

Northern bog lemming*Synaptomys borealis*

Class: Mammalia

Order: Rodentia

Review Status: Peer-reviewed**Version Date:** 08 March 2018**Conservation Status***NatureServe:**Agency:*

G Rank: G5

ADF&G: Species of Greatest Conservation Need

IUCN: Least Concern

Audubon AK:

S Rank: S5

USFWS: Under Review

BLM: Watch

Final RankConservation category: **VII. Yellow**

low status and either high biological vulnerability or high action need

<u>Category</u>	<u>Range</u>	<u>Score</u>
Status	-20 to 20	-5
Biological	-50 to 50	-23
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 in Alaska (-10 to 10)*

0

Unknown.

Distribution Trend in Alaska (-10 to 10)

-5

The distribution of northern bog lemmings is thought to be increasing in Alaska since at least the 1970s and their distribution across North America has been shifting northward and westward since at least 1900 (A. Baltensperger, pers. comm.). These trends are predicted to continue as a result of climate change (Baltensperger and Huettmann 2015a; Hope et al. 2015; Marcot et al. 2015).

Status Total: -5

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)*

0

Unknown.

Range Size in Alaska (-10 to 10)

-10

Found throughout much of mainland Alaska, from southeast Alaska north to the Brooks Range (Arctos 2016; ACCS 2017a). Estimated range size >400,000 sq. km.

Population Concentration in Alaska (-10 to 10)

-10

Colonial, but does not concentrate (Cassola 2017).

*Reproductive Potential in Alaska*Age of First Reproduction (-5 to 5)

-5

Within 1 year (Cassola 2017).

Number of Young (-5 to 5)

1

Litter size averages 4-5 (range: 2-8) (Rabe 2007). Can have two to three litters per year (Rabe 2007).

*Ecological Specialization in Alaska*Dietary (-5 to 5)

0

Very little information available. Northern bog lemmings are herbivorous and feed on grasses, sedges, and other vegetation (Cassola 2017). Recent studies suggest that northern bog lemmings exhibit some degree of specialization (Baltensperger et al. 2015). However, very few samples were available for analysis (n=4) and diets were highly variable between individuals (Baltensperger et al. 2015). We rank this question as Unknown to highlight the paucity of available information, which precludes us from assessing dietary preferences.

Habitat (-5 to 5)

1

Little is known about habitat requirements, but this species is typically associated with boreal forests (Hope et al. 2015; Baltensperger et al., in prep). Results from three land cover models consistently predicted that evergreen forests was the strongest predictor of distribution, followed by shrublands and woody wetlands (Baltensperger et al., in prep).

 Biological Total: -23

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

Listed as unclassified game by the Alaska Department of Fish and Game with no bag limit and no closed season (ADFG 2018c). This species is under review for listing under the Endangered Species Act as a result of concerns over habitat loss and population size in the northeastern U.S. (Jones and Melton 2014).

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

2

Extensive distribution from 55 to 68°N and from 130 to 160°W (ARCTOS 2016). However, small mammal surveys in Alaska suggest that this species may be patchily distributed across its range (Cook and MacDonald 2005; Baltensperger and Huettmann 2015b), and specific habitat associations have not been investigated. Statewide distribution models have been built to investigate the effects of climate change on habitat availability (Baltensperger and Huettmann 2015a; Hope et al. 2015; Marcot et al. 2015)

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

10

Not currently monitored in Alaska.

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

10

Very little is known about the ecology of this species in Alaska and elsewhere across its range (Jones and Melton 2014). Distribution models predict a range expansion in Alaska by the end of this century as a result of climate change (Baltensperger and Huettmann 2015a; Hope et al. 2015; Marcot et al. 2015).

 Action Total: 32

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%
Peripheral:	No

References

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