

Barren ground shrew

Sorex ugyunak

Class: Mammalia
Order: Eulipotyphla

Review Status: Peer-reviewed

Version Date: 20 November 2018

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		
<u>Category</u>	<u>Range</u>	<u>Score</u>
Status	-20 to 20	0
Biological	-50 to 50	-32
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)

0

Trends over the past 50 years are unknown. Modeling studies estimate that the distribution of *S. ugyunak* in Alaska has increased since the Last Glacial Maximum (~21,500 years ago; Hope et al. 2015), but suitable habitat is expected to decrease by the end of this century (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.

Range Size in Alaska (-10 to 10)

-10

Widespread in northern Alaska (MacDonald and Cook 2009). Occurs from the North Slope south to northern interior Alaska and from the Seward Peninsula east to Canada (Cook and MacDonald 2006; MacDonald and Cook 2009; Hope 2012). The southern extent of its range is not well-known, but specimens have been collected as far south as Finger Mountain (mile 97.5 on the Dalton Highway;

ARCTOS 2016). 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

Undocumented, but like other shrews, this species is short-lived and attains sexual maturity in its first year of life (Whitaker 2004).

Number of Young (-5 to 5)

-3

Unknown, but the closely related *S. cinereus* has an average litter size of 7 young and two to three litters per year (Whitaker 2004).

Ecological Specialization in Alaska

Dietary (-5 to 5)

1

Little is known about the diet of *S. ugyunak*. Like other shrew species, likely consumes terrestrial invertebrates (Whitaker 2004; Eckrich et al. 2018; O'Brien et al. 2018). Because invertebrates are an ephemeral and potentially unpredictable food source, we rank this question as B- Moderately adaptable with key requirements common.

Habitat (-5 to 5)

1

Tundra specialist (van Zyll de Jong 1982; Hope 2012). Within this ecosystem, it has been described from several habitats including herbaceous and dwarf shrub, and moisture regimes ranging from wet to dry (Cook and MacDonald 2006; Hope et al. 2013b).

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

Listed as unclassified game in Alaska with no bag limit and no closed season (ADFG 2018c).

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

2

Although habitat associations have been documented (see Habitat section above), knowledge of its distribution remains incomplete. Its distribution south of the Brooks Range is poorly documented (ARCTOS 2016) and until recently, this species was not known to occur on the Seward Peninsula (Cook and MacDonald 2006; Hope 2012). Few specimens or records exist for the North Slope (A. Hope, pers. comm.).

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

10

Not currently monitored.

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

10

Little is known about the ecology of *S. ugyunak*. The taxonomy, genetics, and evolution of this species have been investigated (van Zyll de Jong 1982; Demboski and Cook 2003; Hope et al. 2012; Hope et al. 2013b; Sonsthagen et al. 2013). Genetic diversity in Alaska is low (Hope et al. 2012) and there is evidence of hybridization between *S. cinereus* and *S. ugyunak* (A. Hope, pers. comm.). Parasites have been collected (Lynch and Duszynski 2008; Cook et al. 2016), but their effect on population dynamics is unknown. Species distribution models predict that that climate change will reduce the amount of suitable habitat by the end of this century (Hope et al. 2013a; Baltensperger

and Huettmann 2015a; Hope et al. 2015; Marcot et al. 2015). Additional research is needed, especially along the ecotone between boreal and tundra biomes as this is the region of highest potential change (A. Hope, pers. comm.).

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:	25-74%
Peripheral:	No

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