Ontario Species at Risk Evaluation Report for

Hudsonian Godwit

Barge hudsonienne

Che-chish-kae-wainae

(*Limosa haemastica*)

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

Assessed by COSSARO as Threatened

October 2020

Barge Hudsonienne *(Limosa haemastica)*

La barge hudsonienne est un gros oiseau de rivage de la famille des bécasseaux, pourvu d'un long bec bicolore légèrement retroussé vers le haut. Les basses terres de la baie d'Hudson de l'Ontario et du Manitoba sont une de ses trois seules aires de reproduction connues. Elle niche également dans le delta du Mackenzie, dans les Territoires du Nord-Ouest, et à quatre endroits en Alaska.

La barge hudsonienne a l'une des plus longues migrations de tous les oiseaux de rivage d'Amérique du Nord. Elle parcourt environ 32 000 km aller-retour chaque année entre ses aires de reproduction et ses zones d'hivernage, en Amérique du Sud. La population mondiale totale serait de moins de 77 000 individus, selon les estimations.

Des relevés exhaustifs réalisés dans les zones d'hivernage de la barge hudsonienne révèlent un déclin rapide. Ce déclin explique le statut d'espèce menacée en Ontario qui a fait suite à l'évaluation.

Cette publication hautement spécialisée «COSSARO Candidate Species at Risk Evaluation for Hudsonian Godwit» *n'est disponible qu'en anglais conformément au Règlement 671/92, selon lequel il n'est pas obligatoire de la traduire en vertu de la Loi sur les services en français. Pour obtenir des renseignements en français, veuillez communiquer avec le ministère l'Environnement, de la Protection de la nature et des Parcs au cossarosecretariat@ontario.ca.*

Executive summary

The Hudsonian Godwit is a large shorebird in the sandpiper family with a long, slightly upturned bicolored bill. The Hudson Bay lowlands of Ontario and Manitoba are one of only three known breeding areas. It also breeds in the Mackenzie Delta in the Northwest Territories and four sites in Alaska.

Hudsonian Godwit has one of the longest migrations of any North American shorebird. It travels approximately 32,000 km round trip annually between its breeding areas and wintering grounds in South America. The total global population is estimated to be fewer than 77,000 individuals.

Based on comprehensive surveys on the wintering grounds Hudsonian Godwit has been rapidly declining. It is because of this decline that this shorebird is assessed as Threatened in Ontario.

1. Eligibility for Ontario status assessment

1.1. Eligibility conditions

1.1.1. Taxonomic distinctness

Hudsonian Godwit is a distinct monotypic species (Walker, 2020).

1.1.2. Designatable units

Although there is some evidence that the eastern and western subpopulations could qualify as separate designatable units, this evidence is preliminary, and it is currently considered a single population in Canada (COSEWIC, 2019).

1.1.3. Native status

Hudsonian Godwit considered is native to Ontario.

1.1.4. Occurrence

Hudsonian Godwit currently occurs in Ontario with many recent observations.

1.2. Eligibility results

Hudsonian Godwit (*Limosa haemastica*) is eligible for status assessment in Ontario.

2. Background information

2.1. Current designations

- GRANK: G4 (NatureServe 2020)
- IUCN: Least Concern (October 2016)
- NRANK Canada: N3N4B,N4N5M
- COSEWIC: Threatened (May 2019)
- SARA: Not on Schedule 1 (under consideration for addition)
- ESA 2007: None, first assessment
- SRANK: S3BS4N (ranked in 2017)

2.2. Distribution in Ontario

In Ontario the Hudsonian Godwit only breeds along the coast of James Bay. It has been detected during the breeding season in large fens 40-50 km inland from the coast, and occasionally as much as 100 km inland (Sutherland, Ontario Natural Heritage Information Centre, pers. comm.).

In the last Ontario breeding bird atlas it was detected from approximately 50 atlas squares in this area (Cadman, 2007). This bird is difficult to survey on its nesting ground because of the remote and inaccessible habitats. While the exact number of locations is not known, it is certainly over 10.

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

Hudsonian Godwit is a long-distance migrant that breeds in the three regions: Hudson Bay Lowlands, Mackenzie Delta and at several sites in Alaska. It overwinters in the southernmost regions of South America.

It is considered secure globally (G4) and Least Concern on the IUCN Red List but was assessed as Threatened in Canada. The difference between the global and Canadian status is because the western population (i.e. including Alaska) appears to be stable, while the eastern population is declining. (COSEWIC, 2019)

The Hudson Bay Lowland sub-population appears to have limited interaction with the western sub-populations. Birds from the Hudson Bay Lowland overwinter in Tierra del Fuego (Argentina and Chile) and southern Patagonia (Argentina). Individuals from the Mackenzie Delta overwinter along the north coast of Argentina, centered around Samborombon Bay, and Alaskan breeders overwinter on Chiloe Island and adjacent mainland Chile.

Migrants from all breeding subpopulations appear to follow similar migratory routes including a major stopover along the James Bay coast during the fall migration. In the spring the migration route is through the Great Plains, but it appears that the Alaskan birds migrate a few weeks earlier than those breeding in Canada. In addition, there is also evidence of genetic divergence observed between the Hudson Bay Lowlands and Mackenzie Delta breeding subpopulations. For these reasons only the subpopulation in Manitoba is considered to be the primary contributor to the broader biologically relevant geographical range for the Ontario subpopulation, although it is possible there is some exchange with the Mackenzie Delta and Alaska populations.

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
Quebec	No	S3M	Migrant only
Manitoba	Yes	S2S3B	
Michigan	No	SNRM	Migrant only
Minnesota	No	SNRM	Migrant only
Nunavut	No*	S3M, S3B	
New York	No	SNRM	Migrant only
Ohio	No	SNA	Migrant only
Pennsylvania	No	SNA	Migrant only

Adjacent Jurisdictions	Biologically Relevant to Ontario (n/a, yes, no)	Condition	Notes & Sources
Wisconsin	No	SNA	Migrant only
Northwest Territories	No*	S2S4B	MacKenzie Delta
Alaska	No*	S2S3B	Populations in western North America appear to be more stable.
Other			

*breeds in these jurisdictions

2.4. Ontario conservation responsibility

The total global population is approximately 77,000 (COSEWIC, 2019). The Ontario population is estimated to be between 2500-5000 mature individuals (Burrell, Ontario Natural Heritage Information Centre, pers. comm.), or 3-6% of the global population. The Ontario population estimate is based on observed densities and the estimated area of suitable habitat (Burrell, Ontario Natural Heritage Information Centre, pers. comm.).

However, during the fall migration up to 20% of the world's population of Hudsonian Godwit congregate in the Albany River Estuary and Associated Coastline Important Bird Area (BirdLife International, 2020). Congregations are also known in other locations along this coast.

2.5. Direct threats

Hudsonian Godwit faces numerous threats throughout its annual cycle. Climate change and severe weather and natural system modifications are ranked as the highest threats (COSEWIC, 2019). Climate change may cause flooding of nesting habitats due to sea level rise, increase the growth of shrubs and result in increased phenological mismatches. Hudsonaian Godwit also nest in areas with hyperabundant Snow Geese (*Chen caerulescens*) which can potentially degrade habitats due to overgrazing. It is also impacted by loss of habitat and disturbance some of its stopover sites and on the wintering grounds in South America. These threats all apply to the Ontario population.

2.6. Specialized life history or habitat use characteristics

Hudsonian Godwit is a long-distance migrant that relies on a small number of high-quality stopover sites. It could be vulnerable to phenological mismatches during its migration and breeding period. Hudsonian Godwit congregate in large numbers at staging and stopover sites, and during the overwintering season in South America increasing their vulnerability to natural disturbance events and hunting.

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

Endangered. A2b. Between 2002 to 2018 (just longer than two generations) there was an annual decline of -4.08% (95% CI -6.19 to -2.14), a rate equivalent to -61.6% over three generations (23 years; 95% CI -77.0, -39.2) based on comprehensive surveys of the major wintering areas in Tierra del Fuego.

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

Does not apply. Both the extent ot occurrence (47,287 km^2) and index of area of occupancy (5000 km^2) exceed the threholds.

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

Threatened.C1 The Ontario population is estimated at 2500-5000 mature individuals and under the threholdhold of 10,000. Based on observed declines on the wintering grounds of 4.08% the population will continue to decline by over 10% in three generations.

3.1.4. Criterion D – Very small or restricted total population

Does not apply. The Ontario population exceeds 1000 mature individuals

3.1.5. Criterion E – Quantitative analysis

Insufficient information. A quantatative analysis has not been conducted.

3.2. Application of Special Concern in Ontario

Does not apply.

3.3. Status category modifiers

3.3.1. Ontario’s conservation responsibility

Not applied. However, during the fall migration over one-quarter of the world’s population may occur in Ontario based on observations from Albany River Estuary and Associated Coastline and other Important Bird Areas along the James Bay Coast.

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

Threatened. There is some uncertainty as to the metapopulation dynamics between the three primary breeding locations. Although only the Manitoba portion of the Hudson Bay Lowlands sub-population is considered to clearly be a component of the broader biologically relevant geographical range for this species in Ontario, some exchange may occur during migration and at the wintering grounds from the western populations which

are declining at a slower rate or appear to be stable. The definition of Threatened is also consistent with the level of risk for this species in Ontario.

3.4. Other status categories

3.4.1. Data deficient

Does not apply.

3.4.2. Extinct or extirpated

Does not apply.

3.4.3. Not at risk

Does not apply.

4. Summary of Ontario status

As the final step in the assessment process, evaluate whether the status category suggested by the application of the criteria is consistent with the definition of the status category defined under the Endangered Species Act, 2007.

Key definitions from ESA, 2007:

***Extinct**: A species shall be classified as an extinct species if it no longer lives anywhere in the world.*

***Extirpated:** A species shall be classified as an extirpated species if it lives somewhere in the world, lived at one time in the wild in Ontario, but no longer lives in the wild in Ontario.*

***Endangered**: A species shall be classified as an endangered species if it lives in the wild in Ontario but is facing imminent extinction or extirpation.*

***Threatened**: A species shall be classified as a threatened species if it lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening to lead to its extinction or extirpation.*

***Special Concern**: A species shall be classified as a special concern species if it lives in the wild in Ontario, is not endangered or threatened, but may become threatened or endangered because of a combination of biological characteristics and identified threats.*

Hudsonian Godwit (*Limosa haemastica*) is classified as Threatened in Ontario based on meeting criterion for A2b. It meets the threshold for Endangered, but this status is modified because of some uncertainty to the metapopulation dynamics between the three primary breeding locations which could result in a rescue effect.

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

5. Information sources

BirdLife International. (2020). Important Bird Areas factsheet: Albany River Estuary and Assoc. Coastline. Retrieved from http://www.birdlife.org

Cadman, M. D. (2007). *Atlas of the breeding birds of Ontario, 2001-2005*: Birds Study Canada.

COSEWIC. (2019). *COSEWIC assessment and status report on the Hudsonian Godwit Limosa haemastica in Canada*. Ottawa Retrieved from https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html

Walker, B. M., N. R. Senner, C. S. Elphick, and J. Klima. (2020). Hudsonian Godwit (Limosa haemastica). *version 1.0. In Birds of the World.* Retrieved from https://doi.org/10.2173/bow.hudgod.01

Appendix 1: Technical summary for Ontario

Species: Hudsonian Godwit (*Limosa haemastica*)

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.	7.7 – 8.7 years
Is there an observed, inferred, or projected continuing decline in number of mature individuals?	Yes based on observations from North American Migration Survey.
Estimated percent of continuing decline in total number of mature individuals within 5 years or 2 generations.	45.8% (based on annual decline of 4.08%)
Observed, estimated, inferred, or suspected percent reduction or increase in total number of mature individuals over the last 10 years or 3 generations.	Between 2002 to 2018 (just longer than two generations) there was an annual decline of -4.08% (95% CI -6.19 to -2.14), a rate equivalent to -61.6% over three generations (23 years; 95% CI -77.0, -39.2) based on comprehensive surveys of the major wintering areas in Tierra del Fuego.
Projected or suspected percent reduction or increase in total number of mature individuals over the next 10 years or 3 generations.	61.6% reduction inferred Between 2002 to 2018 (just longer than two generations) there was an annual decline of -4.08% (95% CI -6.19 to -2.14), a rate equivalent to -61.6% over three generations (23 years; 95% CI -77.0, -39.2) based on comprehensive surveys of the major wintering areas in Tierra del Fuego.
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.	Projected further decline of 10-70% over three generations, based on result of high impact from

Demographic attribute	Value
	the threats calculator (Canadian population)
Are the causes of the decline (a) clearly reversible, and (b) understood, and (c) ceased?	a. No b. Yes, in part c. No
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). *If value in COSEWIC status report is not applicable, then use geocat.kew.org. State source of estimate.*	47, 287 km^2
Index of area of occupancy (IAO). *If value in COSEWIC status report is not applicable, then use geocat.kew.org. State source of estimate.*	5000 km^2 Based on approximately 50 10 km^2 atlas squares
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
Number of locations. *See Definitions and Abbreviations on COSEWIC and IUCN websites for more information on the term "location". Use plausible range to reflect uncertainty if appropriate.*	Unknown, likely over 10
Number of NHIC Element Occurrences *Request data from MNRF.*	8, but actually number much higher
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?	Yes, decline in quality of habitat observed on wintering grounds and inferred/projected on

Extent and occupancy attributes	Value
	breeding grounds due to drying of wetlands
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
Hudson Bay Lowlands *Ontario*	19,900 – 28,700 *2,500-5,000 (estimated)*

Quantitative analysis (population viability analysis conducted)

Probability of extinction in the wild is unknown.

Threats

A threats calculator was completed for this species by COSEWIC (COSEWIC, 2019).

The overall threat of high impact based on:

i. Climate change and severe weather (low to medium impact threat) ii. Natural system modifications (low to medium impact threat) iii. Residential and commercial development (low impact threat) iv. Agriculture and aquaculture (low impact threat) v. Human intrusions and disturbance (low impact threat) vi. Invasive and other problematic species and genes (low impact threat) vii. Pollution (low impact threat).

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	Manitoba S2S3B
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

Rescue effect attribute	Value
Does the broader biologically relevant geographic range for this species extend beyond Ontario?	Yes
Is there sufficient suitable habitat for immigrants in Ontario?	Yes
Are conditions deteriorating in Ontario?	Possibly
Is the species of conservation concern in bordering jurisdictions?	Yes
Is the Ontario population considered to be a sink?	No
Is rescue from outside populations likely?	Possibly

Sensitive species

No

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
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