

Pygmy shrew

Class: Mammalia
Order: Eulipotyphla

Sorex eximius

Note: Previously recognized as *Sorex hoyi* (Hope et al. 2020).

Review Status: Peer-reviewed

Version Date: 20 November 2018

Conservation Status

NatureServe: Agency:

G Rank: G5

ADF&G:

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		
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 in Alaska (-10 to 10)

0

Unknown. Note: *S. eximius* was previously recognized as *S. hoyi*; however, recent genetic and morphological analyses suggest that populations in western and eastern North America are distinct from each other (Hope et al. 2020). We adopt the taxonomic recommendations by Hope et al. (2020) in this assessment.

Distribution Trend in Alaska (-10 to 10)

0

Trends over the past 50 years are unknown. Models estimate that the distribution of *S. eximius* in Alaska has increased since the Last Glacial Maximum (~21,500 years ago; Hope et al. 2015), but it remains uncertain whether suitable habitat will increase (Baltensperger and Huettmann 2015a; Hope et al. 2015) or decrease (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 in Alaska (-10 to 10)

-6

Unknown, but suspected large.

<i>Range Size in Alaska (-10 to 10)</i>	-10
Widespread throughout central Alaska from Cape Krusenstern National Park east to Canada and south to the Kenai Peninsula (Cook and MacDonald 2006; MacDonald and Cook 2009). It has not been reported from southcoastal or southeast Alaska (MacDonald and Cook 2009). Estimated range size is >400,000 sq. km.	
<i>Population Concentration in Alaska (-10 to 10)</i>	-10
Does not concentrate.	
<i>Reproductive Potential in Alaska</i>	
<u>Age of First Reproduction (-5 to 5)</u>	-5
Little is known about the reproductive ecology of <i>S. hoyi/eximius</i> . Given the short life expectancy of shrews, age at first reproduction must be <2 years (Feldhamer et al. 1993; McCay et al. 1998).	
<u>Number of Young (-5 to 5)</u>	-3
Litter sizes ranging from three to eight young have been reported (Long 1974). Like other shrews, likely gives birth to multiple litters per year (Feldhamer et al. 1993).	
<i>Ecological Specialization in Alaska</i>	
<u>Dietary (-5 to 5)</u>	1
Little is known about the diet of <i>S. eximius</i> in Alaska, but like other shrews it likely consumes terrestrial invertebrates. Studies on <i>S. hoyi/eximius</i> elsewhere in North America have reported that it eats small insect larvae, beetles, spiders, and ants (Whitaker and French 1984; Ryan 1986; Whitaker and Cudmore 1986). Invertebrates are an ephemeral and potentially unpredictable food source and we therefore rank this question as B- Moderately adaptable with key requirements common.	
<u>Habitat (-5 to 5)</u>	-5
Found in a variety of habitat types within boreal and tundra biomes, including shrub thickets, meadows, wetlands, riparian, and clearcuts (Long 1972; 1974; Peirce and Peirce 2000; Cook and MacDonald 2006; MacDonald and Cook 2009; Hope 2012). In central Canada, <i>S. hoyi</i> was documented in habitats that spanned a range of moisture levels, vegetation types, and canopy cover (Wrigley et al. 1979).	
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

<i>Management Plans and Regulations in Alaska (-10 to 10)</i>	10
Listed as unclassified game in Alaska with no bag limit and no closed season (ADFG 2018c).	
<i>Knowledge of Distribution and Habitat in Alaska (-10 to 10)</i>	2
Recent surveys in northwestern (Cook and Macdonald 2006; Hope 2012) and southwestern Alaska (Peirce and Peirce 2000) have dramatically expanded the known distribution of <i>S. eximius</i> . However, <i>S. eximius</i> is locally rare and not often captured during surveys (Cook and MacDonald 2006; A. Hope, pers. comm.). Consequently, our knowledge of its distribution remains incomplete (MacDonald and Cook 2009). Habitat associations have been recorded during surveys (see Habitat section above).	
<i>Knowledge of Population Trends in Alaska (-10 to 10)</i>	10
Not currently monitored.	

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

Little is known about the ecology of *S. eximius*/*S. hoyi*. Endo- and ectoparasites have been collected (Murrell et al. 2003; Lynch and Duszynski 2008), but their effects on population dynamics are unknown. Elsewhere in North America, researchers have studied this species' response to disturbances such as fire, logging, and canopy gaps (DeGraaf et al. 1991; Ford et al. 1999; Greenberg and Miller 2004; Greenberg et al. 2007). These studies reported no significant differences in capture rates or sex ratios among disturbed and undisturbed habitat types. Additional research is needed to determine the effects of climate change. Species distribution models for Alaska disagree as to whether suitable habitat will increase (Baltensperger and Huettmann 2015a; Hope et al. 2015) or decrease (Marcot et al. 2015) in the future.

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%
Peripheral:	No

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