

Dusky shrew

Sorex monticola

Class: Mammalia
Order: Eulipotyphla

Conservation Status

NatureServe: G Rank: G5
Agency: USFWS: IUCN: Least Concern
ADF&G: Species of Greatest Conservation Need
S Rank: S5

Final Rank		
Conservation category: V. Orange		
V = 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	-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
<i>Population Trend (-10 to 10)</i>	0
Unknown.	
<i>Distribution Trend (-10 to 10)</i>	0
Trends over the past 50 years are unknown. Modeling studies estimate that the distribution of <i>S. monticola</i> in Alaska has increased since the Last Glacial Maximum (~21,500 years ago; Hope et al. 2015), but models disagree as to whether 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
<i>Population Size (-10 to 10)</i>	-6
Unknown, but suspected large. <i>S. monticola</i> is considered "common and sometimes abundant" (MacDonald and Cook 2009) and is widespread across most Alaska.	
<i>Range Size (-10 to 10)</i>	-10
Found across most of Alaska from southeast Alaska north to the Brooks Range and from the eastern Aleutian Islands east to the Canadian border (MacDonald and Cook 2009; Hope 2012). Also found on several islands in southeast and southcoastal Alaska (MacDonald and Cook 2009). Estimated range size is >400,000 sq. km.	
<i>Population Concentration (-10 to 10)</i>	-10
Does not concentrate (Smith and Belk 1996).	
<i>Reproductive Potential</i>	
<u>Age of First Reproduction (-5 to 5)</u>	-5
< 2 years (Smith and Belk 1996).	

Number of Young (-5 to 5)	-3
Average litter size ranges from five to eight (Smith and Belk 1996). Females have two or more litters per year (Smith and Belk 1996).	
<i>Ecological Specialization</i>	
Dietary (-5 to 5)	1
Eats primarily small insects and invertebrates, though in certain habitats items such as conifer seeds and fungi comprise >1/3 of their diet (Gunther et al. 1983; 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)	-5
Found in several habitat types across Alaska, including forests, shrub thickets, wetlands, riparian, and tundra meadows (Nolan and Peirce 1996; Cook and MacDonald 2006; MacDonald and Cook 2009; Hope 2012). In the coastal forests of southeast Alaska, <i>S. monticola</i> has been reported from a variety of stand ages including old- and young-growth forests, clearcuts, and thinned stands (Eckrich et al. 2018; O'Brien et al. 2018).	
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 have been documented (Cook and MacDonald 2009; see Habitat section). Recent surveys have been conducted in northern and western Alaska (Cook and MacDonald 2006; Hope 2012) and on islands of southeast Alaska (Eckrich et al. 2018; O'Brien et al. 2018). Additional collection efforts are needed in Alaska and in British Columbia to resolve the taxonomic status and genetic lineages of subspecies and populations (MacDonald and Cook 2009; Sawyer 2014; A. Hope, pers. comm.).	
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 dusky shrews in Alaska. A study on Prince of Wales Island documented high winter mortality and found an inverse relationship between densities of dusky shrews and Keen's mice (Eckrich et al. 2018). The authors suggest that food competition between the two species may limit population densities in certain habitats (Eckrich et al. 2018). O'Brien et al. (2018) similarly suggested that food competition may occur between <i>S. monticola</i> and <i>S. cinereus</i> , though they did not explicitly test this hypothesis. Studies have investigated the phylogeography and evolution of this species (e.g. Cook et al. 2001; Demboski and Cook 2001; Sawyer 2014), but additional research is needed to understand genetic diversity among populations and resolve taxonomic designations (A. Hope, pers. comm.). Endo- and ectoparasites have been collected (Murrell et al. 2003; Lynch and Duszynski 2008; Greiman et al. 2013; Cook et al. 2017), but their effects on population dynamics are unknown. Climate change is predicted to impact this species' distribution, but models disagree as to whether habitat will increase (Baltensperger and Huettmann 2015a; Hope et al. 2015) or decrease (Sawyer 2014; Marcot et al. 2015) in the future.	
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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