

Rough-legged Hawk (*Buteo lagopus*)

Vulnerability: Presumed Stable

Confidence: Moderate

The Rough-legged Hawk is truly a hawk of the far north, with its breeding range largely restricted to arctic tundra and taiga habitats. In open tundra, this species typically places nests on steep outcroppings and cliff faces. Rough-legged Hawks rely on a diet of small mammals (mostly lemmings, voles) although a variety of birds are also eaten (Bechard and Swem 2002). On the coastal plain of Alaska they typically forage in open tundra and low-brush habitats (e.g. river floodplains) (Bechard and Swem 2002). Rough-legged Hawks spend their winters in southern Canada and throughout the lower 48 (Bechard and Swem 2002). The current global population is estimated at > 4 million (Rich et al. 2004).



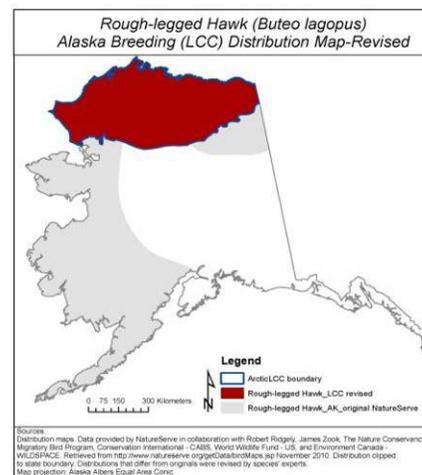
Range: We modified the NatureServe range map for the assessment to include the entire Arctic LCC as suggested by the Birds of North America and other range descriptions (Bechard and Swem 2002, Johnson and Herter 1989).

Physical Habitat Restrictions: Among the indirect exposure and sensitivity factors in the CCVI (see table on next page), Rough-legged Hawks ranked neutral in most categories with the exception of “physical habitat restrictions” where they ranked “neutral” to “increased” vulnerability as this species is dependent on topographic relief (soil and rock bluffs, rock outcrops) for nest sites. However, they do occasionally nest on the ground or on human infrastructure (R. Ritchie, pers. comm.) showing some flexibility in nest site selection.

Physiological Thermal Niche: There is some anecdotal evidence that this species may prefer more southerly aspects in the Arctic LCC, particularly since they are free of snow sooner than north-facing bluffs/nesting areas (B. Ritchie, pers. comm.). However, it is unknown what temperature extremes (in either direction)

would negatively impact reproductive success or preclude nesting.

Disturbance Regimes: In terms of disturbance regimes mediated by climate, increased fire (Racine et al. 2004) could change (improve) some foraging habitats, increasing accessibility to some taller brush or tussock tundra habitats, if foraging prey (microtine numbers) increase (B. Ritchie, pers. comm.).



Interactions with Other Species: Because they often rely on lemmings and voles as a food source, they may be affected by lemming population cycles. Climate change could increase the length of lemming population cycles and decrease maximum population densities (Ims and Fuglei 2005, Gilg et al. 2009). Currently there is no evidence to suggest that such climate-mediated changes in lemming abundance would negatively influence Rough-legged Hawk nest survivorship, distribution, and/or abundance. This species’ more varied diet (compared to species that are much more closely

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Vulnerability Factors	D	SD	N	SI	I	GI	Unknown or N/A
B1. Sea level rise			*				
B2a. Natural barriers			*				
B2b. Anthropogenic barriers			*				
B3. Human response to CC			*				
C1. Dispersal/Movement			*				
C2ai. Historical thermal niche (GIS)			*				
C2aii. Physiological thermal niche		*	*	*			
C2bi. Historical hydro niche (GIS)			*				
C2bii. Physiological hydro niche			*				
C2c. Disturbance regime		*	*				
C2d. Ice & Snow habitats			*				
C3. Physical habitat restrictions			*	*	*		
C4a. Biotic habitat dependence			*				
C4b. Dietary versatility			*				
C4d. Biotic dispersal dependence			*				
C4e. Interactions with other species			*	*			
C5a. Genetic variation							*
C5b. Genetic bottlenecks							*
C6. Phenological response		*	*	*			*
D1. CC-related distribution response							*

D=Decrease vulnerability, SD=Somewhat decrease vulnerability, N=Neutral effect, SI=Slightly increase vulnerability, I=Increase vulnerability, GI=Greatly increase vulnerability.

tied to lemmings like Snowy Owl) suggest they would, in most cases, be able to compensate for such changes with little negative impact.

Phenological Response: There currently exists little or no information regarding the phenological constraints that would make this species more or less vulnerable to a warming climate.

In summary, the results of this assessment suggest Rough-legged Hawks will likely be able to adjust to climate and associated habitat changes predicted to occur in Arctic Alaska, at least during the next 50 years.

Literature Cited

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