

Ontario Species at Risk Evaluation Report for Harris's Sparrow (*Zonotrichia querula*)

Committee on the Status of Species at Risk in Ontario
(COSSARO)

Assessed by COSSARO as Data Deficient

November 2017

Final

Bruant à face noire (*Zonotrichia querula*)

Le bruant à face noire est le plus grand bruant d'Amérique du Nord, et le seul oiseau chanteur qui se reproduit exclusivement au Canada. Les femelles et les mâles prêts à la reproduction sont tachetés de brun et ornés de barres noires, et arborent un capuchon et une bavette noirs distinctifs et de minces lignes blanches sur les ailes. Après la période de reproduction, ils perdent leur capuchon noir et leur plumage devient plus drabé, phénomène d'exception chez les bruants. Le bruant à face noire niche dans les zones arbustives de la taïga subarctique, surtout dans le secteur couvrant le Nord du Manitoba, l'Ouest de la Saskatchewan et le Sud du Nunavut et des Territoires du Nord-Ouest. Il passe l'hiver dans les grandes plaines des États-Unis. Au Canada, le COSEPAC le considère comme une espèce préoccupante principalement en raison du long déclin enregistré dans leurs terres hivernales.

Il n'y a eu qu'une observation de nidification du bruant à face noire en Ontario, et elle date de 1983. Quelques autres occurrences possibles de nidification ont toutefois été enregistrées près de la baie d'Hudson, dans l'Extrême-Nord de la province. Il s'agit d'un secteur très éloigné, dont la couverture par les ornithologues amateurs ou professionnels est limitée. Le secteur présentant un potentiel de nidification est vaste, mais aucun nid n'y a été recensé. On ignore si la population nicheuse est régulièrement présente dans la province ou s'il s'agit seulement d'individus de passage, sortis de leur aire de répartition à l'ouest pour nicher de façon sporadique. À partir de cette information, il est impossible de déterminer si l'espèce est en déclin dans la province. C'est pourquoi le bruant à face noire a été classé dans la catégorie « Données insuffisantes » en Ontario.

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Executive summary

Harris's Sparrow is the largest North American sparrow and the only songbird that breeds exclusively in Canada. In breeding plumage, both males and females sport a distinctive black hood and bib, while the rest of the body is mottled brown with black streaks. They have thin white wing bars. The birds lose the black hood in the non-breeding season having a drabber plumage which is unusual for a sparrow. Harris's Sparrow breeds in the shrubby subarctic taiga mainly from northern Manitoba and northern Saskatchewan west to southern portions of Nunavut and the NWT. It winters in the Great Plains of the US. It has been designated as Special Concern in Canada by COSEWIC primarily due to long term demonstrated declines on their wintering grounds.

There is only a single confirmed breeding record of Harris's Sparrow from Ontario in 1983. In addition, a handful of other possible breeding occurrences have been recorded near Hudson Bay in the far north of the province. This area is very remote and coverage by birders or ornithologists has been limited. There is an extensive area of potentially suitable breeding habitat, but with very few records. It is uncertain if a regular breeding population occurs in the province or if the birds only represent occasional wanderers and sporadic breeders from their main range to the west. With current information, it is not possible to determine whether the species is declining in the province. Consequently Harris's Sparrow has been designated as Data Deficient in Ontario.

1. Eligibility for Ontario status assessment

1.1. Eligibility conditions

1.1.1. Taxonomic distinctness

Harris's Sparrow is one of five sparrows in the genus *Zonotrichia*. It is clearly distinct from the other *Zonotrichia* and any other North American sparrow.

1.1.2. Designatable units

There are no recognized subspecies and its breeding range is continuous from near the Ontario border westward. The few confirmed or possible breeding records in Ontario are all within the Hudson Bay Lowlands near the shore of Hudson Bay. As such, no designatable units are recognized in Ontario or Canada.

1.1.3. Native status

The species is certainly native to Canada and is a regular breeder just west of Ontario in Manitoba. The first and only confirmed breeding record in Ontario is from 1983 but there are several other records of birds in the breeding season in potentially suitable breeding habitat but without clear evidence of breeding. Harris's Sparrow is an uncommon but regular spring and autumn migrant through western Ontario (Thunder Bay Field Naturalists 2017, eBird 2017) but it is not known where those birds breed.

1.1.4. Occurrence

Harris's Sparrow has been recorded on the Hudson Bay lowlands in the breeding season as recently as 2015 (eBird 2017). Harris's Sparrow has been recorded on several other occasions during the breeding season in the Hudson Bay lowlands. In addition Harris's Sparrow is a regular spring and autumn migrant in western Ontario.

Although confirmed and even possible breeding records for this species are very few, this may be an artifact of insufficient search effort in an extremely remote part of the province rather than irregular occurrence in Ontario. Harris's Sparrow may be a very rare but regular breeder in the province, or it may be an erratic and occasional breeder at the edge of its range.

1.2. Eligibility results

Although there is little evidence to confirm that Harris's Sparrow (*Zonotrichia querula*) is native and naturally occurring in Ontario, an assumption is being made that the paucity of breeding records is an artifact of minimal observation effort and that the species is eligible for status assessment in Ontario.

2. Background information

2.1. Current designations

- GRANK: G5 (NatureServe 2016)
- NRANK Canada: N5
- COSEWIC: Special Concern (April 2017)
- SARA: No Status (No Schedule)
- ESA 2007: Not assessed
- SRANK: SNA (1995)

2.2. Distribution in Ontario

Harris's Sparrow's breeding range is peripheral to Ontario. The main evidence that this species breeds in the province comes from the two Ontario Breeding Bird atlases (Cadman 2007). There is one confirmed breeding record (Figure 1) from 1983 from near Fort Severn during the first atlas period (1981 to 1985) and four records considered as possible breeders (Figure 2) during the second atlas (2001 to 2005) (Cadman 2007). Another bird was reported near Burnt Point in the breeding season in 2015 by Douglas McRae (eBird 2017). It could not be confirmed if that individual was breeding or an offshoot migrant (D. McRae, pers. comm.). All records are from within 20 km of the Hudson Bay shoreline from as far east as Brant River, to the Manitoba border.

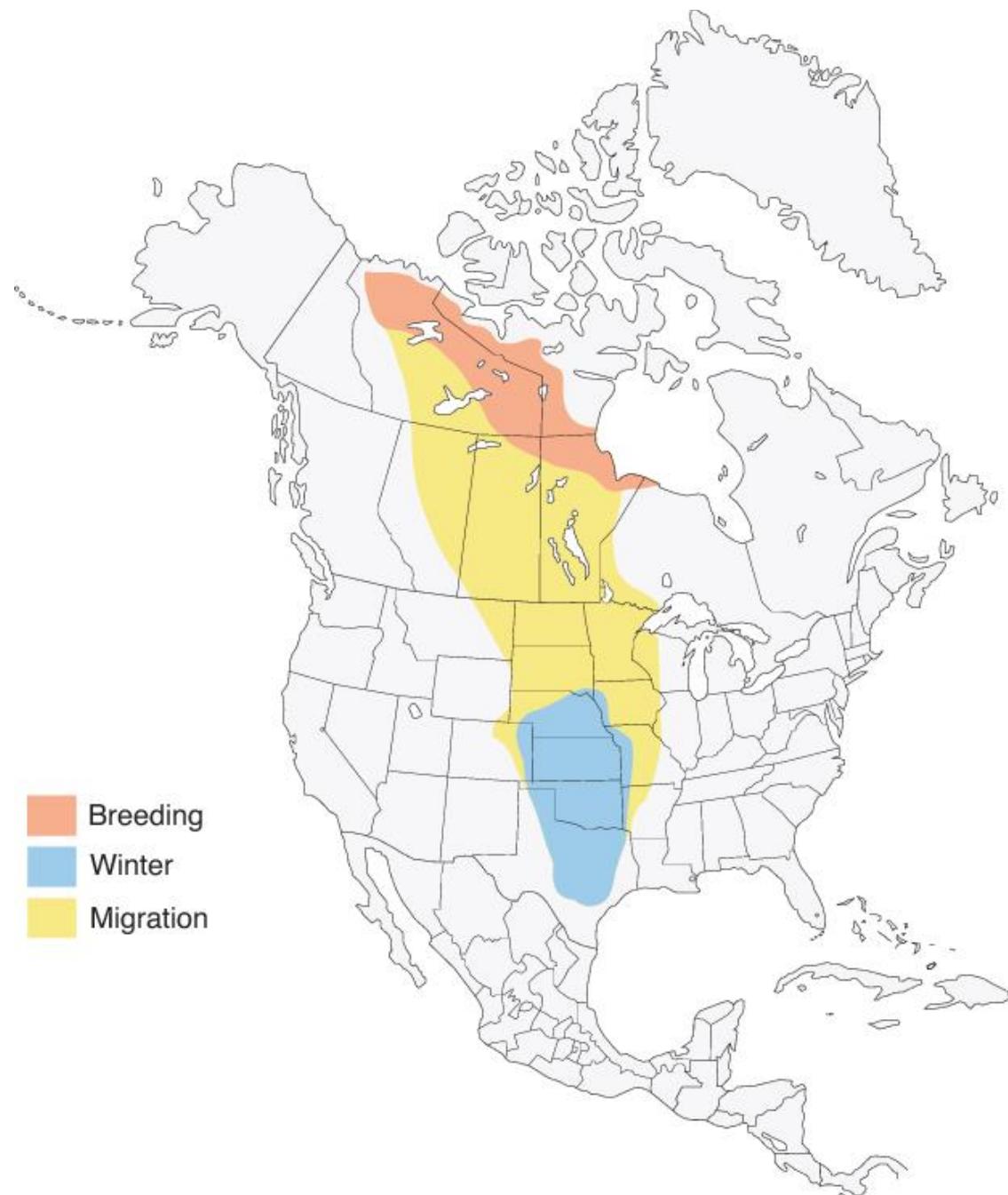


Figure 1. Global range of Harris' Sparrow from Birds of North America (Norment et al. 2016). Used with permission from Cornell Lab of Ornithology.

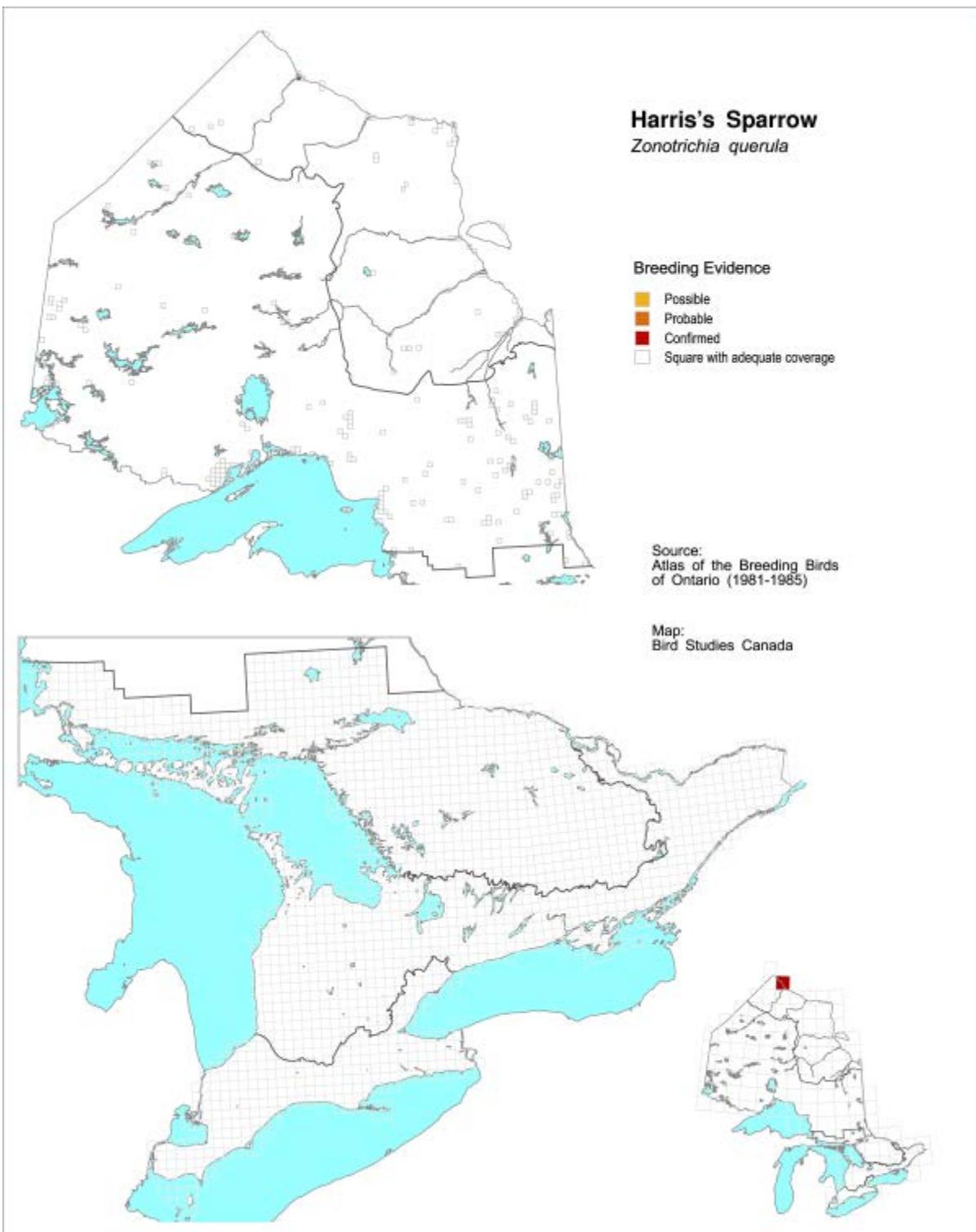


Figure 2. Record of confirmed breeding of Harris' Sparrow in Ontario from Atlas of the Breeding Birds of Ontario (1981-1985). Used with permission from Bird Studies Canada.

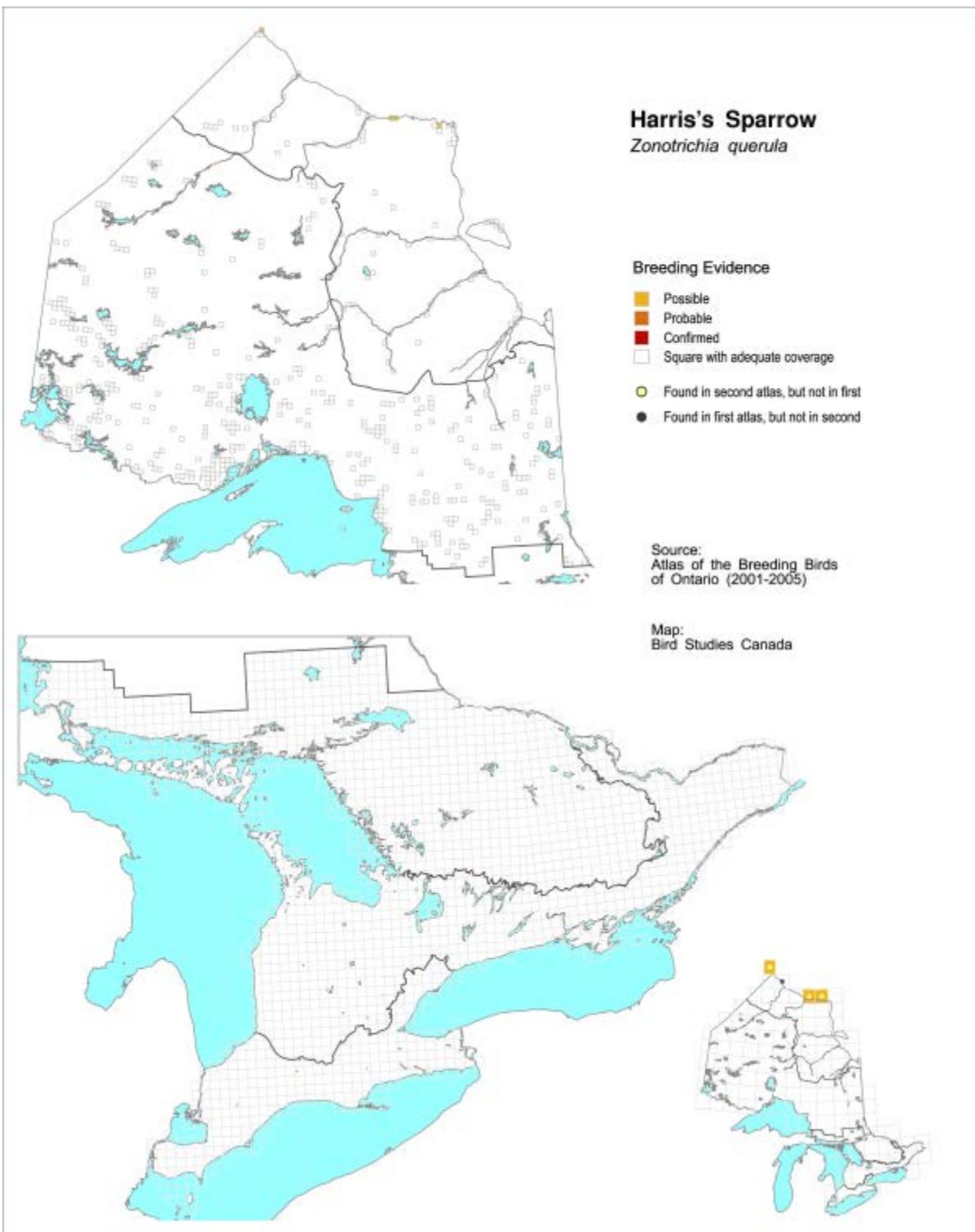


Figure 3. Records of possible breeding Harris' Sparrow in Ontario from Atlas of the Breeding Birds of Ontario (2001-2005). Used with permission from Bird Studies Canada.

2.3. Distribution and status outside Ontario

The main breeding range of Harris's Sparrow is from northern Manitoba, northeastern Saskatchewan, southern Nunavut northwest to the mouth of the Mackenzie River in the Northwest Territories. It winters in the Great Plains in the United States from South Dakota and western Iowa south to Texas, and from Arkansas west to eastern Colorado.

There is generally not sufficient data to determine population trends in the vast remote breeding area of northern Canada. However, although not quantitatively documented, Jehl (2004) has reported noticeable declines of Harris's Sparrow in the area around Churchill, Manitoba between the 1950s and the early 2000s. In addition data from Christmas Bird Counts on their wintering grounds in the central US show that Harris's Sparrow has experienced a statistically significant long-term decline of -2.58% per year over 35 years (1980 – 2014) or a total population decline of 59% over this period based on the National Audubon Christmas Bird Counts (COSEWIC 2017). Since the entire population breeds in Canada, the wintering population is reflective of the breeding population in Canada.

2.4. Ontario conservation responsibility

It is uncertain if Ontario has any conservation responsibility since if there is a regular breeding population it is likely to be very small. The provincial population is likely to be less than 1% of the range or population of the species. The global population of the Harris's Sparrow is estimated to be approximately 2,000,000 birds (Rosenberg *et al.* 2016).

2.5. Direct threats

The reasons for the overall population decline of Harris's Sparrow is not clear but causes may be more significant on their wintering range than on their breeding range. Pesticide use throughout the wintering grounds has been linked to declines in grassland birds generally and maybe affecting Harris's Sparrow as well, but there is no clear evidence to substantiate this potential threat on this species (Norment *et al.* 2016). The conversion of grassland to more intensive agricultural purposes in the Midwestern USA could be an important factor in the Harris's Sparrow's decline (Norment *et al.* 2016). On the summering ground, increased forest fires and climate change could affect portions of their range in some years (COSEWIC, 2017).

There are no obvious threats to Harris's Sparrows within their breeding range in Ontario since the region is very sparsely inhabited and there currently is no development happening there. Nevertheless the abundance of Harris's Sparrow has noticeably declined in the vicinity of Churchill, Manitoba between the 1950s the 1980s and again in the early 2000s (Jehl 2004).

A threats calculator was completed for Harris's Sparrow (COSEWIC, 2017) which relates to the entire Canadian breeding population, not specifically for Ontario. Housing development, roads and railroads, and predation by cats were all considered low threats on the wintering grounds (and negligible in breeding grounds). Oil and gas drilling, agriculture, utility corridors and forest fires were all ranked as unknown threats while

agricultural pesticides were identified as a high to low threat, again on the wintering grounds, but not on the breeding grounds.

2.6. Specialized life history or habitat use characteristics

Harris's Sparrow breeds in the taiga forest near the treeline. This is not a restricted habitat type and the bird is not particularly specialized.

3. Ontario status assessment

3.1. Application of endangered/threatened status in Ontario

3.1.1. Criterion A – Decline in total number of mature individuals

Insufficient Information. There are too few breeding records in the province to determine rates of decline or even if a regular breeding population is present.

3.1.2. Criterion B – Small distribution range and decline or fluctuation

Insufficient Information. There are too few breeding records in the province to determine if a regular breeding population is present.

3.1.3. Criterion C – Small and declining number of mature individuals

Insufficient Information. There are few breeding records in the province, which suggests that the population is very small; however, it is unknown if a regular breeding population is present.

3.1.4. Criterion D – Very small or restricted total population

Insufficient Information. Current information suggests that the provincial breeding population may meet this criterion because there are so few breeding records but surveying in breeding range has not been sufficient to truly determine their status.

3.1.5. Criterion E – Quantitative analysis

Insufficient Information. A Population Viability Analysis (PVA) has not been conducted.

3.2. Application of Special Concern in Ontario

Insufficient Information. Harris's Sparrow has been designated as Special Concern in Canada by COSEWIC (2017) largely based on documented declines on the wintering grounds in the US. Since there is not enough information to determine if the species qualifies under any of the above criteria as Endangered or Threatened, Special Concern cannot be applied either.

3.3. Status category modifiers

3.3.1. Ontario's conservation responsibility

If there is a regular breeding population of Harris's Sparrow in Ontario, it is likely to be less than 1% of the global population. Consequently Ontario's conservation responsibility for this species is minimal.

3.3.2. Rescue effect

Since the species is a very rare breeding species in Ontario but relatively common in Manitoba, rescue is possible from Manitoba. There appears to be a considerable area of potentially suitable breeding within the Hudson Bay Lowlands of Ontario.

3.4. Other status categories

3.4.1. Data deficient

Harris's Sparrow qualifies as Data Deficient because based on a single confirmed breeding record and a small number of possible breeding observations, it is uncertain if the species is a regular breeder in the province. Ontario lies at the edge of the known breeding range, and there are fairly extensive areas of what appears to be suitable breeding habitat. While there have been ornithological investigations in the remote Hudson Bay lowlands, the area is vast and inaccessible, therefore most of the region has not been adequately surveyed. Consequently it is plausible that a regular breeding population exists but with current information, Data Deficient seems to be the most appropriate designation.

3.4.2. Extinct or extirpated

Not Applicable.

3.4.3. Not at risk

Not Applicable.

4. Summary of Ontario status

Harris's Sparrow (*Zonotrichia querula*) is classified as Data Deficient in Ontario based on uncertainty of whether a regular breeding population is present in the province. COSEWIC has designated the species as Special Concern in Canada, but its status in Ontario cannot be determined with the data currently available.

5. Information sources

Bird Studies Canada, Environment Canada's Canadian Wildlife Service, Ontario Nature, Ontario Field Ornithologists and Ontario Ministry of Natural Resources. 2006. [Ontario Breeding Bird Atlas Website](#). [website accessed March 9, 2018].

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COSEWIC. 2017. [COSEWIC assessment and status report on the Harris's Sparrow *Zonotrichia querula* in Canada](#). Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 36 pp. ([Species at Risk Public Registry website](#)).

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Appendix 1: Technical summary for Ontario

Species: Harris's Sparrow (*Zonotrichia querula*)

Demographic information

Demographic attribute	Value
Generation time. Based on average age of breeding adult: age at first breeding = X year; average life span = Y years.	2 to 3 years
Is there an observed, inferred, or projected continuing decline in number of mature individuals?	Unknown
Estimated percent of continuing decline in total number of mature individuals within 5 years or 2 generations.	Unknown
Observed, estimated, inferred, or suspected percent reduction or increase in total number of mature individuals over the last 10 years or 3 generations.	Unknown
Projected or suspected percent reduction or increase in total number of mature individuals over the next 10 years or 3 generations.	Unknown
Observed, estimated, inferred, or suspected percent reduction or increase in total number of mature individuals over any 10 years, or 3 generations, over a time period including both the past and the future.	Unknown
Are the causes of the decline (a) clearly reversible, and (b) understood, and (c) ceased?	a. Unknown b. Unknown c. Unknown
Are there extreme fluctuations in number of mature individuals?	No

Extent and occupancy information in Ontario

Extent and occupancy attributes	Value
Estimated extent of occurrence (EOO).	At least 10 000 km ² (based on 1 confirmed and 3 probably breeding records in Breeding Bird Atlases)
Index of area of occupancy (IAO).	Unknown km ²
Is the total population severely fragmented? i.e., is >50% of its total area of occupancy is in habitat patches that are: (a) smaller than would be required to support a viable population, and (b) separated from other habitat patches by a distance larger than the species can be expected to disperse?	a. No b. No

Extent and occupancy attributes	Value
Number of locations	Unknown
Number of NHIC Element Occurrences	Not available
Is there an observed, inferred, or projected continuing decline in extent of occurrence?	No
Is there an observed, inferred, or projected continuing decline in index of area of occupancy?	No
Is there an observed, inferred, or projected continuing decline in number of populations?	No
Is there an observed, inferred, or projected continuing decline in number of locations?	No
Is there an observed, inferred, or projected continuing decline in [area, extent and/or quality] of habitat?	No
Are there extreme fluctuations in number of populations?	No
Are there extreme fluctuations in number of locations?	No
Are there extreme fluctuations in extent of occurrence?	No
Are there extreme fluctuations in index of area of occupancy?	No

Number of mature individuals in each sub-population or total population (if known)

Sub-population (or total population)	Number of mature individuals
Total	Unknown

Quantitative analysis (population viability analysis conducted)

Probability of extinction in the wild is unknown.

Threats

Low-High threat: Agricultural & forestry effluents (mainly on wintering grounds).

Low threats: Residential and commercial development (very limited in its Ontario breeding range), Roads and railroads (very limited in its Ontario breeding range), and Cat predation (very limited in its Ontario breeding range).

Rescue effect

Rescue effect attribute	Value
Status of outside population(s) most likely to provide immigrants to Ontario	Manitoba: S3S4B
Is immigration of individuals and/or propagules between Ontario and outside populations known or possible?	Yes

Rescue effect attribute	Value
Would immigrants be adapted to survive in Ontario?	Yes
Is there sufficient suitable habitat for immigrants in Ontario?	Yes
Are conditions deteriorating in Ontario?	No
Is the species of conservation concern in bordering jurisdictions?	Yes
Is the Ontario population considered to be a sink?	Unknown
Is rescue from outside populations likely?	Yes

Sensitive species

This is not considered a data sensitive species.

Appendix 2: Adjoining jurisdiction status rank and decline

Information regarding rank and decline for Harris's Sparrow
(*Zonotrichia querula*)

Jurisdiction	Subnational rank	Population trend	Sources
Ontario	SNA	Unknown	NatureServe 2017
Quebec	Not Present	Not applicable	NatureServe 2017
Manitoba	S3S4B	Unknown	NatureServe 2017
Michigan	Not Present	Not applicable	NatureServe 2017
Minnesota	Not Present	Not applicable	NatureServe 2017
Nunavut	SUB	Unknown	NatureServe 2017
New York	Not Present	Not applicable	NatureServe 2017
Ohio	Not Present	Not applicable	NatureServe 2017
Pennsylvania	Not Present	Not applicable	NatureServe 2017
Wisconsin	Not Present	Not applicable	NatureServe 2017

Acronyms

COSEWIC: Committee on the Status of Endangered Wildlife in Canada

COSSARO: Committee on the Status of Species at Risk in Ontario

ESA: Endangered Species Act

EO: Element occurrence (as defined by NHIC)

EOO: extent of occurrence

GRANK: global conservation status assessments

IAO: index of area of occupancy

MNRF: Ministry of Natural Resources and Forestry

NHIC: Natural Heritage Information Centre

NNR: Unranked

NRANK: National conservation status assessment

SARA: Species at Risk Act

SNA: not applicable

SNR: unranked

SRANK: subnational conservation status assessment

SUB: unrankable (breeding)

S1: Critically imperiled

S3: Vulnerable

S5: Secure

IUCN: International Union for Conservation of Nature and Natural Resources

CDSEPO: Le Comité de détermination du statut des espèces en péril en Ontario