

Northern Hawk-Owl

Surnia ulula

Class: Aves
Order: Strigiformes

Conservation Status

NatureServe: Agency:

G Rank: G5 BLM: IUCN: Least Concern Audubon AK:
S Rank: S5 USFWS: ADF&G: Species of Greatest Conservation Need

Final Rank		
Conservation category: V. Orange		
V = unknown status and either high biological vulnerability or high action need		
<u>Category</u>	<u>Range</u>	<u>Score</u>
Status:	-20 to 20	0
Biological:	-50 to 50	-22
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
<i>Population Trend (-10 to 10)</i>	0
Unknown.	
<i>Distribution Trend (-10 to 10)</i>	0
Unknown.	
Status Total:	0

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
<i>Population Size (-10 to 10)</i>	0
Unknown. Northern hawk-owls are nomadic and patchily distributed across the state (Duncan and Harris 1997). Consequently, estimates based on local densities and extrapolated across their range (e.g. Partners In Flight) over-estimate population size (J. Shook, ABR Inc., pers. comm.). No other statewide estimates are available. Duncan and Harris (1997) estimate a North American population size between 20,000 and 100,000 breeding individuals. Given that this species also breeds across Canada’s boreal forests, population size in Alaska likely falls between C) 1,000-3,000 and E) 10,000-25,000. Per ranking guidelines, answers that span three or more categories are ranked as 0- Unknown.	
<i>Range Size (-10 to 10)</i>	-10
Occurs year-round from southeast Alaska to the Brooks Range, and from Canada west to the treeline in southwest and western Alaska (Kissling and Lewis 2009; Duncan and Duncan 2014). Estimated range size is >400,000 sq. km.	
<i>Population Concentration (-10 to 10)</i>	-10
Does not concentrate.	
<i>Reproductive Potential</i>	

<u>Age of First Reproduction (-5 to 5)</u>	0
Unknown.	
<u>Number of Young (-5 to 5)</u>	2
Few data available for Alaska, though clutch sizes between 4-7 eggs have been reported (Kertell 1986; Shook 2002). Similar values have been reported across its range, with a mean number of young fledged ranging from 2.42 to 6.38 (n.b. small samples sizes; Rohner et al. 1995; Duncan and Duncan 2014). It is unknown whether females lay a clutch every year; however, northern hawk-owls are highly responsive to prey availability and drastic changes in distribution and local abundances have been reported across its range (Rohner et al. 1995; Duncan and Harris 1997). Given these traits, females may forego breeding when local food resources are insufficient (J. Shook, pers. comm.). To account for this uncertainty, we rank this question as $0.5 * B + 0.5 * C$. Additional data are needed to determine breeding frequency and the proportion of females that forego reproduction in a given year.	
<i>Ecological Specialization</i>	
<u>Dietary (-5 to 5)</u>	-5
In Alaska, consumes small mammals, especially voles, lemmings, and hares (Ritchie 1980; Kertell 1986; Shook 2002). Also consumes shrews, mice, squirrels, and small birds such as ptarmigan, grouse, and songbirds (Kertell 1986; Rohner et al. 1995; reviewed in Duncan and Duncan 2014; Larson et al. 2019). Researchers in Alaska and the Yukon have described the hawk-owl as an opportunistic hunter whose diet varies based on the abundance and distribution of prey (Rohner et al. 1995; Shook 2002).	
<u>Habitat (-5 to 5)</u>	1
Northern hawk-owls are forest dwellers and their distribution in Alaska rarely extends past the treeline (Campbell 1969; Duncan and Duncan 2014). Within this niche, however, they have been observed in a variety of forest types including coniferous, deciduous, and mixedwood forests of different successional stages (Kertell 1986; Shook 2002; Hannah and Hoyt 2004). The amount of shrub cover and canopy cover are important habitat variables as hawk-owls nest and hunt in open forests (Kertell 1986; Shook 2002). Nests are typically placed on top of snags or in cavities (Shook 2002; Duncan and Duncan 2014), but elevated platforms (e.g. witches' broom; Shook 2002) and cavities in man-made structures (Reakoff et al. 2003) may be used when snags are unavailable.	
Biological Total:	-22
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 (-10 to 10)</i>	2
Protected under the Migratory Bird Treaty Act (MBTA 1918). Annual take for falconry purposes is limited (ADFG 2018a).	
<i>Knowledge of Distribution and Habitat (-10 to 10)</i>	2
Distribution and habitat associations are not well-known. Limited data are available from surveys and observations (e.g. Campbell 1969; Spindler and Kessel 1980; Aumiller 1986; Kissling and Lewis 2009; McIntyre et al. 2015), as well as species-specific studies conducted in interior Alaska (Kertell 1986; Shook 2002).	
<i>Knowledge of Population Trends (-10 to 10)</i>	10
Although occasionally captured during multi-species surveys (e.g. Kissling and Lewis 2009; McIntyre et al. 2015), this species is not currently monitored and there is no information on population trends.	
<i>Knowledge of Factors Limiting Populations (-10 to 10)</i>	2
Northern hawk-owls are difficult to study because they are nomadic, breed in remote areas, and occur at low densities. Consequently, little is known about the ecology of this species in Alaska. Elsewhere in their range, hawk-owls are limited by prey availability, with distribution and local abundances responding to the cycling of voles or hares (reviewed in Rohner et al. 1995). It is unknown whether populations in Alaska exhibit similar responses, but the availability of alternate prey (i.e. snowshoe hare) may make them less vulnerable to changes in prey abundance (Shook 2002). Moreover, northern hawk-owls have flexible dietary and habitat requirements, as	

well as nomadic movement behaviors, which may allow them to buffer against spatial and temporal changes in prey abundance (Shook 2002). However, Shook (2002) acknowledges that the limited timespan of his study did not allow him to determine how hawk-owls respond to crashes in prey abundance. Competition between individuals and other raptor species is thought to be low (Shook 2002; Duncan and Duncan 2014).

Action Total: 16

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: Year-round
Taxonomic Significance: Monotypic genus
% Global Range in Alaska: <10%
% Global Population in Alaska: <25%
Peripheral: Yes

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