

Boreal Chickadee*Poecile hudsonicus*

Class: Aves

Order: Passeriformes

Review Status: Peer-reviewed**Version Date:** 06 February 2019**Conservation Status***NatureServe:**Agency:*

G Rank: G5

ADF&G: Species of Greatest Conservation Need

IUCN: Least Concern

Audubon AK:

S Rank: S5

USFWS:

BLM:

Final Rank		
Conservation category: VII. Yellow		
low status and either high biological vulnerability or high action need		
<u>Category</u>	<u>Range</u>	<u>Score</u>
Status	-20 to 20	-6
Biological	-50 to 50	-35
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*Population Trend in Alaska (-10 to 10)*

-6

Both short-term and long-term trends appear stable for interior Alaska (Handel and Sauer 2017). Not listed as declining or vulnerable by Audubon Alaska (<http://ak.audubon.org/conservation/alaska-watchlist>).

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. Partners in Flight estimates an Alaskan population size of 3,200,000 (95% CI: 1.8 million to 5.4 million; PIF 2019).

Range Size in Alaska (-10 to 10)

-10

>400,000 sq. km. Widespread throughout most of boreal Alaska, from southcentral north to the Brooks Range and from the Canadian border west to the Alaska and Seward peninsulas (Sutton and Steinacher 2012; ACCS 2017a). Rare in southeast Alaska (Armstrong 2008). Absent in the west and to the north in areas above treeline (Ficken et al. 1996).

<i>Population Concentration in Alaska (-10 to 10)</i>	-10
Does not concentrate.	
<i>Reproductive Potential in Alaska</i>	
<u>Age of First Reproduction (-5 to 5)</u>	-5
Unknown, but the closely related black-capped chickadee (<i>P. atricapillus</i>) first breeds at < 2 years (Foote et al. 2010).	
<u>Number of Young (-5 to 5)</u>	1
Little information is available. A nest box study in southcentral Alaska reported clutch sizes ranging from 1 to 10 eggs, with an average of 7.6 ± 0.2 SE ($n = 51$; Handel et al. 2006). Average brood size at hatch and at 12 days old is slightly lower than initial clutch size (7.2 ± 0.2 ; Handel et al. 2006). Elsewhere in its range, clutch sizes between 2 to 7 have been reported (Ficken et al. 1996). Boreal chickadees likely breed only once per year (McLaren 1975; Ficken et al. 1996), though replacement clutches can be laid if the first one fails (Handel et al. 2006).	
<i>Ecological Specialization in Alaska</i>	
<u>Dietary (-5 to 5)</u>	-2
Little is known about the diet of this species in Alaska or elsewhere. In interior Alaska, Haftorn (1974) observed boreal chickadees caching spruce seeds, insects (especially larvae), spiders, and human food. He identified larvae belonging to seven insect orders (Haftorn 1974). Like other parids, likely has a flexible diet that changes with availability, though this idea has not been formally investigated (Ficken et al. 1996). We have scored this question as $0.5 * C$ (highly adaptable) + $0.5 * 0$ (moderate) to encompass this uncertainty.	
<u>Habitat (-5 to 5)</u>	1
In Alaska, the aptly-named boreal chickadee inhabits coniferous and mixedwood forests, though it has also been documented in tall shrub and deciduous forests (Spindler and Kessel 1980; Ficken et al. 1996). In interior Alaska, it was found to be most abundant in white spruce stands (Spindler and Kessel 1980). Habitat preferences may be more narrow where it co-occurs with other chickadee species (Ficken et al. 1996; Gayk and Lindsay 2012). Females nest in tree cavities excavated by her and her partner, or in cavities created by other species (McLaren 1975).	
Biological Total:	
	-35

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
Habitat associations are broadly known (Haftorn 1974; Spindler and Kessel 1980; see Ficken et al. 1996), but specific studies are lacking and habitat niche may be broader than what is currently described (Matsuoka et al. 2001). Multi-species surveys have detected this species in interior, southcentral, and southwestern Alaska (e.g. Spindler and Kessel 1980; Kessel 1989; ARCTOS 2016; Handel and Sauer 2017; Amundson et al. 2018), though extent of its distribution in western and northern Alaska is uncertain (Saracco et al. 2007; ARCTOS 2016).	
<i>Knowledge of Population Trends in Alaska (-10 to 10)</i>	2
Monitored locally along Breeding Bird Survey routes (Handel and Sauer 2017) and other multi-species bird surveys (e.g. Ruthrauff et al. 2007; Handel et al. 2009; Amundson et al. 2018), but	

surveys do not encompass the species' entire range.

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

10

Very little is known about the factors that regulate this species' population, either in Alaska or elsewhere (Ficken et al. 1996). Given this species' reliance on boreal forests, climate change is expected to affect its distribution across North America (Marcot et al. 2015; Murray et al. 2017). Distribution models for northwest Alaska predict >20% increase in suitable habitat by 2100 (Marcot et al. 2015). Shifts in species' range may also increase the contact zone between boreal chickadees and black-capped chickadees; hybrids of the two species have been documented in eastern Canada (Lait et al. 2012). The effects of logging, stand age, and spruce bark beetle irruptions on local abundance is not well-understood and requires further study (Collins et al. 2001; Matsuoka et al. 2001; Warren et al. 2005 and references therein; Hadley and Desrochers 2008). Like the black-capped chickadee (*Poecile atricapillus*), the boreal chickadee is susceptible to avian keratin disorder, which causes beak deformities. However, the prevalence of beak deformities in boreal chickadees appears to be very low (Handel et al. 2006).

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

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