences and provided insights into important, geographic-scale environmental variables (Baltensperger and Huettmann 2015b). At smaller scales, habitat preferences have been studied in southeast Alaska, especially in the context of logged versus unlogged forests (Van Horne 1982; Hanley 1996). It is unclear whether woody debris is an important habitat requirement for long-tailed voles (Sullivan et al. 1999; Sullivan and Sullivan 2012; Craig et al. 2015).

Knowledge of Population Trends (-10 to 10) 10

Not currently monitored.

Knowledge of Factors Limiting Populations (-10 to 10) 10

Little is known about factors affecting populations in Alaska or elsewhere. Based on her studies in southeast Alaska, Van Horne (1982) felt that neither intraspecific competition nor winter weather explained spatial or temporal differences in population size. Instead, she suggested the availability of high-quality food and predation were stronger drivers of population dynamics (Van Horne 1982). A recent study on American martens on Chichagof Island suggests that predator-prey dynamics may be tightly coupled in this system, as the population size and fecundity of martens were closely correlated with the abundance of M. longicaudus (Flynn and Schumacher 2009). This species does not seem to be negatively affected by logging practices in Southeast Alaska (Van Horne 1982; Hanley 1996). Climate change is expected to increase the potential distribution of long-tailed voles in Alaska by the end of this century (Baltensperger and Huettmann 2015a; Hope et al. 2015).

Action Total: 32

Supplemental Information - variables do not receive numerical scores. Instead, they that are used to sort taxa to answer specific biological or managerial questions.

Harvest:	Not substantial
Seasonal Occurrence:	Year-round
Taxonomic Significance:	Monotypic species
% Global Range in Alaska:	<10%
% Global Population in Alaska:	<25%
Peripheral:	No

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Alaska Center for Conservation Science
Alaska Natural Heritage Program
University of Alaska Anchorage
Anchorage, AK