Dark-eyed Junco

Junco hyemalis

Class: Aves
Order: Passeriformes

Review Status: Peer-reviewed **Version Date:** 09 May 2019

Conservation Status

NatureServe:	*Agency:*		
G Rank: G5	ADF&G:	IUCN: Least Concern	Audubon AK:
S Rank: S5B	USFWS:	BLM:	

Final Rank

Conservation category: **IX. Blue**

low status and low biological vulnerability and action need

Category	Range	Score
Status	-20 to 20	-6
Biological	-50 to 50	-36
Action	-40 to 40	0

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

Short-term (2003-2015) trends appear stable in interior Alaska (subspecies J. h. hyemalis) and stable or increasing in southcoastal and southeast Alaska (subspecies J. h. hyemalis and J. h. oreganus; Handel and Sauer 2017). Long-term trends (1993-2015) are stable for both regions (Handel and Sauer 2017).

Distribution Trend in Alaska (-10 to 10) 0

Unknown.

Status Total: -6

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

>25,000. Population size in Alaska is estimated at 57 million individuals (95% CI: 42 to 77 million; PIF 2013). Handel et al. (2009) estimated that 1.5 million individuals breed in Yukon-Charley Rivers National Preserve alone.

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

Two subspecies have been described for Alaska (Nolan et al. 2002). J. h. hyemalis is the most widespread and breeds from southcoastal Alaska north to the Brooks Range (Tibbitts et al. 2006),

west to the Seward Peninsula and the eastern Alaska Peninsula (Amundson et al. 2018), and east to Canada (Nolan et al. 2002; Gibson and Withrow 2015). Its northern and western breeding distribution is likely tied to treeline extent (Nolan et al. 2002; Amundson et al. 2018). J. h. oreganus breeds in southeast Alaska north to Yakutat Bay (Gabrielson and Lincoln 1959; Andres et al. 2005). A portion of the breeding population overwinters in southcoastal and southeast Alaska (Nolan et al. 2002; Armstrong 2008), while the rest overwinter further south (Nolan et al. 2002). When summed across both subspecies, wintering range is most restricted and is estimated at ~136,150 sq. km., based on range maps from ACCS (2017a).

Population Concentration in Alaska (-10 to 10) -10

Does not concentrate (Nolan et al. 2002).

Reproductive Potential in Alaska

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

Breed within their first year (Nolan et al. 2002).

Number of Young (-5 to 5) 1

Unknown for Alaska. Elsewhere in North American, clutch size ranges from 3 to 5 per clutch (Nolan et al. 2002). In northern parts of their range, lays only one clutch per year (Nolan et al. 2002).

Ecological Specialization in Alaska

Dietary (-5 to 5) -5

Unknown for Alaska. Elsewhere in North America, juncos are omnivorous and consume mainly seeds and invertebrates including spiders, wasps, ants, and beetles (Nolan et al. 2002). The percent of vegetable versus plant matter in their diet appears to change seasonally with availability (Nolan et al. 2002).

Habitat (-5 to 5) 1

Nests on the ground and forages in a variety of forest types, stand ages, and disturbance regimes (Dellasala et al. 1996; Lance and Howell 2000; Cotter and Andres 2000a; Matsuoka et al. 2001); also found in tall shrub habitats (Kessler and Kogut 1985; Spindler and Kessel 1980; Cotter and Andres 2000a). Prefers open canopy forests and tends to avoid areas with a thick shrub understory (Matsuoka et al. 2001; Matsuoka and Handel 2007).

Biological Total: -36

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).

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

Commonly detected during multi-species surveys in several parts of its range including in the interior (e.g. Spindler and Kessel 1980; Handel et al. 2009), southeast (Kessler and Kogut 1985; Dellasala et al. 1996; Willson and Gende 2000), southcentral (Lance and Howell 2000; Matsuoka et al. 2001), northern (Tibbitts et al. 2006), and western Alaska (Ruthrauff et al. 2007; Saracco et al. 2007), with knowledge of habitat associations (e.g. Kessler and Kogut 1985; Cotter and Andres 2000a; Matsuoka and Handel 2007; Amundson et al. 2018). Additional information is needed on migration routes and resident versus migratory portions of the population.

Knowledge of Population Trends in Alaska (-10 to 10) -2

This species is commonly detected during multi-species surveys in appropriate habitat (Cotter and Andres 2000a). Trend information is available from Breeding Bird Surveys and off-road surveys (Handel and Sauer 2017).

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

Few studies have considered the population dynamics of J. hyemalis in Alaska or elsewhere. Some factors have been proposed, including nest predation and weather, but limiting factors have not been identified. In southcentral Alaska, Matsuoka and Handel (2007) found that predation was the main cause of nest failure. Predation was mediated by spruce bark beetle infestations. Nest success was lowest in forest stands that were least affected by spruce bark beetle (Matsuoka and Handel 2007). They attributed this difference to the higher rates of nest predation by red squirrels, which are closely associated with intact spruce forests (Matsuoka et al. 2001; Matsuoka and Handel 2007). Spruce bark beetle and other disturbances such as logging may also increase local abundances of dark-eyed juncos, which prefer open canopy forests (Dellasala et al. 1996; Lance and Howell 2000). Willson and Gende (2000) reported high rates of nesting success in southeast Alaska, but did not identify factors that may influence reproductive success. Inclement weather on overwintering grounds can lead to annual fluctuations in population size (reviewed in Nolan et al. 2002). In Alaska, climate change may affect timing of arrival on breeding grounds (Mizel et al. 2017) and may increase suitable habitat if the treeline move further north or higher up, as predicted by climate models (Marcot et al. 2015; Mizel et al. 2016).

Studies elsewhere in this species' range have reported geographic differences in reproductive parameters across elevational gradients, potentially resulting from differences in the length of the breeding season and in food availability (Bears et al. 2009; LaBarbera and Lacey 2018). In Alberta's Rocky Mountains, dark-eyed juncos breeding at high-elevations had lower reproductive success, but produced higher-quality offspring (Bears et al. 2009). Timing of snowmelt, which also exhibits an elevational gradient, may also affect clutch size and phenology (Smith and Andersen 1985; DeSante 1990). It is unknown whether similar differences in reproductive parameters exist across latitudinal gradients, though Nolan et al. (2002) documented that double-brooding only occurs in southern parts of their global range.

Action Total: 0

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:	Monotypic species
% Global Range in Alaska:	>10%
% Global Population in Alaska:	25-74%
Peripheral:	No

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