

Song Sparrow, Aleutian

Class: Aves
Order: Passeriformes

Melospiza melodia sanaka

Note: This assessment refers to this subspecies only. A species level report, which refers to all associated subspecies, is also available.

Review Status: Peer-reviewed

Version Date: 28 March 2019

Conservation Status

NatureServe: Agency:

G Rank: G5T2 ADF&G: Species of Greatest Conservation Need IUCN: Audubon AK: Yellow

S Rank: 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	-14
Action	-40 to 40	16
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.	0
<i>Range Size in Alaska (-10 to 10)</i> Eastern Aleutian Islands from Seguam Island east to the Semidi Islands (Eyerdam 1936; Gabrielson and Lincoln 1951; Gibson and Byrd 2007; Patten and Pruett 2009; Withrow 2015) including the western tip of the Alaska Peninsula east to Stepovak Bay (Patten and Pruett 2009). Chirikof Island likely represents eastern range limit (Withrow 2015). ~5,000 sq. km calculated in GIS (based on range map from ACCS 2017a).	4

<i>Population Concentration in Alaska (-10 to 10)</i>	-10
No subspecies specific information, likely same as species: does not concentrate (Arcese et al. 2002).	
<i>Reproductive Potential in Alaska</i>	
<u>Age of First Reproduction (-5 to 5)</u>	-5
No subspecies specific information, likely same as species: undocumented for Alaska, but elsewhere in North America, females breed at 1 year old (Hochachka 1990; Arcese et al. 2002).	
<u>Number of Young (-5 to 5)</u>	1
No subspecies specific information, likely same as species: Johnston (1954) reported an average clutch size of 4.17 eggs for Alaska (n=17) and two clutches per year. Clutch sizes ranged from 3.05 to 3.99 eggs elsewhere along the eastern Pacific coast (Johnston 1954). Multiple broods per year are common in this species (Johnston 1954; Arcese et al. 2002).	
<i>Ecological Specialization in Alaska</i>	
<u>Dietary (-5 to 5)</u>	-5
Observed feeding with sandpipers on intertidal zone of Attu Island; marine snails found in stomach (Sutton and Wilson 1946). Also consumes small crustaceans, insects, worms, and weed seeds (Eyerdam 1936).	
<u>Habitat (-5 to 5)</u>	1
On Attu Island they were observed almost always on the shore, and sometimes on grassy headlands. Roosts in crevices of large rocks, or under a tussock (Sutton and Wilson 1946). Found near large boulders on beaches of Unalaska Island (Eyerdam 1936).	
Biological Total:	-14

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>	2
Protected under the Migratory Bird Treaty Act (MBTA 1918).	
<i>Knowledge of Distribution and Habitat in Alaska (-10 to 10)</i>	2
Distribution and habitat association is somewhat known; knowledge based on limited bird inventories and specimen collection reviews (Eyerdam 1936, Gabrielson and Lincoln 1951, Withrow 2015). Range and subspecies overlap poorly known.	
<i>Knowledge of Population Trends in Alaska (-10 to 10)</i>	10
Not currently monitored.	
<i>Knowledge of Factors Limiting Populations in Alaska (-10 to 10)</i>	2
No subspecies specific information, likely same as species: the population ecology of song sparrows has been extensively studied on Mandarte Island in southern British Columbia and in other parts of its range (reviewed in Arcese et al. 2002; Chase et al. 2005). Winter survival may be negatively affected by adverse weather, limited food availability, and competition with other songbirds for food (Arcese et al. 2002; Johnson et al. 2018c). Meanwhile, reproductive success may be limited by food availability, brood parasitism, territoriality, and weather (Arcese et al. 2002; Chase et al. 2005). For example, a long-term study in Point Reyes, California, found a strong, positive correlation between annual rainfall and metrics of reproductive success (Chase et al. 2005). The importance of any one factor changes over time and space (Arcese et al. 2002; Chase et al. 2005) and studies are largely lacking for Alaska (though the genetics and evolution of Alaskan subspecies have been extensively	

studied e.g. Pruett and Winker 2005a; Pruett et al. 2008a; 2008b; Pruett and Winker 2010; Zink 2010). Some island populations were strongly affected by introduced predators, which have since been eradicated (Croll et al. 2016). Island populations may also be negatively affected by inbreeding, which reduces female reproductive success (Keller 1998). We rank this question as B until additional data are available for Alaskan populations.

Action Total: 16

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

Harvest:	None or Prohibited
Seasonal Occurrence:	Year-round
Taxonomic Significance:	Subspecies
% Global Range in Alaska:	>10%
% Global Population in Alaska:	Endemic
Peripheral:	No

References

- Alaska Center for Conservation Science (ACCS). 2017a. Wildlife Data Portal. University of Alaska Anchorage. Available online: <http://aknhp.uaa.alaska.edu/apps/wildlife>
- Arcese, P., M. K. Sogge, A. B. Marr, and M. A. Patten. 2002. Song Sparrow (*Melospiza melodia*), version 2.0. In Poole, A. F., and F. B. Gill, eds. *The Birds of North America*, Cornell Lab of Ornithology, Ithaca, NY, USA. DOI: 10.2173/bna.704
- Chase, M. K., N. Nur, and G. R. Geupel. 2005. Effects of weather and population density on reproductive success and population dynamics in a song sparrow (*Melospiza melodia*). *The Auk* 122(2):571–592.
- Croll, D. A., K. M. Newton, M. McKown, N. Holmes, J. C. Williams, ..., and B. R. Tershy. 2016. Passive recovery of an island bird community after rodent eradication. *Biological Invasions* 18(3):703-715. DOI: 10.1007/s10530-015-1042-9
- Eyerdam, W. J. 1936. Notes on birds collected or observed during the summer of 1932 in the eastern Aleutian Islands, Alaska. *The Murrelet* 17(2/3):48.
- Gabrielson, I. N., and F. C. Lincoln. 1951. The races of song sparrows in Alaska. *The Condor* 53(5):250–255.
- Gibson, D. D., and G. V. Byrd. 2007. *Birds of the Aleutian Islands, Alaska*. Nuttall Ornithological Club, Cambridge, MA, USA.
- Hochachka, W. 1990. Seasonal decline in reproductive performance of song sparrows. *Ecology* 71(4):1279–1288. DOI: 10.2307/1938265
- Johnson, K. M., R. R. Germain, C. E. Tarwater, J. M. Reid, and P. Arcese. 2018c. Demographic consequences of invasion by a native, controphic competitor to an insular bird population. *Oecologia* 187(1):155–165. DOI: 10.1007/s00442-018-4101-y
- Johnston, R. F. 1954. Variation in breeding season and clutch size in song sparrows of the Pacific Coast. *The Condor* 56(5):268–273. DOI: 10.2307/1364850
- Keller, L. F. 1998. Inbreeding and its fitness effects in an insular population of song sparrows (*Melospiza melodia*). *Evolution* 52(1):240–250. DOI: 10.1111/j.1558-5646.1998.tb05157.x
- Migratory Bird Treaty Act (MBTA). 1918. U.S. Code Title 16 §§ 703-712 Migratory Bird Treaty Act.
- Patten, M. A., and C. L. Pruett. 2009. The song sparrow, *Melospiza melodia*, as a ring species: patterns of geographic variation, a revision of subspecies, and implications for speciation. *Systematics and Biodiversity* 7(1):33–62. DOI: 10.1017/S1477200008002867

- Pruett, C. L., and K. Winker. 2005a. Northwestern song sparrow populations show genetic effects of sequential colonization. *Molecular Ecology* 14(5):1421–1434. DOI: 10.1111/j.1365-294X.2005.02493.x
- Pruett, C. L., and K. Winker. 2010. Alaska song sparrows (*Melospiza melodia*) demonstrate that genetic marker and method of analysis matter in subspecies assessments. *Ornithological Monographs* 67(1):162–171. DOI: 10.1525/om.2010.67.1.162
- Pruett, C. L., P. Arcese, Y. L. Chan, A. G. Wilson, M. A. Patten, ..., and K. Winker. 2008a. Concordant and discordant signals between genetic data and described subspecies of Pacific Coast song sparrows. *The Condor* 110(2):359–364. DOI: 10.1525/cond.2008.8475
- Pruett, C. L., P. Arcese, Y. L. Chan, A. G. Wilson, M. A. Patten, L. F. Keller, and K. Winker. 2008b. The effects of contemporary processes in maintaining the genetic structure of western song sparrows (*Melospiza melodia*). *Heredity* 101(1):67–74. DOI: 10.1038/hdy.2008.31
- Sutton, G. M., and R. S. Wilson. 1946. Notes on the winter birds of Attu. *Condor* 48(2):83-91. DOI:10.2307/1363994
- Withrow, J. J. 2015. Notes on the birds of Chirikof Island, Alaska. *Western Birds* 46(1):28-48.
- Zink, R. M. 2010. Drawbacks with the use of microsatellites in phylogeography: the song sparrow *Melospiza melodia* as a case study. *Journal of Avian Biology* 41(1):1–7. DOI: 10.1111/j.1600-048X.2009.04903.x

Alaska Center for Conservation Science
Alaska Natural Heritage Program
University of Alaska Anchorage
Anchorage, AK