

# Pribilof Island shrew

*Sorex pribilofensis*

Class: Mammalia  
Order: Eulipotyphla

## Conservation Status

*NatureServe:* G Rank: G3  
*Agency:* USFWS: IUCN: Endangered  
S Rank: S3 ADF&G: Species of Greatest Conservation Need

Final Rank		
Conservation category: <b>IV. Orange</b>		
IV = 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
<b>Higher numerical scores denote greater concern</b>		

**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 (-10 to 10)</i>	0
Unknown.	
<i>Distribution Trend (-10 to 10)</i>	0
Unknown.	
<b>Status Total:</b>	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 (-10 to 10)</i>	-6
Unknown, but suspected large. The IUCN lists a minimum population size of ~19,000 individuals (Woodman et al. 2008), but this estimate is based on extrapolations from field surveys conducted over 25 years ago.	
<i>Range Size (-10 to 10)</i>	10
Restricted to Saint Paul Island (100 sq. km.; MacDonald and Cook 2009). Older specimens from "Unalaska" likely refer to Saint Paul Island (Hoffmann and Peterson 1967; Rausch and Rausch 1997).	
<i>Population Concentration (-10 to 10)</i>	10
Only occurs on St. Paul Island (MacDonald and Cook 2009). Older specimens from "Unalaska" likely refer to St. Paul Island (Hoffmann and Peterson 1967; Rausch and Rausch 1997).	
<i>Reproductive Potential</i>	
<u>Age of First Reproduction (-5 to 5)</u>	-5
Unknown, but given its very short life expectancy, <2 years. The closely related <i>S. cinereus</i> attains sexual maturity in <2 years (Whitaker 2004).	
<u>Number of Young (-5 to 5)</u>	-3
Unknown, but the closely related <i>S. cinereus</i> has an average litter size of 7 young and two to three litters per year	

(Whitaker 2004).

*Ecological Specialization*

Dietary (-5 to 5)

1

Little is known about the diet of *S. pribilofensis*. Other Alaskan shrew species feed primarily on 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

Inhabits coastal tundra sites (Byrd and Mendenhall 1986). Preferred habitats have tall vegetation and a well-developed litter layer, and include tall grasses and forbs such as beach rye (*Elymus arenarius*) and wild celery (*Angelica lucida*) (Byrd and Mendenhall 1986; Byrd and Norvell 1993). Also reported from the village of St. Paul (Byrd and Mendenhall 1986). Habitat preferences might change with abundance (Byrd and Mendenhall 1986), but this idea has not been investigated.

Biological Total: 

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 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 (-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

Appears to be restricted to St. Paul Island. It has not been found on St. George Island (Byrd and Norvell 1993) and older specimens from "Unalaska" likely refer to St. Paul Island (Hoffmann and Peterson 1967; Rausch and Rausch 1997), though this assumption has not been confirmed through molecular analyses (MacDonald and Cook 2009). Although general habitat associations have been described (Byrd and Mendenhall 1986; Byrd and Norvell 1993), very little is known about distribution and habitat preferences on St. Paul Island (MacDonald and Cook 2009; ARCTOS 2016).

*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. pribilofensis*. Because its range is restricted to a single island, it is vulnerable to stochastic events and disturbances. Moreover, analyses of genetic diversity indicate an almost complete lack of variation, even though this species is locally common (Hope et al., unpubl. data). This lack of variation has potentially important consequences for management and conservation efforts. Endoparasites have been collected (Olsen 1969; Hope et al., unpubl. data), including an association with a trematode (Genus: *Maritrema*) normally found in shorebirds (Hope et al., unpubl. data). It is unknown how these parasites affect population dynamics. Morphological and molecular analyses indicate strong levels of divergence from other Beringian shrews (Hoffmann and Peterson 1967; van Zyll de Jong 1982; Rausch and Rausch 1997; Demboski and Cook 2003; Hope et al. 2012).

Action Total: 

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 32

**Supplemental Information** - variables do not receive numerical scores. Instead, they that are used to sort taxa to answer specific biological or managerial questions.

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<b>Harvest:</b>	Not substantial
<b>Seasonal Occurrence:</b>	Year-round
<b>Taxonomic Significance:</b>	Monotypic species
<b>% Global Range in Alaska:</b>	>10%
<b>% Global Population in Alaska:</b>	Endemic
<b>Peripheral:</b>	No

## References

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- Alaska Department of Fish and Game (ADFG). 2018c. 2018-2019 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/>
- Byrd, G. V., and V. M. Mendenhall. 1986. Habitat use by the Pribilof shrew in summer. U.S. Fish and Wildlife Service, Anchorage, AK, USA.
- Byrd, G. V., and N. Norvell. 1993. Status of the Pribilof shrew based on summer distribution and habitat use. *Northwestern Naturalist* 74(2):49–54. DOI: 10.2307/3536793
- 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)084<0144:PDWTSC>2.0.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
- 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
- Hope, A. G., K. A. Speer, J. R. Demboski, S. L. Talbot, and J. A. Cook. 2012. A climate for speciation: rapid spatial diversification within the *Sorex cinereus* complex of shrews. *Molecular Phylogenetics and Evolution* 64(3):671-684. DOI: 10.1016/j.ympev.20
- 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
- Olsen, O. W. 1969. *Hymenolepis pribilofensis* n. sp. (Cestoda: Hymenolepididae) from the Pribilof shrew (*Sorex pribilofensis* Merriam) from the Pribilof Islands, Alaska. *Canadian Journal of Zoology* 47(3):449–454.
- Rausch, R. L., and V. R. Rausch. 1997. Evidence for specific independence of the shrew (Mammalia: Soricidae) of St. Paul Island (Pribilof Islands, Bering Sea). *Zeitschrift für Säugetierkunde (Mammalian Biology)* 62(4):193–202.
- van Zyll de Jong, C. G. 1982. Relationships of amphiberingian 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.
- Woodman, N., F. Reid, and J. Matson. 2008. *Sorex pribilofensis*. The IUCN Red List of Threatened Species 2008:e.T20391A9194937. DOI: 10.2305/IUCN.UK.2008.RLTS.T20391A9194937.en. Accessed 22-Mar-2018.

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