

Ruby-crowned Kinglet (grinnelli)*Regulus calendula grinnelli*

Class: Aves

Order: Passeriformes

Conservation Status

NatureServe: Agency:

G Rank: BLM: IUCN: Audubon AK:

S Rank: USFWS: ADF&G: Species of Greatest Conservation Need

Final Rank		
Conservation category: VIII. Yellow		
VIII = 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	-20
Action:	-40 to 40	12
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 (-10 to 10)*

-6

Data from both Breeding Bird Survey (BBS) and off-road surveys suggest the short-term (2003-2015) trend is stable (Handel and Sauer 2017). Long-term trends (1993-2015) based only on BBS data also indicate a stable population (Handel and Sauer 2017).

Distribution Trend (-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 (-10 to 10)*

0

Unknown. Two subspecies occur in the state, *R. c. calendula* and *R. c. grinnelli*. PIF (2019) estimates the statewide population at 9.7 million (95% CI: 7 to 13 million), but population size is unknown at the subspecies level and *R. c. grinnelli* is restricted to southeast Alaska (see Range section).

Range Size (-10 to 10)

-8

Breeds from southeast Alaska to Cook Inlet (Swanson et al. 2008; Gibson and Withrow 2015). Most of the population overwinters further south, though it has been infrequently observed in the winter in southern Alaska (Kessel and Gibson 1978). Breeding range is ~130,000 sq. km.

Population Concentration (-10 to 10)

-10

Does not concentrate (Swanson et al. 2008).

*Reproductive Potential*Age of First Reproduction (-5 to 5)

-5

Breeds within its first summer (Swanson et al. 2008).

<u>Number of Young (-5 to 5)</u>	1
Unknown for Alaska, and limited information available elsewhere. Average clutch size for <i>R. c. grinnelli</i> was 9.8 +/- 1.2 eggs (n=15), with a range from 7-12 (Swanson et al. 2008). Lays a single clutch per year (Swanson et al. 2008).	
<i>Ecological Specialization</i>	
<u>Dietary (-5 to 5)</u>	1
Largely insectivorous. Few data available for Alaska. Consumes mainly invertebrates such as spiders, beetles, ants, wasps, and caterpillars; fruits and seeds are also consumed, but only in small amounts (Gabrielson and Lincoln 1959; Swanson et al. 2008).	
<u>Habitat (-5 to 5)</u>	1
Found in a variety of coniferous and mixedwood forests, including wetlands and edge habitats (Isleib and Kessel 1973; Spindler and Kessel 1980; Cotter and Andres 2000a; Johnson et al. 2008b; Heinl and Piston 2009). Occasionally found in shrublands (Johnson et al. 2008b; Heinl and Piston 2009). Appears to prefer open and mature spruce forests (Cotter and Andres 2000a; Lance and Howell 2000; Matsuoka and Handel 2007; Handel and Sauer 2017).	
Biological Total:	-20
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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
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<i>Management Plans and Regulations (-10 to 10)</i>	2
Protected under the Migratory Bird Treaty Act (MBTA 1918).	
<i>Knowledge of Distribution and Habitat (-10 to 10)</i>	2
Detected during multi-species surveys in southeast (e.g. Cotter and Andres 2000a; Johnson et al. 2008b; Heinl and Piston 2009; Handel and Sauer 2017) and southcoastal Alaska (Isleib and Kessel 1973; Matsuoka et al. 2001; Matsuoka and Handel 2007), with knowledge of habitat associations (see Habitat section). However, additional surveys and specimens are needed to determine range delineation. Ranges likely overlap in southcentral near Cook Inlet.	
<i>Knowledge of Population Trends (-10 to 10)</i>	-2
Monitored along BBS routes and off-road surveys (Handel and Sauer 2017). Data are adequate for estimating short-term and long-term trends in Alaska's Northern Pacific Rainforest Bird Conservation Region (Handel and Sauer 2017).	
<i>Knowledge of Factors Limiting Populations (-10 to 10)</i>	10
Little is known about the ecology of this species and the factors that limit its population dynamics in Alaska or elsewhere. Willson and Gende (2000) reported high rates of nesting success in southeast Alaska, and significant differences between egg and fledgling survival rates, but their study did not allow them to identify factors that may influence reproductive success. Lower densities in forest stands infested by spruce bark beetles were observed on the Kenai Peninsula (Lance and Howell 2000) and the Copper River Delta (Matsuoka et al. 2001). Other disturbances leading to the loss of mature, coniferous forests, including wildfires, logging, and urbanization, may similarly affect densities of ruby-crowned kinglets on breeding and wintering grounds (Kissling and Garton 2008; Swanson et al. 2008; Kalinowski and Johnson 2010; MacGregor-Fors et al. 2010). Additional research is needed on the effects of weather and climate change, which may affect migration phenology (Mizel et al. 2017) and increase suitable breeding habitat at the northern edge of its range (Marcot et al. 2015). The kinglet's distribution in Denali National Park has remained relatively stable from 1995 to 2013, despite shrub habitats expanding into higher latitudes (Mizel et al. 2016). On wintering grounds, severe winter weather have been linked to lower abundances at local and continental scales (Lepthien and Bock 1976; Laurenzi et al. 1982).	
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.

Harvest:	None or Prohibited
Seasonal Occurrence:	Breeding
Taxonomic Significance:	Subspecies
% Global Range in Alaska:	>10%
% Global Population in Alaska:	25-74%
Peripheral:	No

References

- Cotter, P. A., and B. A. Andres. 2000a. Breeding bird habitat associations on the Alaska breeding bird survey. Information and Technology Report USGS/BRD/ITR- 2000-0010, Biological Resource Division, U.S. Geological Survey, Springfield, VA, USA.
- Gabrielson, I. N., and F. C. Lincoln. 1959. The Birds of Alaska. The Stackpole Company, Harrisburg, PA, USA.
- Gibson, D. D., and J. J. Withrow. 2015. Inventory of the species and subspecies of Alaska birds, second edition. *Western Birds* 46(2):94–185.
- Handel, C. M. and Sauer, J. R. 2017. Combined analysis of roadside and off-road breeding bird survey data to assess population change in Alaska. *The Condor* 119(3):557-575. DOI: 10.1650/CONDOR-17-67.1
- Heinl, S. C., and A. W. Piston. 2009. Birds of the Ketchikan area, southeast Alaska. *Western Birds* 40(2):54–144.
- 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., B. A. Andres, and J. A. Bissonette. 2008b. Birds of the major mainland rivers of Southeast Alaska. General Technical Report PNW-GTR-739. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, Portland, OR, USA.
- Kalinowski, R. S., and M. D. Johnson. 2010. Influence of suburban habitat on a wintering bird community in coastal northern California. *The Condor* 112(2):274–282. DOI: 10.1525/cond.2010.090037
- Kessel, B., and D. D. Gibson. 1978. Status and distribution of Alaska birds. *Studies in Avian Biology* No. 1. Allen Press, Lawrence, KS, USA.
- Kissling, M. L., and E. O. Garton. 2008. Forested buffer strips and breeding bird communities in southeast Alaska. *Journal of Wildlife Management* 72(3):674-681.
- Lance, E. W., and S. Howell. 2000. Survey of songbirds during a spruce beetle (*Dendroctonus rufipennis*) outbreak on the Kenai Peninsula, Alaska. *Northwestern Naturalist* 81(1):1-10. DOI: 10.2307/3536893.
- Laurenzi, A. W., B. W. Anderson, and R. D. Ohmart. 1982. Wintering biology of ruby-crowned kinglets in the Lower Colorado River Valley. *The Condor* 84(4):385-398. DOI: 10.2307/1367441
- Lepthien, L. W., and C. E. Bock. 1976. Winter abundance patterns of North American kinglets. *The Wilson Bulletin* 88(3):483–485. Available online: <https://sora.unm.edu/node/3379>
- MacGregor-Fors, I., L. Morales-Pérez, and J. E. Schondube. 2010. Migrating to the city: responses of neotropical migrant bird communities to urbanization. *The Condor* 112(4):711–717. DOI: 10.1525/cond.2010.100062
- Marcot, B. G., M. T. Jorgenson, J. P. Lawler, C. M. Handel, and A. R. DeGange. 2015. Projected changes in wildlife habitats in Arctic natural areas of northwest Alaska. *Climate Change* 130(2):145–154. DOI: 10.1007/s10584-015-1354-x
- Matsuoka, S. M., and C. M. Handel. 2007. Nesting ecology of boreal forest birds following a massive outbreak of spruce beetles. *Journal of Wildlife Management* 71(1):51–63. DOI: 10.2193/2005-460

Matsuoka, S. M., C. M. Handel, and D. R. Ruthrauff. 2001. Densities of breeding birds and changes in vegetation in an Alaskan boreal forest following a massive disturbance by spruce beetles. *Canadian Journal of Zoology* 79(9):1678–1690. DOI: 10.1139/cjz-79

Migratory Bird Treaty Act (MBTA). 1918. U.S. Code Title 16 §§ 703-712 Migratory Bird Treaty Act.

Mizel, J. D., J. H. Schmidt, C. L. McIntyre, and C. A. Roland. 2016. Rapidly shifting elevational distributions of passerine species parallel vegetation change in the subarctic. *Ecosphere* 7(3):e01264. DOI: 10.1002/ecs2.1264

Mizel, J. D., J. H. Schmidt, C. L. McIntyre, and M. S. Lindberg. 2017. Subarctic-breeding passerines exhibit phenological resilience to extreme spring conditions. *Ecosphere* 8(2):e01680. DOI: 10.1002/ecs2.1680

Partners in Flight (PIF). 2019. Population Estimates Database, version 3.0. Available online: <http://pif.birdconservancy.org/PopEstimates>. Accessed 09-April-2019.

Spindler, M. A., and B. Kessel. 1980. Avian populations and habitat use in interior Alaska taiga. Final report, University of Alaska Museum, Fairbanks, AK, USA.

Swanson, D. L., J. L. Ingold, and G. E. Wallace. 2008. Ruby-crowned Kinglet (*Regulus calendula*), version 2.0. In Poole, A. F., ed. *The Birds of North America*, Cornell Lab of Ornithology, Ithaca, NY, USA. DOI: 10.2173/bna.119

Willson, M. F., and S. M. Gende. 2000. Nesting success of forest birds in southeast Alaska and adjacent Canada. *The Condor* 102:314–325.

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Alaska Center for Conservation Science
Alaska Natural Heritage Program
University of Alaska Anchorage
Anchorage, AK