

St. Lawrence Island shrew

Class: Mammalia
Order: Eulipotyphla

Sorex jacksoni

Review Status: Peer-reviewed

Version Date: 20 November 2018

Conservation Status

NatureServe: Agency:

G Rank: G4 ADF&G: Species of Greatest Conservation Need IUCN: Least Concern Audubon AK:

S Rank: S3 USFWS: BLM:

Final Rank		
Conservation category: IV. Orange		
unknown status and high biological vulnerability and action need		
<u>Category</u>	<u>Range</u>	<u>Score</u>
Status	-20 to 20	0
Biological	-50 to 50	8
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
<i>Population Trend in Alaska (-10 to 10)</i> Unknown.	0
<i>Distribution Trend in Alaska (-10 to 10)</i> Unknown.	0
	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
<i>Population Size in Alaska (-10 to 10)</i> Unknown. Population size appears to fluctuates annually (MacDonald and Cook 2009).	0
<i>Range Size in Alaska (-10 to 10)</i> Restricted to St. Lawrence Island, which is ~4,600 sq. km.	4
<i>Population Concentration in Alaska (-10 to 10)</i> Only occurs on St. Lawrence Island (MacDonald and Cook 2009).	10
<i>Reproductive Potential in Alaska</i> <u>Age of First Reproduction (-5 to 5)</u>	-5
Unknown, but like other Alaskan shrews it is likely short-lived and age at sexual maturity is likely	

<2 years (Smith and Belk 1996; Whitaker 2004).

Number of Young (-5 to 5) -3

Unknown, but the closely related *S. cinereus* has an average litter size of seven 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. jacksoni*. 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. Habitat associations appear to be density-dependent. When densities are high, preferences are relaxed and shrews are found in alpine, wet, and mesic tundra (Fay and Sease 1985, qtd. in MacDonald and Cook 2009). At low densities, this species is restricted to herbaceous tundra in boulder and scree fields (idem; Gotthardt and Walton 2014).

Biological Total: 8

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

Very little is known about the distribution and habitat preferences of *S. jacksoni* within St. Lawrence Island (MacDonald and Cook 2009; Gotthardt and Walton 2014; ARCTOS 2016). Additional surveys and specimen collections are required to determine ecological associations, genetic diversity within the population, and relationships with other Beringian shrews (Demboski and Cook 2003; 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

Very little is known about the ecology of *S. jacksoni* and factors regulating population dynamics are unknown. Because its range is restricted to a single island, it is vulnerable to stochastic events and disturbances. Population size appears to fluctuate between years and habitat preferences are relaxed at high densities (MacDonald and Cook 2009). Genetic and taxonomic studies have been conducted (Hoffmann and Peterson 1967; van Zyll de Jong 1982; Rausch and Rausch 1995; Demboski and Cook 2003), but the relationship between *S. jacksoni* and other Beringian shrews remains unclear (van Zyll de Jong 1982; Demboski and Cook 2003).

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:	Endemic
Peripheral:	No

References

- Alaska Department of Fish and Game (ADFG). 2020a. 2020-2021 Alaska hunting regulations. Alaska Department of Fish and Game. Juneau, AK, USA.
- ARCTOS. 2016. ARCTOS database: Fish, amphibian, mammal, bird and reptile collections. University of Alaska Museum of the North, Fairbanks, AK, USA. Available online: <http://arctos.database.museum/>
- Demboski, J. R., and J. A. Cook. 2003. Phylogenetic diversification within the *Sorex cinereus* Group (Soricidae). *Journal of Mammalogy* 84(1):144-158. DOI: 10.1644/1545-1542(2003)0842.0.CO;2
- Eckrich, C. A., E. A. Flaherty, and M. Ben-David. 2018. Functional and numerical responses of shrews to competition vary with mouse density. *PLoS ONE* 13(1):e0189471. DOI: 10.1371/journal.pone.018947
- Gotthardt, T. A., and K. M. Walton. 2014. An update on the status and occurrence of small mammals on St. Lawrence Island, Alaska. Alaska Natural Heritage Program, University of Alaska Anchorage, AK, USA. Available online: <http://accs.uaa.alaska.edu/files/zoology/publications/2014/StLawrenceIslandSmallMammals.pdf>
- Hoffmann, R. S., and R. S. Peterson. 1967. Systematics and zoogeography of *Sorex* in the Bering Strait area. *Systematic Zoology* 16(2):127-136. DOI: 10.2307/2411404
- MacDonald, S. O., and J. A. Cook. 2009. Recent mammals of Alaska. University of Alaska Press, Fairbanks, AK, USA.
- MacDonald, S. O., and J. A. Cook. 2009. Recent mammals of Alaska. University of Alaska Press, Fairbanks, AK, USA.
- O'Brien, S. L., J. A. Cook, and S. D. Newsome. 2018. Niche differentiation among small mammals of the Alexander Archipelago in southeastern Alaska. *Journal of Mammalogy* 99(1):108-116. DOI: 10.1093/jmammal/gyx141
- Rausch, R. L., and V. R. Rausch. 1995. The taxonomic status of the shrew of St. Lawrence Island, Bering Sea (Mammalia: Soricidae). *Proceedings of the Biological Society of Washington* 108(4):717-728
- Smith, M. E., and M. C. Belk. 1996. *Sorex monticolus*. *Mammalian Species* 528:1-5. DOI: 10.2307/3504177
- van Zyll de Jong, C. G. 1982. Relationships of amphiberian shrews of the *Sorex cinereus* group. *Canadian Journal of Zoology* 60(7):1580-1587. DOI: 10.1139/z82-208
- Whitaker, J. O., Jr. 2004. *Sorex cinereus*. *Mammalian Species* 743:1-9.