

Ontario Species at Risk Evaluation Report for

Horned Grebe

(Podiceps auritus cornutus)

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

Assessed by COSSARO as Special Concern

April 2023

Final

Executive summary

The Horned Grebe (*Podiceps auritus*) is a small, duck-like, sometimes semi-colonial, waterbird. The breeding plumage has distinctive golden fan-shaped 'horns' behind the eyes contrasting with black facial feathers, chestnut neck and flanks, dirty white belly and dark-coloured back (Kirk 2014). It is a medium-distance migrant and returns to Ontario shortly after ice break-up in late March or early April (peaking in mid-April). Approximately 92% of the North American breeding range of the Horned Grebe is in Canada. It breeds in British Columbia, Yukon, the Mackenzie River Valley in the Northwest Territories, the extreme southern part of Nunavut, all of the Prairies, northwestern Ontario and the Magdalen Islands (Quebec), where a small, isolated population has been breeding for at least a century (Cadman et al 2007). The Horned Grebe breeds primarily in temperate zones such as the Prairies and Parkland Canada but can also be found in more boreal and subarctic zones. Estimates of populations in Ontario are complicated by remote locations of breeding areas (Hoar 2007), confusion with similar sympatric species, significant numbers of non-breeders in the population, and the retention of juvenile plumage well into Autumn (Kirk 2014). Long-term trend analyses based on Christmas Bird Counts show a significant decline of 1.5%/year between 1966 and 2005, or a decline of 45% since the mid-1960s (COSEWIC 2009), but recent evidence suggests a Canada-wide increase over the short-term of 78% (ECCC 2014). Threats include aquatic pollution, wetland loss, and climate change. Although recent evidence suggests that the population in Ontario may have stabilized or is increasing, there is a distinct lack of data to confirm this trend in the province. Given the protracted decline in the rest of Canada and the unknown effects of climate change to breeding areas, the Horned Grebe is best classified as Special Concern.

1. Eligibility for Ontario status assessment

1.1. Eligibility conditions

1.1.1. Taxonomic distinctness

The Horned Grebe is a distinct and well-described species. There are two subspecies: *Podiceps auritus cornutus* in North America and *Podiceps auritus auritus* in Europe and Asia. In Europe, the Horned Grebe is known as the Slavonian Grebe. On the basis of shared characteristics such as behavioural displays and the plumage pattern of the downy young, the Horned Grebe is believed to be more closely allied with the Red-necked Grebe *P. grisegena*, and Great Crested Grebe *P. cristatus* than the smaller grebe species (Storer 1963, 1969, Fjeldså 1973a, 1982).

1.1.2. Designatable Units

The Horned Grebe has one designatable unit in Ontario, the western Horned Grebe.

1.1.3. Native status

The Horned Grebe is native to both Canada and Ontario.

1.1.4. Occurrence

The Horned Grebe occurs in Ontario as both a migrant and a breeding bird.

1.2. Eligibility results

The Horned Grebe is eligible for assessment in Ontario.

2. Background information

2.1. Current designations

- GRANK: G5 (Secure)
- IUCN: Vulnerable (2018)
- NRANK Canada: N5B, N5N, N5M (Secure)
- COSEWIC: Special Concern (2009)
- SARA: Special Concern (2009)
- ESA 2007: Special Concern (2009)
- SRANK: S1B (Critically imperiled), S3N (Vulnerable), S4M (Apparently Secure)

2.2. Distribution in Ontario

The Horned Grebe is a relatively rare and irregular breeder in Ontario (Hoar 2007). Significant data is available from the Atlas of Breeding Birds of Ontario, 1981 and 1985 (Cadman et al. 1987), and the Atlas of Breeding Birds of Ontario, 2001 and 2005 (Cadman et al. 2007). During the first atlas, Horned Grebes were confirmed breeding in the Fort Severn sewage lagoons in the northwest, and possibly breeding in the St. Clair marshes and Rondeau Provincial Park marshes in the southwest (Eagles 1987). However, none of these sites were occupied in the second atlas when Horned Grebes were found nesting at Opasquia Provincial Park, Pikangikum Lake and the Rainy River sewage lagoons (Hoar 2007).

2.3. Distribution, status and the broader biologically relevant geographic range outside Ontario

Outside of Ontario the Horned Grebe’s status is similar to Ontario (e.g., in Manitoba, Minnesota, and Pennsylvania), or is unknown. The total population of the Western Horned Grebe is estimated at between 200 000 and 500 000 individuals, with most of the birds found in Saskatchewan and Alberta.

Table 1. Condition of the Species in Adjacent Jurisdictions and Broader Biologically Relevant Geographic Range

Adjacent Jurisdictions	Biologically Relevant to Ontario (n/a, yes, no)	Condition	Notes & Sources
Manitoba	Yes	S3B - Vulnerable	Natureserve 2023
Minnesota	Yes	S1B - Critically Imperiled	Natureserve 2023
Michigan	Yes	Not ranked	Natureserve 2023
Ohio	Yes	Not ranked	Natureserve 2023
Pennsylvania	Yes	S3N - Vulnerable, S4M – Apparently Secure	Natureserve 2023
New York	Yes	Not ranked	Natureserve 2023
Quebec	Yes	Not ranked	Natureserve 2023

2.4. Ontario conservation responsibility

Ontario’s conservation responsibility is moderate to low, with a significant number of migration locations and non-breeding detection, but a relatively small number of breeding pairs and individuals.

2.5. Direct threats

The primary direct threats to Horned Grebes in Canada are related to wetland drainage or losses, which could be driven by agricultural activity or rural development (Watmough et al., 2002), or potential impacts of climate change. Aquatic pollution may also drive

declines in some cases, but there are no records of this in Canada.

2.6. Specialized life history or habitat use characteristics

The Horned Grebe's entire life history is tied to water, and they are therefore dependent on water resources, both wetland and coastal, for their survival and persistence.

The Horned Grebe is a solitary nester (Palmer, 1962) and is known to aggressively defend its territory from conspecifics and other waterfowl species (Storer, 1969; Fjeldså, 1973a). Multiple breeding pairs may nest within the same pond when it large enough to permit multiple territories to be established and sufficient food resources are available (Fjeldså, 1973b; Sugden, 1977); however, these loose colonies have been found to not exceed 20 breeding pairs (Campbell et al., 1990).

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

Does not meet criterion – population decline <30%.

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

Does not meet criterion - Extent of Occurrence > 20,000 km² and Area of Occupancy > 2,000 km²

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

Does not meet the criterion – Although the population is unknown, it is likely to be above thresholds.

3.1.4. Criterion D – Very small or restricted total population

Does not meet the criterion - Although the population is unknown, it is likely to be above thresholds.

3.1.5. Criterion E – Quantitative analysis

Does not apply/inconclusive.

3.2. Application of Special Concern in Ontario

May apply. Although recent evidence suggests that the population in Ontario may have stabilized or is increasing, there is a distinct lack of data to confirm this trend in the province. Given the protracted decline in the rest of Canada and the unknown effects of

climate change to breeding areas, the Horned Grebe may warrant consideration as Special Concern.

3.3. Status Category Modifiers

3.3.1. Ontario's conservation responsibility

Ontario's conservation responsibility is moderate to low, with a significant number of migration locations and non-breeding detection, but a relatively small number of breeding pairs and individuals.

3.3.2. Status modification based on rescue effect or level of risk in broader biologically relevant range

Rescue effect is possible, as immigrants would be adaptable and there would be sufficient habitat. However, the status of populations in the broader biologically relevant range is the same or unknown.

3.4. Other status categories

3.4.1. Data deficient

Not applicable.

3.4.2. Extinct or extirpated

Not applicable.

3.4.3. Not at risk

Not applicable.

4. Summary of Ontario status

The Horned Grebe in Ontario is assessed as Special Concern.

This status of this species is consistent with the definition of Special Concern under the Endangered Species Act, 2007.

5. Information sources

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Appendix 1: Technical summary for Ontario

Species: Horned Grebe (*Podiceps auritus*)

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.	4 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, possibly increasing
Observed, estimated, inferred, or suspected percent reduction or increase in total number of mature individuals over the last 10 years or 3 generations.	Unknown, possibly increasing
Projected or suspected percent reduction or increase in total number of mature individuals over the next 10 years or 3 generations.	Unknown, possibly increasing
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, possibly increasing
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). <i>If value in COSEWIC status report is not applicable, then use geocat.kew.org. State source of estimate.</i>	1,103,666 km ² Based on GeoCat estimate that includes observations collected during migration.
Index of area of occupancy (IAO). <i>If value in COSEWIC status report is not applicable, then use geocat.kew.org. State source of estimate.</i>	1,396 km ² Based on GeoCat estimate.
Is the total population severely fragmented? i.e., is >50% of its total area of occupancy is in habitat patches that are:	a. No b. No

Extent and occupancy attributes	Value
(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?	
Number of locations. <i>See Definitions and Abbreviations on COSEWIC and IUCN websites for more information on the term "location". Use plausible range to reflect uncertainty if appropriate.</i>	4 (Based on confirmed breeding locations in the second Ontario Breeding Bird Atlas)
Number of NHIC Element Occurrences <i>Request data from MNR.</i>	None. NHIC only establishes Element Occurrences for confirmed breeding sites of this species.
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 sub-populations or EOs?	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
Ontario	Unknown

Rescue effect

Rescue effect attribute	Value
Does the broader biologically relevant geographic range for this species extend beyond Ontario?	Yes
Status of outside population(s) most likely to provide immigrants to Ontario	Vulnerable (MB)

Rescue effect attribute	Value
Does the broader biologically relevant geographic range for this species extend beyond Ontario?	Yes
Is immigration of individuals and/or propagules between Ontario and outside populations known or possible?	Yes
Would immigrants be adapted to survive in Ontario?	Yes
Is there sufficient suitable habitat for immigrants in Ontario?	Yes
Are conditions deteriorating in Ontario?	Unknown
Is the species of conservation concern in bordering jurisdictions?	Yes – in some jurisdictions.
Is the Ontario population considered to be a sink?	No
Is rescue from outside populations likely?	Unknown

Sensitive species

No.

Acronyms

APP: Algonquin Provincial Park

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

IUCN: International Union for Conservation of Nature and Natural Resources

MNRF: Ministry of Natural Resources and Forestry

NHIC: Natural Heritage Information Centre

NNR: Unranked

NRANK: National conservation status assessment

SARA: Species at Risk Act

SNR: unranked

SRANK: subnational conservation status assessment

S1: Critically Imperiled

S2: Imperiled

S3: Vulnerable

S4: Apparently Secure

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