

**Sanderling***Calidris alba*

Class: Aves

Order: Charadriiformes

**Conservation Status**

NatureServe:

Agency:

G Rank: G5

USFWS:

IUCN: Least Concern

Audubon AK: Watch

S Rank: S2B

BLM:

ADF&amp;G: Species of Greatest Conservation Need

<b>Final Rank</b>		
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	12
<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***Population Trend (-10 to 10)*

0

Potentially declining based on data from Delaware Bay, New Jersey (Andres et al. 2012a). However, no information is available for western populations, which likely overwinter on the Pacific coast. We therefore rank this question as Unknown.

*Distribution Trend (-10 to 10)*

0

Unknown.

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 (-10 to 10)*

6

The North American population is estimated at 300,000 individuals (Andres et al. 2012a), of which <10% breed in Alaska (ASG 2019). In the absence of additional information, we rank this question as B- Unknown, but suspected small.

*Range Size (-10 to 10)*

-2

Breeds in a small area of northern Alaska around Point Barrow. During migration, has been reported from coastal areas throughout Alaska including the Arctic Coastal Plain (Taylor et al. 2010), the Seward Peninsula (Kessel 1989), Cook Inlet (Gill and Tibbitts 1999; Matz et al. 2011), and southeast Alaska (Armstrong 2008). Fewer than 5% of the population is estimated to overwinter in Alaska (ASG 2019). Wintering distribution is not well-understood but likely includes southeast Alaska north to Prince William Sound, Kodiak Island, and the Aleutian Islands (Isleib and Kessel 1973; Macwhirter et al. 2002; Gibson and Byrd 2007). Breeding range is most restricted and is estimated at ~23,550 sq. km., based on range map from ACCS (2017a).

*Population Concentration (-10 to 10)*

-6

Often observed singly or in small flocks during post-breeding and migration (Kessel 1989; Gill and Tibbitts 1999; Gibson and Byrd 2007; Taylor et al. 2010), though larger groups have been recorded (Bishop 2007). Several

thousands may use the same site over the course of the migratory season (Isleib and Kessel 1973; Bishop 2007). For example, 9,331 sanderlings were observed on Egg Island (Copper River Delta) during spring migration (Bishop 2007). Does not concentrate during breeding, but given its small range and population size, we estimate that there are between 25 to 250 breeding sites in Alaska.

### *Reproductive Potential*

#### Age of First Reproduction (-5 to 5)

-3

Unknown, but assumed to be at least two years (Macwhirter et al. 2002).

#### Number of Young (-5 to 5)

1

Females typically lay a 4-egg clutch (Macwhirter et al. 2002). Some populations have two clutches per year (Macwhirter et al. 2002), but data for Alaska are unknown.

### *Ecological Specialization*

#### Dietary (-5 to 5)

-5

Little information available for Alaska. Elsewhere in its breeding range, consumes terrestrial invertebrates, especially adult and larval flies from several families (Tipulidae, Chironomidae, Diptera), as well as beetles, spiders, amphipods (Macwhirter et al. 2002). Consumes plant matter when insects are not available (Macwhirter et al. 2002). During migration, feeds on marine invertebrates and insects (Macwhirter et al. 2002).

#### Habitat (-5 to 5)

1

Breeds in High Arctic tundra by the coast (Macwhirter et al. 2002). Nests are typically place on bare or sparsely vegetated ground, often near freshwater (Gabrielson and Lincoln 1959; Macwhirter et al. 2002). During migration, found in intertidal habitats such as mudflats, on hard- and soft-substrate beaches, and on barrier islands (Andres 1994; Gill and Tibbitts 1999; Bishop 2007; Gibson and Byrd 2007; Taylor et al. 2010).

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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 (-10 to 10)*

-10

Protected under the Migratory Bird Treaty Act (MBTA 1918). Recreational and subsistence harvest is not permitted (AMBCC 2018).

### *Knowledge of Distribution and Habitat (-10 to 10)*

10

Very little is known about its distribution, habitat associations, important breeding and staging sites, or migratory routes. Infrequently detected during multi-species surveys on breeding grounds (e.g. Arctic PRISM; Johnson et al. 2007a) and during migration (Andres 1994; Gill and Tibbitts 1999; Taylor et al. 2010; Matz et al. 2011). Few records of wintering distribution (Gibson and Byrd 2007).

### *Knowledge of Population Trends (-10 to 10)*

2

This species is recorded during multi-species surveys, but is detected too infrequently to estimate population size or trends.

### *Knowledge of Factors Limiting Populations (-10 to 10)*

10

Very little is known about the sanderling's ecology and the factors that limit its population. Most data on breeding grounds come from one study area in northeastern Greenland, which has been monitoring nest sites for over 17 years (Reneerkens et al. 2016). These studies have investigated the role of habitat suitability, snow cover, and insect availability on several reproductive parameters including nest success, clutch size, and timing of egg-laying and hatching (Moltofte et al. 2007; Pellissier et al. 2013; Reneerkens et al. 2016). Habitat (Pellissier et al. 2013) and snow cover (Pellissier et al. 2013) do not appear to limit reproductive success in this study area, though years with particularly late snowmelt may delay egg initiation (Moltofte et al. 2007). Additional research is needed on the effects of climate change as suitable habitat is expected to decrease substantially by the end of this century as a result of climate change (Wauchope et al. 2017).

Over a 17-year period, Reneerkens et al. (2016) documented that arthropod abundance was peaking earlier in the season, while hatching date stayed the same. This temporal mismatch did not affect chick growth rates, likely because food was still abundant even after the peak (Reneerkens et al. 2016). However, energy may be limiting for adult breeders, which rely on arthropods to produce eggs (Meltofte et al. 2007 and references therein). In years of high arthropod abundance, egg-laying occurred earlier in the season (Meltofte et al. 2007). The role of predation has not been fully investigated, but predation is highest early in the breeding season, and may be strong enough to select against advanced hatching dates (Reneerkens et al. 2016). While Meltofte et al. (2007) To our knowledge, adult survival rates have not been documented. Although these studies provide a meaningful foundational for future research, it is unknown whether these findings can be applied to Alaska.

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Action Total: 12

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

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<b>Harvest:</b>	None or Prohibited
<b>Seasonal Occurrence:</b>	Breeding
<b>Taxonomic Significance:</b>	Monotypic species
<b>% Global Range in Alaska:</b>	<10%
<b>% Global Population in Alaska:</b>	<25%
<b>Peripheral:</b>	Yes

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## References

- Alaska Center for Conservation Science (ACCS). 2017a. Wildlife Data Portal. University of Alaska Anchorage. Available online: <http://aknhp.uaa.alaska.edu/apps/wildlife>
- Alaska Migratory Bird Co-Management Council (AMBCC). 2018. 2018 Alaska subsistence bird harvest regulations. Office of the Alaska Migratory Bird Co-Management Council, U.S. Fish & Wildlife Service, Anchorage, AK, USA.
- Andres, B. A. 1994. Coastal zone use by postbreeding shorebirds in northern Alaska. *Journal of Wildlife Management* 58(2):206–213. DOI: 10.2307/3809381
- Andres, B. A., P. A. Smith, R. G. Morrison, C. L. Gratto-Trevor, S. C. Brown, and C. A. Friis. 2012a. Population estimates of North American shorebirds, 2012. *Wader Study Group Bulletin* 119(3):178-194.
- Armstrong, R. H. 2008. *Guide to the birds of Alaska*, 5th edition. Alaska Northwest Books, Anchorage, AK, USA.
- Alaska Shorebird Group (ASG). 2019. *Alaska Shorebird Conservation Plan, Version III*. Alaska Shorebird Group, Anchorage, AK, USA. Available online: <https://www.fws.gov/alaska/mbsp/mbm/shorebirds/plans.htm>
- Bishop, M. A. 2007. *Monitoring migrant and breeding shorebirds on barrier island beaches of the Copper River Delta, Alaska*. Final report, Project T-1-16, Alaska Department of Fish and Game, Nongame Program, Cordova, AK, USA.
- Gabrielson, I. N., and F. C. Lincoln. 1959. *The Birds of Alaska*. The Stackpole Company, Harrisburg, PA, USA.
- Gibson, D. D., and G. V. Byrd. 2007. *Birds of the Aleutian Islands, Alaska*. Nuttall Ornithological Club, Cambridge, MA, USA.
- Gill, R. E., Jr., and T. L. Tibbitts. 1999. *Seasonal shorebird use of intertidal habitats in Cook Inlet, Alaska*. Final report MMS 99-0012. U. S. Department of the Interior, U.S. Geological Survey, Biological Resources Division and OCS Study, Anchorage, AK
- Isleib, M. E., and B. Kessel. 1973. *Birds of the north Gulf Coast- Prince William Sound region, Alaska*. Biological Papers of the University of Alaska no. 14. University of Alaska Fairbanks, AK, USA.

- Johnson, J. A., R. B. Lanctot, B. A. Andres, J. R. Bart, S. C. Brown, S. J. Kendall, and D. C. Payer. 2007a. Distribution of breeding shorebirds on the Arctic coastal plain of Alaska. *Arctic* 60(3):277-293. DOI: 10.14430/arctic220
- Kessel, B. 1989. *Birds of the Seward Peninsula, Alaska: Their biogeography, seasonality, and natural history*. University of Alaska Press, Fairbanks, AK, USA.
- Macwhirter, R. B., P. Austin-Smith Jr., and D. E. Kroodsmas. 2002. Sanderling (*Calidris alba*), 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.653
- Matz, G., R. B. Lanctot, G. C. West, and M. Michaud. 2011. Reassessment of a Western Hemisphere Shorebird Reserve Network site: Kachemak Bay, Alaska. *Wader Study Group Bulletin* 119(1):9–16.
- Migratory Bird Treaty Act (MBTA). 1918. U.S. Code Title 16 §§ 703-712 Migratory Bird Treaty Act.
- Meltofte, H., T. T. Høye, N. M. Schmidt, and M. C. Forchhammer. 2007. Differences in food abundance cause inter-annual variation in the breeding phenology of High Arctic waders. *Polar Biology* 30(5):601–606. DOI: 10.1007/s00300-006-0219-1
- Pellissier, L., H. Meltofte, J. Hansen, N. M. Schmidt, M. P. Tamstorf, L. Maiorano, P. Aastrup, J. Olsen, A. Guisan, and M. S. Wisz. 2013. Suitability, success and sinks: How do predictions of nesting distributions relate to fitness parameters in high arc
- Reenerkens, J., N. M. Schmidt, O. Gilg, J. Hansen, L. H. Hansen, J. Moreau, and T. Piersma. 2016. Effects of food abundance and early clutch predation on reproductive timing in a High Arctic shorebird exposed to advancements in arthropod abundance. *Ecology*
- Taylor, A. R., R. B. Lanctot, A. N. Powell, F. Huettmann, D. A. Nigro, and S. J. Kendall. 2010. Distribution and community characteristics of staging shorebirds on the northern coast of Alaska. *Arctic* 63(4):451–467. DOI: 10.14430/arctic3334
- Wauchope, H. S., J. D. Shaw, O. Varpe, E. G. Lappo, D. Boertmann, R. B. Lanctot, and R. A. Fuller. 2017. Rapid climate-driven loss of breeding habitat for Arctic migratory birds. *Global Change Biology* 23(3):1085–1094. DOI: 10.1111/gcb.13404

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