Tundra shrew

Sorex tundrensis

Class: Mammalia
Order: Eulipotyphla

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 past 50 years are unknown. Models estimate that the distribution of S. tundrensis in Alaska has increased since the Last Glacial Maximum (~21,500 years ago; Hope et al. 2015), but disagree as to whether habitat will increase (Hope et al. 2015) or decrease (Baltensperger and Huettmann 2015a; Marcot et al. 2015) in the future.

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 given widespread distribution, population is suspected to be large. Small mammal surveys suggest that this species is locally abundant, but scarce elsewhere (Cook and MacDonald 2006).

Range Size (-10 to 10) -10

Widely distributed in Alaska. Although the southern limits of its range are uncertain, it has been documented across central Alaska from the Canadian border west to the Alaska Peninsula and the Seward Peninsula, and north to the North Slope (MacDonald and Cook 2009; ARCTOS 2016). Estimated range size is >400,000 sq. km.

Population Concentration (-10 to 10) -10

Does not concentrate.

Reproductive Potential

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

< 2 years (Dokuchaev 2005).

Number of Young (-5 to 5) -3

Little is known about the reproductive ecology of this species in Alaska. Research from Russia suggests litter size average 7 to 10 young, with females giving birth to two to four litters per year (Dokuchaev 2005; Dokuchaev et al. 2015; Tsytsulina et al. 2016).

Ecological Specialization

Dietary (-5 to 5) 1

Like other shrews, S. tundrensis is an insectivore, though little information is available about its diet. Analyses from Alaska (Quay 1951) and eastern Russia (Churchfield et al. 1997; Dokuchaev et al. 2015) reveal a diet that consists of earthworms, spiders, beetles, and insect larvae. 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) -5

Found in tundra and boreal forest biomes. It has been documented in a variety of habitats and moisture regimes including mesic and wet herbaceous tundra, shrublands, riparian, and coniferous forests (Churchfield et al. 1997; Cook and MacDonald 2006; Hope 2012; Marcot 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

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

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

Distribution and habitat associations are somewhat known, but northern and southern range limits remain uncertain (MacDonald and Cook 2009). Few records exist from northern Alaska and S. tundrensis remains undocumented in southeast Alaska even though it has been found in the extreme northwest of British Columbia (MacDonald and Cook 2009). Species distribution models have been constructed for both historic and future time periods (e.g. Baltensperger and Huettmann 2015a; Hope et al. 2015; Marcot 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 the ecology of S. tundrensis in Alaska. In eastern Russia, Dokuchaev et al. (2015) noted a consistent, skewed female sex-ratio and strong inter-annual variation in the proportion of individuals that overwintered successfully. It is unknown whether these factors are important to population dynamics, and whether they apply to Alaskan populations. Although parasites have been collected from individuals (Murrell et al. 2003; Lynch and Duszynski 2008; Dokuchaev et al. 2015), their effect on population dynamics is unknown. Climate change may have important implications on the distribution of the tundra shrew, but models disagree as to whether its range in Alaska will contract (Baltensperger and Huettmann 2015a; Marcot et al. 2015) or expand (Hope et al. 2015) by the end of this century. During previous periods of extreme climatic change, floodplain corridors may have been important refuges that allowed this species to persist in otherwise unsuitable habitat (Hope et al. 2011). Phylogenetic analyses have revealed that the genetic lineage of the Alaskan population is distinct from Eurasian lineages (Bannikova et al. 2010; Hope et al. 2011; Hope et al. 2013b).

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:	Unknown
Peripheral:	No

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