



Red Crossbill *percna* subspecies



Photo: © Alan Wilson

Scientific name

Loxia curvirostra percna

Taxon

Birds

COSEWIC Status

Threatened

Canadian range

Quebec, Newfoundland and Labrador

Reason for Designation

This subspecies is a distinctive taxonomic group endemic to Canada. Previously known to breed only on the island of Newfoundland, it has within the past five years also been documented nesting on Anticosti Island. While the Canadian population is thought to be greater than was understood previously due to the recent discovery of a breeding population component on Anticosti Island, there is no evidence of an increasing trend. On the contrary, this taxon has experienced a substantial long-term decline. Further population decrease is expected based on identified threats, most notably competition and predation from introduced squirrels in Newfoundland, habitat loss due to logging, and a fungal disease affecting Red Pine.

Wildlife Species Description and Significance

Red Crossbill *percna* is one of 10 recognized forms of Red Crossbill in North America. It is a medium-sized finch and a specialized seed eater having curved and crossed mandibles, muscular hinged jaws, and strong clasping feet for prying open conifer cone scales to access the seeds. Red Crossbill males are dull red, females are greyish-olive, and juveniles are dull grey to brownish and heavily streaked. Compared to other Red Crossbill forms in North America, *percna* has a relatively stout and deep (tall) bill, larger body size, and darker, duskiest plumage.

Each form of Red Crossbill in North America is characterized by minor differences in morphology, genetics, and behaviour. Forms are also referred to as vocal types; each is most readily and reliably identified by spectrographic analysis of their unique flight vocalizations. Recent research suggests that Red Crossbill *percna* may correspond with Type 8. North American Red Crossbills likely represent a complex of cryptic species. Though weakly differentiated genetically, vocalization may promote reproductive isolation even among groups that are not geographically separated. Red Crossbill *percna* is significant because it is a distinct taxonomic group restricted to insular Newfoundland and Labrador (hereafter “Newfoundland”) and surrounding islands, and Anticosti Island (QC).

Distribution

Red Crossbills (form/vocal type(s) unknown) were historically considered to occur throughout most of Newfoundland, but with an erratic and localized distribution. Their range apparently has contracted since the first half of the 20th century; the current distribution of Red Crossbill (both *percna* and other forms) in Newfoundland is not fully understood. Presence of *percna*/Type 8 in Newfoundland was confirmed during 2005-2011 via audiospectrographic and morphometric analyses on the Avalon Peninsula, and in eastern, central, and western insular Newfoundland. Probable breeding of Type 8 Red Crossbills having morphology within the documented range of values for *percna* was also documented on Anticosti Island, QC, in summer 2014.

Birds that possibly are *percna* (i.e., have large bills) have been documented in Nova Scotia, New Brunswick, Québec (on the mainland and Magdalen Islands), and in New England (USA); these sightings may represent areas of irregular irruptions during years of food shortages in core areas of occurrence.



Global distribution of Red Crossbill (*percna* subspecies) (*Loxia curvirostra percna*) (solid black), which is endemic to Canada.

Habitat

All Red Crossbill forms are closely associated with cone-productive forests. Forms vary with respect to bill morphology, with each specialized to feed on particular conifer species. All large-billed crossbills, including *percna*, are pine forest associates. In Newfoundland, Red and White Pine stands likely represented a significant portion of important habitat for *percna* in the past; however, these native pines (particularly Red Pine) are currently rare on the Island and do not occur on Anticosti Island. Mature Black Spruce forests, and to a lesser extent Balsam Fir and White Spruce forests, historically and currently provide additional important habitat for *percna*. Throughout recent history, habitat conversion, forest harvesting, fire, insect damage, and fungal infestations have led to reductions in conifer seed abundance in Newfoundland. Cone consumption by Red Squirrels introduced to Newfoundland in 1963 is implicated as causing significant recent declines in cone availability. Recent projections by the Newfoundland and Labrador (NL) Department of Natural Resources indicate a significant increase in cone production on Newfoundland's Avalon Peninsula over the next two decades. However, a major Spruce Budworm outbreak is expected to occur in Newfoundland and Anticosti Island in the near future; such an outbreak could have a negative effect on cone availability, but may provide some food in the form of insect larvae and pupae.

Biology

All forms of Red Crossbill are dependent on conifer forests for the food resources they provide in the form of conifer seeds; availability of cones highly influences survival and breeding. Red Crossbills are irruptive and undertake movements across a range of spatial scales in search of sufficient cone crops, though some populations (possibly including *percna*) tend to exhibit more sedentary behaviour. Irrupting birds tend to be reasonably faithful to core breeding areas, to which some return within a few years of the irruption. Red Crossbills are monogamous, form pair bonds, nest in loose aggregations, and forage

in flocks. They have a flexible breeding strategy, can have multiple broods, and nest in colder months if conifer seeds are abundant. Other adaptations to extreme variability in conifer seed crops include sexual maturity at a relatively young age, accelerated succession of broods, and tolerance of repeated cooling and slow development of young when food is relatively scarce.

Population Sizes and Trends

Red Crossbills were once relatively common in Newfoundland but have been precipitously and continuously declining since the 1950s. Currently they are rare, with infrequent and erratic sightings on both formal and informal surveys. Numbers of *percna* comprising the recently confirmed population on Anticosti Island (which is probably breeding there) are unknown but are estimated to be in the high hundreds. The Canadian population of Red Crossbill *percna* is estimated to be in the low thousands (i.e., 1,000-2,500 mature individuals), based on recent bioacoustic analyses and localized systematic surveys targeting Red Crossbills, as well as data from Christmas Bird Counts, Breeding Bird Surveys, the Québec Breeding Bird Atlas, and anecdotal reports from birdwatchers. Much uncertainty is associated with this estimate because of relatively limited sampling (particularly in remote areas), difficulties associated with surveying irruptive birds, and the possibility that *percna* likely moves very large distances during times of food shortage.

Threats and Limiting Factors

Threats to *percna* are not clearly understood due to the general lack of information on the taxon in Newfoundland and Anticosti Island. Probable threats (from highest to lowest apparent/predicted impact) include: i) invasive, non-native species and problematic native species (i.e., competition

for food resources and nest predation by introduced Red Squirrels in Newfoundland, fungal infestations affecting native and non-native pines in Newfoundland, and insect outbreaks resulting in reduced cone production or tree mortality); ii) biological resource use (i.e., forest harvesting); iii) natural system modifications (i.e., forest fires and forest fire suppression); iv) transportation and service corridors (i.e., roadways); v) mining and quarrying; and vi) agriculture. At times, birds face starvation if cone crops fail across wide geographic areas; additional causes of mortality for *percna* are vehicle strikes and predation.

Protection, Status and Ranks

Red Crossbill *percna* has been listed as Endangered since 2004 under the federal *Species at Risk Act* and the NL provincial *Endangered Species Act*. It is also protected under the *Migratory Birds Convention Act*. It is considered At Risk in the General Status of Wild Species. NatureServe ranks Red Crossbill *percna* as nationally imperilled (N2) but has not ranked it provincially although it is recommended as S2 in Québec; Red Crossbill in general has been ranked as S2S3 for Newfoundland and S4 for Québec.

Source: COSEWIC. 2016. COSEWIC assessment and status report on the Red Crossbill *percna* subspecies *Loxia curvirostra percna* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiii + 62 pp.

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