

Hoary Redpoll (*Acanthis hornemanni*)

Vulnerability: **Presumed Stable**

Confidence: High

The Hoary Redpoll, closely related and often difficult to distinguish from the Common Redpoll, is a common finch of the circumpolar arctic. In Alaska their range is largely sympatric with the Common Redpoll although they tend to be more common further north. Like the Common Redpoll, they utilize both forested and tundra habitats although they tend to utilize tundra habitats more extensively (Knox and Lowther 2000). In Arctic Alaska tundra, this species nests in willows (primarily along riparian areas) or on the ground in shrubby areas (Knox and Lowther 2000, J. Liebezeit, unpublished data). While primarily a seed eater, in summer this species consumes arthropods to feed young (Knox and Lowther 2000). Hoary Redpolls often winter within their breeding range but will wander further south in irruptive years when seed-crop production fails (Knox and Lowther 2000). Their overall population estimate is unknown.



Range: We used the extant NatureServe range map for the assessment as it closely matched the Birds of North America and other range descriptions (Johnson and Herter 1989, Knox and Lowther 2000).

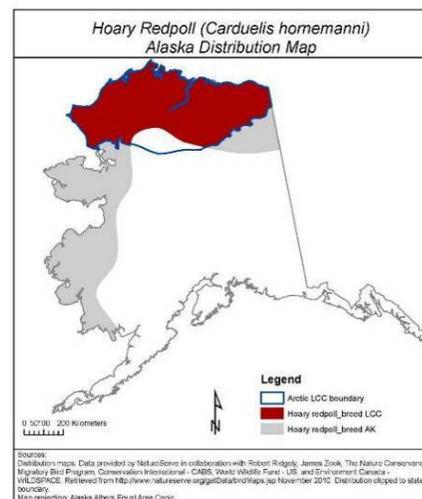
For most of the indirect exposure and sensitivity categories in the assessment, Hoary Redpolls were ranked with a neutral response (see table on next page).

Physiological Thermo Niche: This species shows no close association with a particular thermal environment. Early work has shown that their upper thermal limit is ~38°C and can withstand temperatures as low as -57°C (Brooks 1968, S. Sharbaugh, pers. obs.). As such, they would likely be able to withstand a warming climate although little is known about thermal conditions necessary for successful hatch and fledging of their altricial young. They tend to nest further north in greater numbers than Common Redpoll, which suggests some affinity for colder temperatures although this behavior could be related to a factor(s) unrelated to thermal conditions.

Physiological Hydro Niche: Hoary Redpolls are not known to be closely associated with aquatic/wetland habitats or moisture regimes although they do rely on willow habitats along

riparian stretches on the coastal plain (Knox and Lowther 2000, J. Liebezeit, unpublished data) more than Common Redpolls which will often choose willows in more upland tundra (Knox and Lowther 2000).

Dietary Versatility: Reduction in invertebrate communities from net drying affect could negatively affect foraging success during the breeding season but current predictions for changes in atmospheric drying are negligible (TWS and SNAP). Also, this species could potentially switch to less aquatic-dependent prey as they have a broad diet (Knox and Lowther 2000).



Disturbance Regime: As shrubby and boreal habitats increase on the North Slope (Tape et al. 2006), Hoary Redpolls will be able to exploit new areas and potentially nest in higher densities on the coastal plain. An increase in fire frequency could speed up the advance of shrubification (Racine et al. 2004).

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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.

Phenological Response:

One common breeding passerine, the Lapland Longspur, appears to have adjusted nest initiation in response to climate warming over the last 10 years (J. Liebezeit and S. Zack, unpublished data), but it is unknown whether this result can be generalized. However, there are apparently no long-term datasets for Hoary Redpoll breeding or migration activities and so little is known regarding phenology in this species (S. Sharbaugh, pers. comm.).

In general, this assessment suggests that Hoary Redpolls will likely remain stable in Arctic Alaska under the current projections of climate change. Though within the “presumed stable” category, assessment results suggest they do lean toward the “increase likely” category as they could take advantage of new shrubby nesting habitats and have enough flexibility, both physiologically and behaviorally, to cope with expected climate changes over the next 50 years in Arctic Alaska.

Literature Cited

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