

Singing vole

Microtus miurus

Class: Mammalia
Order: Rodentia

Review Status: Peer-reviewed

Version Date: 30 January 2018

Conservation Status

NatureServe:

Agency:

G Rank: G4G5

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		
<u>Category</u>	<u>Range</u>	<u>Score</u>
Status	-20 to 20	0
Biological	-50 to 50	-32
Action	-40 to 40	24
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. Modeling studies estimate that the distribution of singing voles in Alaska has decreased 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; Marcot 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 in Alaska (-10 to 10)

-6

Unknown, but suspected large. Described as widespread and abundant in the Brooks Range (Bee and Hall 1956; Batzli and Henttonen 1990).

Range Size in Alaska (-10 to 10)

-10

Appears to be widely distributed throughout the state. Has been reported from the Alaska Range and Chisana, north to the North Slope and the Seward Peninsula, though there are few records from interior Alaska (Quay 1951; ARCTOS 2016). Also found on the Kenai Peninsula and the eastern

Alaska Peninsula (Fuller 1981; ARCTOS 2016). No records from Southcoastal or Southeast (ARCTOS 2016). Estimated range size is 873,013 sq. km., calculated in ArcGIS.

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

Does not aggregate. Colonial or semi-colonial behaviors have been reported in some populations (e.g. Galindo and Krebs 1984; Batzli and Henttonen 1993; Cole and Wilson 2010).

Reproductive Potential in Alaska

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

Can reproduce in their first summer (Lidicker and Batzli 1999, qtd. in Cole and Wilson 2010). Rarely survives more than two summers (Batzli and Henttonen 1993).

Number of Young (-5 to 5) -3

In northern Alaska, average litter size was 8.4 for adult females and 6.5 for juveniles (Batzli and Henttonen 1990). Females can have up to 3 litters per summer (Cole and Wilson 2010).

Ecological Specialization in Alaska

Dietary (-5 to 5) 1

Feeds on herbaceous plants (forbs, graminoids), shrubs, and mosses (Batzli and Henttonen 1990; Batzli and Lesieutre 1991; Cole and Wilson 2010), but results from stable isotope analyses suggest a certain degree of specialization (Baltensperger et al. 2015). Horsetail (*Equisetum* sp.) may be a particularly important food item in the summer (Batzli and Henttonen 1990; Batzli and Lesieutre 1991).

Habitat (-5 to 5) 1

Largely restricted to arctic and alpine tundra systems. Within these regions, *M. miurus* has often been reported in well-drained, moist or riparian habitats e.g. willow thickets, riverbanks, floodplains, and mesic tundra (Babcock 1984; Douglass 1984; Batzli and Henttonen 1990; Batzli and Lesieutre 1995; Maguire and Rowe 2017). Uncommon in subalpine boreal forests and shrub tundra (Galindo and Krebs 1984; Gilbert et al. 1986), and on the Arctic coastal plain (Pitelka and Batzli 1993, qtd. in Cole and Wilson 2010), which represent the southern and northern limits of its range, respectively.

Biological Total: -32

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

Voles are listed as 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 somewhat understood. Not well documented on the Y-K Delta and few records exist for interior Alaska. Recent surveys have expanded our knowledge of their western range limit (ARCTOS 2016). Habitat associations have been studied in northern Alaska (Douglass 1984; Batzli and Henttonen 1990; Batzli and Lesieutre 1995; Maguire and Rowe 2017). Little is known about winter habitat use or about fine-scale habitat use in other parts of its range.

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

Not currently monitored.

Knowledge of Factors Limiting Populations in Alaska (-10 to 10) 2

Habitat availability and competition (intra- and inter-specific) do not appear to limit abundance (Galindo and Krebs 1985a; Batzli and Henttonen 1990; Batzli and Henttonen 1993; Batzli and Lesieutre 1995; Maguire and Rowe 2017). Instead, food availability and predation seem to drive population dynamics (Galindo and Krebs 1985a; Batzli and Henttonen 1990; Batzli and Lesieutre 1991; Batzli and Lesieutre 1995). As with other small mammals, snow depth may be an important climatic feature influencing winter mortality (Reid et al. 2012; Maguire and Rowe 2017); however, little is known about the winter ecology of singing voles. Weksler et al. (2010) and Knowles et al. (2016) have examined the spatial and genetic structure of singing vole populations in Alaska. Climate change is expected to decrease the amount of suitable habitat in Alaska by the end of this century (Baltensperger and Huettmann 2015a; Hope et al. 2015; Marcot et al. 2015).

Action Total: 24

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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