Dunlin, Pacific

Class: Aves
Order: Charadriiformes

Calidris alpina pacifica

Note: This assessment refers to this subspecies only.

Review Status: Peer-reviewed **Version Date:** 18 March 2019

Conservation Status

NatureServe:	*Agency:*		
G Rank: G5	ADF&G: Species of Greatest Conservation Need	IUCN: Least Concern	Audubon AK: Yellow
S Rank: S4B,S4N	USFWS:	BLM:	

Final Rank

Conservation category: **VII. Yellow**

low status and either high biological vulnerability or high action need

Category	Range	Score
Status	-20 to 20	-11
Biological	-50 to 50	-16
Action	-40 to 40	-8

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) -6

Suspected stable (Xu et al. 2015; ASG 2019).

Distribution Trend in Alaska (-10 to 10) -5

Suspected stable (R. Lanctot, USFWS, pers. comm.).

Status Total: -11

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) -10

Population size in Alaska is estimated at 550,000 individuals (Morrison et al. 2006; ASG 2019).

Range Size in Alaska (-10 to 10) -8

Breeds along Alaska's western coast from Point Hope south to the northern Alaska Peninsula (Warnock and Gill 1996). Most of the population overwinters along the eastern Pacific coast from British Columbia to Mexico (Fernández et al. 2010), though a very small portion (<5%) stays in Alaska (Isleib and Kessel 1973; Warnock and Gill 1996; ASG 2019). Because only a small portion of the population overwinters in Alaska, we estimate range size based on breeding distribution. Estimated range size is ~225,400 sq. km., based on range map from ACCS (2017a).

Population Concentration in Alaska (-10 to 10) 2

Aggregates in large numbers at staging sites, especially along the Yukon-Kuskokwim Delta and the Alaska Peninsula during southbound migration, and in Cook Inlet, the Copper River Delta, and Yakutat during northbound migration (Andres and Browne 1998; Gill and Tibbitts 1999; Warnock et al. 2004; Fernández et al. 2010; Smith et al. 2012). The Dunlin Conservation Plan lists 6 and 15 sites in Alaska where >5,000 pacifica Dunlins have been observed during spring and fall migration, respectively (Fernández et al. 2010).

Reproductive Potential in Alaska

Age of First Reproduction (-5 to 5) -3

Most birds breed when they are two years old (Warnock and Gill 1996).

Number of Young (-5 to 5) 1

Typically lay one 4-egg clutch per year (Kessel 1989; Warnock and Gill 1996). Weiser et al. (2018b) reported an average clutch size of 3.85 +/- 0.39 eggs. Replacement clutches are common (Jamieson 2011). Jamieson (2011) found that 17% of pacifica Dunlins laid two broods per summer (i.e. first clutch was successful).

Ecological Specialization in Alaska

Dietary (-5 to 5) 1

During migration in southcoastal Alaska, feeds heavily on the clam Macoma balthica (Senner et al. 1989). Other bivalve species, amphipods, and larval flies were secondarily consumed (Senner et al. 1989). A similar specialization on one or two bivalve species has been reported from staging grounds on the Yukon-Kuskokwim Delta and the Alaska Peninsula (Warnock and Gill 1996). Few data are available for the breeding season. Feeds on terrestrial insects including larval chironomid flies, adult dipteran flies, and beetles (Kessel 1989; Warnock and Gill 1996).

Habitat (-5 to 5) 1

Breeds in coastal graminoid tundra meadows (Warnock and Gill 1996; Jamieson 2009). Typically associated with wet or moist moisture regimes (Kessel 1989; Warnock and Gill 1996; McCaffery et al. 2012), though nests are often placed on drier or upland sites (Kessel 1989). During migration and winter, found on intertidal habitats such as mudflats, estuaries, marshes, and rocky shores (Isleib and Kessel 1973; MacDonald and Wachtel 2000; Warnock and Gill 1996; Warnock et al. 2004; Warnock et al. 2013).

Biological Total: -16

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 in Alaska (-10 to 10) -10

Protected under the Migratory Bird Treaty Act (MBTA 1918). Open to subsistence harvest and egg gathering, but only during certain times of the year (AMBCC 2018).

Knowledge of Distribution and Habitat in Alaska (-10 to 10) -10

Distribution and habitat associations on breeding grounds captured during multi-species surveys (e.g. Ruthrauff and Tibbitts 2009; McCaffery et al. 2012; Amundson et al. 2018; Savage et al. 2018) and species-specific studies (Jamieson 2009). Knowledge of migration routes and staging sites from count surveys (e.g. Senner et al. 1981; Andres and Browne 1998; Gill and Handel 1990; Gill and Tibbitts 1999; MacDonald and Wachtel 2000; reviewed in Hope et al. 2018), sightings of banded individuals (Gill et al. 2013), and transmitter data (Warnock et al. 2004; S. Yezerinac and R. Lanctot, unpubl. data). Additional studies are needed to determine northern extent of breeding distribution

and overlap with C. a. arcticola on breeding and staging grounds (Fernández et al. 2010).

Knowledge of Population Trends in Alaska (-10 to 10) 10

There is currently no monitoring program in place in Alaska that can provide data on population trends. Recent efforts such as PRISM surveys in western and northern Alaska are promising (Bart et al. 2012; McCaffery et al. 2012), but this program is still in its infancy and multi-year data are not available. Until multi-year data become available, we rank this question as A- Not currently monitored. Monitored on wintering grounds through the Christmas Bird Count, but data exhibit large regional and annual variations, which makes it difficult to determine trends (Fernández et al. 2010).

Knowledge of Factors Limiting Populations in Alaska (-10 to 10) 2

Analysis of count data on wintering grounds revealed that population density in the previous year had the largest, negative effect on population numbers (Xu et al. 2015), which suggests strong, intraspecific competition for resources. Xu et al. (2015) also found that slower storms in the Gulf of Alaska during fall migration and earlier snowmelt on breeding grounds were positively correlated with population growth. Some authors have documented that raptor predation is the leading cause of mortality on wintering grounds (Page and Whitacre 1975; Warnock et al. 1997), but results from Xu et al. (2015) suggest that predation is compensatory, rather than additive. The abundance of predators, however, was found to affect Dunlin's spatial distribution (Ydenberg et al. 2017). Dunlins tended to aggregate more when predators were abundant, potentially increasing intraspecific competition (Ydenberg et al. 2017).

Comparatively little is known about the factors affecting population growth on breding grounds. Harvest rates are low (Naves 2015) and unlikely to be a concern. Potential factors include insect availability, mate availability, predation, and weather (Jamieson 2011; Hill 2012; Jamieson 2012; Saalfeld et al. 2013a; van Leeuwen and Jamieson 2018; Weiser et al. 2018b). Most studies conducted so far have focused on the arcticola Dunlin (but see Jamieson 2011; 2012; van Leeuwen and Jamieson 2018) Few data are available on environmental contamination (but see Perkins et al. 2016; Saalfeld et al. 2016).

Action Total: -8

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:	Breeding
Taxonomic Significance:	Subspecies
% Global Range in Alaska:	>10%
% Global Population in Alaska:	Endemic
Peripheral:	No

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