

Bar-tailed Godwit

Class: Aves
Order: Charadriiformes

Limosa lapponica baueri

Note: *L. l. baueri* is the only subspecies in Alaska.

Review Status: Peer-reviewed

Version Date: 09 April 2019

Conservation Status

NatureServe: Agency:

G Rank: G4 ADF&G: Species of Greatest Conservation Need IUCN: Near Threatened Audubon AK: Red

S Rank: S3B USFWS: Bird of Conservation Concern BLM: Sensitive

Final Rank		
Conservation category: I. Red		
high status, biological vulnerability, and action need		
Category	Range	Score
Status	-20 to 20	10
Biological	-50 to 50	-12
Action	-40 to 40	4
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)

10

Counts from wintering grounds and from stop-over sites indicate that this population has been declining since the mid-1990s (Choi et al. 2015; Conklin et al. 2016; Studds et al. 2017).

Distribution Trend in Alaska (-10 to 10)

0

Recent and historical distribution trends are unknown. Although outside the scope of this question, it may be interesting to note that suitable habitat in Alaska is predicted to decline by 2100 as a result of climate change (Marcot et al. 2015).

Status Total: 10

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

Uncertain, but estimated at 90,000 individuals (ASG 2019).

Range Size in Alaska (-10 to 10)

-8

Breeds on the tundra in western and northern Alaska, north to the Arctic Ocean (McCaffery and Gill 2001; Andres et al. 2012b). Range limits are not well-known, but may breed as far south as Bristol Bay (McCaffery and Gill 2001). Overwinters in New Zealand and eastern Australia (McCaffery and

Gill 2001). Estimated range size during breeding season is ~221,167 sq. km., based on range polygon from ACCS (2017a) and calculated in GIS.

Population Concentration in Alaska (-10 to 10)

2

During autumn migration, >60% of the entire population stages along a 175 km strip in the southern Yukon-Kuskokwim Delta (YKD), while >30% stages at Egegik Bay on the Alaska Peninsula (Gill and McCaffery 1999). Large concentrations have also been seen in the central YKD (from the Tutakoke River to Kokechik Bay; Gill and Handel 1990) and at other estuaries on the Alaska Peninsula including Nelson Lagoon and Port Heiden (Gill et al. 1981; Gill and McCaffery 1999). Number of sites <25.

Reproductive Potential in Alaska

Age of First Reproduction (-5 to 5)

1

Most breed at the age of 4 (McCaffery and Gill 2001), though some may breed as early as three (Conklin et al. 2016; Conklin et al. 2017).

Number of Young (-5 to 5)

1

Lays one clutch per year, typically with 4 eggs (Kessel 1989; McCaffery and Gill 2001). Mean clutch size in Alaska was 3.72 ± 0.56 SD (McCaffery and Gill 2001).

Ecological Specialization in Alaska

Dietary (-5 to 5)

1

On breeding grounds, consumes adult and larval invertebrates e.g. beetles, flies, snails and berries (Kessel 1989; McCaffery and Gill 2001). On coastal staging grounds, feeds primarily on marine invertebrates such as bivalves, polychaete worms, and crustaceans (Kessel 1989; Gill et al. 1981; McCaffery and Gill 2001; Dekinga 2005). High densities of energy-rich, marine invertebrates are likely a requirement to fuel their long-distance migration (Gill et al. 2005) and we therefore rank this question as B- Moderately adaptable/Key requirements common.

Habitat (-5 to 5)

1

Nests on the tundra in dwarf-shrub meadows (Kessel 1989; McCaffery and Gill 2001) at low to mid elevations (sea level up to >400m) (Gill et al. 1996b; McCaffery and Gill 2001). Reported from a range of moisture levels and distances from the coast (up to >100km inland) (Kessel 1989; Hohenberger et al. 1994; McCaffery and Gill 2001). During staging in western Alaska, uses intertidal areas with mud or sand substrates (Gill and Handel 1990; Gill and McCaffery 1999). Birds staging in northern Alaska use wet sedge meadows rather than tidal flats (qtd in McCaffery and Gill 2001). In all cases, godwits require staging areas that support high densities of marine invertebrates.

Biological Total: -12

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)

2

Protected under the Migratory Bird Treaty Act (MBTA 1918). Subsistence harvest is permitted (AMBCC 2018). Although harvest is subject to closed seasons, an estimated average 1,115 bar-tailed godwits are harvested annually in Alaska and it is unclear if this harvest is sustainable given conditions that negatively affect adult survival elsewhere in the flyway (Naves et al. 2019). To signal potentially high harvest rates in Alaska and the need for additional data, we upgrade this question to B.

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

Broad distribution and habitat associations captured during multi-species bird surveys and inventories (e.g. Kessel 1989; Hohenberger et al. 1994; Gill et al. 1996b; Tibbitts et al. 2006; Johnson et al. 2007a; Andres et al. 2012b; Brown et al. 2012; studies in Cooper 2014) and during specific surveys (McCaffery 1998; Gill and McCaffery 1999). Southern and inland range limits are not well understood (McCaffery and Gill 2001). Migration routes have been well-studied (Gill et al. 2009; Conklin et al. 2010; Battley et al. 2012; Conklin et al. 2013; Gill et al. 2014; Choi et al. 2015). Habitat suitability models have been built for Alaska (Marcot et al. 2015).

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

In Alaska, this species is detected during multi-species bird surveys, but it is not monitoring for trends. However, recent data specific to the *baueri* subspecies, which only breeds in Alaska, are available from monitoring efforts in its wintering range (Scholten et al. 2012; Conklin et al. 2016; Studds et al. 2017). We therefore rank this question as C- Adequate to detect trends.

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

Though few data are available, mortality on both wintering and breeding grounds, as well as during migration, is thought to be low (Conklin et al. 2016; Piersma et al. 2016; Conklin et al. 2017). Nevertheless, population trends and rates of annual adult survival are declining (Conklin et al. 2016; Studds et al. 2017; Murray et al. 2018). Population declines are attributed to mortality on stop-over sites in East Asia resulting from the loss and degradation of coastal wetlands (Choi et al. 2015; Conklin et al. 2016; Studds et al. 2017; Murray et al. 2018). Scientists have observed similar patterns in the population trends of several other shorebird species that use the same flyway, but that have different wintering and breeding grounds (Piersma et al. 2016; Studds et al. 2017).

Preliminary results from a study on the Yukon-Kuskokwim Delta found extremely low rates of nest success, though reasons are unknown (McCaffery and Conklin 2005). In addition, an estimated average 1,115 bar-tailed godwits are harvested annually in Alaska and it is unclear if this harvest is sustainable given conditions that negatively affect adult survival elsewhere in the flyway (Naves et al. 2019). Analyses of heavy metal toxicity have been limited by low sample size and warrant further investigation (Perkins et al. 2016; Saalfeld et al. 2016).

Action Total: 4

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

Harvest:	Substantial, regulations
Seasonal Occurrence:	Breeding
Taxonomic Significance:	Monotypic species
% Global Range in Alaska:	>10%
% Global Population in Alaska:	Endemic
Peripheral:	No

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