Nearctic brown lemming

Lemmus trimucronatus

Class: Mammalia
Order: Rodentia

Review Status: Reviewed (general) **Version Date:** 21 September 2020

Conservation Status

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

Final Rank

Conservation category: **V. Orange**

unknown status and either high biological vulnerability or high action need

Category	Range	Score
Status	-20 to 20	0
Biological	-50 to 50	-42
Action	-40 to 40	12

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 in Alaska (-10 to 10) 0

Unknown.

Distribution Trend in Alaska (-10 to 10) 0

Trends over the last 50 years are unknown. Existing studies have evaluated prehistoric (Hope et al. 2015) and future (Baltensperger and Huettmann 2015a; Marcot et al. 2015) changes in the distribution of brown lemmings in Alaska, under the context of changing climates.

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 in Alaska (-10 to 10) -6

Unknown, but suspected large given its widespread distribution and the number of specimens collected in the state (ARCTOS 2016).

Range Size in Alaska (-10 to 10) -10

Occurs throughout most of mainland Alaska from Utqiaġvik south to the Wrangells (MacDonald and Cook 2009; ARCTOS 2016). Its distribution in southcoastal and southeast Alaska is not well-documented, though it has been found on Mount Ashmun near Haines (ARCTOS 2016). It is also found on Nunivak Island and St. Paul and St. George Islands (MacDonald and Cook 2009).

Estimated range size is >400,000 sq. km.

Population Concentration in Alaska (-10 to 10) -10

Does not concentrate.

Reproductive Potential in Alaska

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

Less than two years. On Igloolik Island in Nunavut, Canada, breeds before one year (Negus and Berger 1998).

Number of Young (-5 to 5) -1

Females can produce several litters per year. Litter size ranges from five to 12 (Batzli et al. 1974; Negus and Berger 1998). Because this range spans two categories, we rank this question as 0.5 * C + 0.5 * D.

Ecological Specialization in Alaska

Dietary (-5 to 5) -5

Diet consists of a variety of plants including willows, grasses, sedges, and mosses (Thompson 1955; Batzli and Jung 1980; Batzli and Pitelka 1983; Rodgers and Lewis 1986a; Soininen et al. 2015). Most plants appear to be consumed in proportion to their availability (Soininen et al. 2015).

Habitat (-5 to 5) -5

Found in a variety of wet and mesic habitats including low-elevation meadows, spruce bogs, graminoid or herbaceous tundra, and alpine tundra (Batzli et al. 1983; Cook and MacDonald 2006; MacDonald and Cook 2009; Soininen et al. 2014). Batzli et al. (1983) reported seasonal habitat shifts, which they presumed was linked to the availability of high-quality forage. Nests underneath the snow in the winter (MacLean et al. 1974).

Biological Total: -42

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 in Alaska (-10 to 10) 10

Lemmings are considered unclassified game in Alaska with no closed season or bag limits (ADFG 2018c).

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

Distribution is known from specimen locations collected throughout most of Alaska (ARCTOS 2016). However, there remains some uncertainty regarding the extent of their range in southcoastal and southeast Alaska (ARCTOS 2016). Habitat associations have been well-studied in Arctic Alaska (e.g. Thompson 1955; Batzli et al. 1983; Babcock 1984; Pitelka and Batzli 2007).

Knowledge of Population Trends in Alaska (-10 to 10) 10

Not currently monitored. In the past decade, limited monitoring has occurred near Utqiaġvik (Ott and Currier 2014; Ehrich et al. 2019). Monitoring ceased in 2020 (K. Ott, USFWS, pers. comm.).

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

Population fluctuations have been studied in Alaska and elsewhere in the North American Arctic. The main factors responsible for these dynamics are thought to be food availability, predation, and weather/snow conditions (MacLean et al. 1974; Bilodeau et al. 2013; Pitelka and Batzli 2007; Therrien et al. 2014b; Fauteux et al. 2015), though other factors also play a role. For example,

density dependence responses may lead to interference competition or breeding suppression, though this topic requires further study (Pitelka and Batzli 2007; Fauteux et al. 2015; Pitelka and Batzli 2018).

Action Total: 12

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

Harvest:	Not substantial
Seasonal Occurrence:	Year-round
Taxonomic Significance:	Monotypic species
% Global Range in Alaska:	>10%
% Global Population in Alaska:	25-74%
Peripheral:	No

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