

**Ontario Species at Risk Evaluation Report for
American White Pelican
Pélican d'Amérique
Zhede (Ojibwe)
(*Pelecanus erythrorhynchos*)**

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

Assessed by COSSARO as Special Concern

April 2024

Final

Executive summary

American White Pelican (*Pelecanus erythrorhynchos*) is one of two pelican species present in North America. The core of the population occurs further west in the midwestern United States and Canadian Prairies. The Ontario population is part of the eastern extreme of the species' distribution. American White Pelican was previously assessed as Threatened in Ontario due to a small population size and very few locations. American White Pelican forms large colonies at relatively few locations, making it particularly vulnerable to threats such as disease or habitat change, which can impact all individuals at the location. Since the previous assessment in 2009, Ontario's population has grown with the establishment of multiple new breeding locations.

American White Pelican has been assessed and is classified as Special Concern in Ontario. The increase in population size and number of locations means that the species no longer meets the criteria for Threatened. However, the species is close to meeting Criterion B and its tendency to form large colonies at few locations makes it vulnerable to becoming Threatened if threats such as disease and habitat loss occur in the future. This status differs from COSEWIC (Not at Risk), reflecting the much smaller population present in Ontario compared to Canada as a whole.

1. Eligibility for Ontario status assessment

1.1. Eligibility conditions

1.1.1. Taxonomic distinctness

American White Pelican is a taxonomically distinct species, one of eight species within its genus and two present in North America.

1.1.2. Designatable units

The Ontario population of American White Pelican is considered a single Designatable Unit.

1.1.3. Native status

American White Pelican is native to Ontario.

1.1.4. Occurrence

Individual American White Pelicans are regularly observed across much of Ontario and observations of significant breeding sites at Lake of the Woods and Lake Nipigon date back to the early 20th century (Ratcliff 2005; American White Pelican Recovery Team 2011).

1.2. Eligibility results

American White Pelican (*Pelecanus erythrorhynchos*) is eligible for status assessment in Ontario.

2. Background information

2.1. Current designations

- GRANK: G4 (NatureServe 2022)
- IUCN: Least Concern (2016)
- NRANK Canada: N5B,N5M (NatureServe 2022)
- COSEWIC: Not at Risk (April 1987)
- SARA: Not at Risk
- ESA 2007: Threatened (2009)
- SRANK: S3B,S4M (ranked in 2020)

2.2. Distribution in Ontario

American White Pelican is present in Ontario as a summer breeding migrant, with occasional observations of anomalous overwintering behaviour in the south of the province (American White Pelican Recovery Team 2011). Prior to 1994, recorded

breeding colonies were limited to Lake of the Woods, first breeding record in 1938 although presence observed as early as 1775 (Peck and James 1983), and Lake Nipigon, first observed in 1979 and first breeding record in 1991 (Bryan 1991). Since 1994, American White Pelican has established three new breeding localities in Ontario: Lake Superior North Shore, first observed 2007 (Pekarik et al. 2009); Lac Seul, breeding first attempted in 2009 and first successful in 2012 (NHIC data); and Lake Erie, first records of breeding attempts in 2016 but successful production of offspring is unconfirmed.

Including all NHIC records for the above observations provides an EOO of 267,453 km² and IAO of 68 km² (Figure 1). Excluding the recent attempts to establish breeding colonies on Lake Erie reduces these figures to 76,782 km² and 60 km² respectively. The number of locations for breeding colonies varies between 4 and 12 depending on whether recent Lake Erie breeding attempts are included and whether location is defined at the level of individual colonies or watersheds. The minimum of 4 locations was reached after excluding recent Lake Erie observations and defining locations by the lake occupied by remaining colonies: Lake of the Woods, Lac Seul, Lake Nippigon, and Lake Superior North Shore. The maximum estimate of 12 locations was reached with the inclusion of recent Lake Erie breeding attempts and defining each individual breeding colony as a location. NHIC reports 14 element occurrences for American White Pelican breeding colonies.

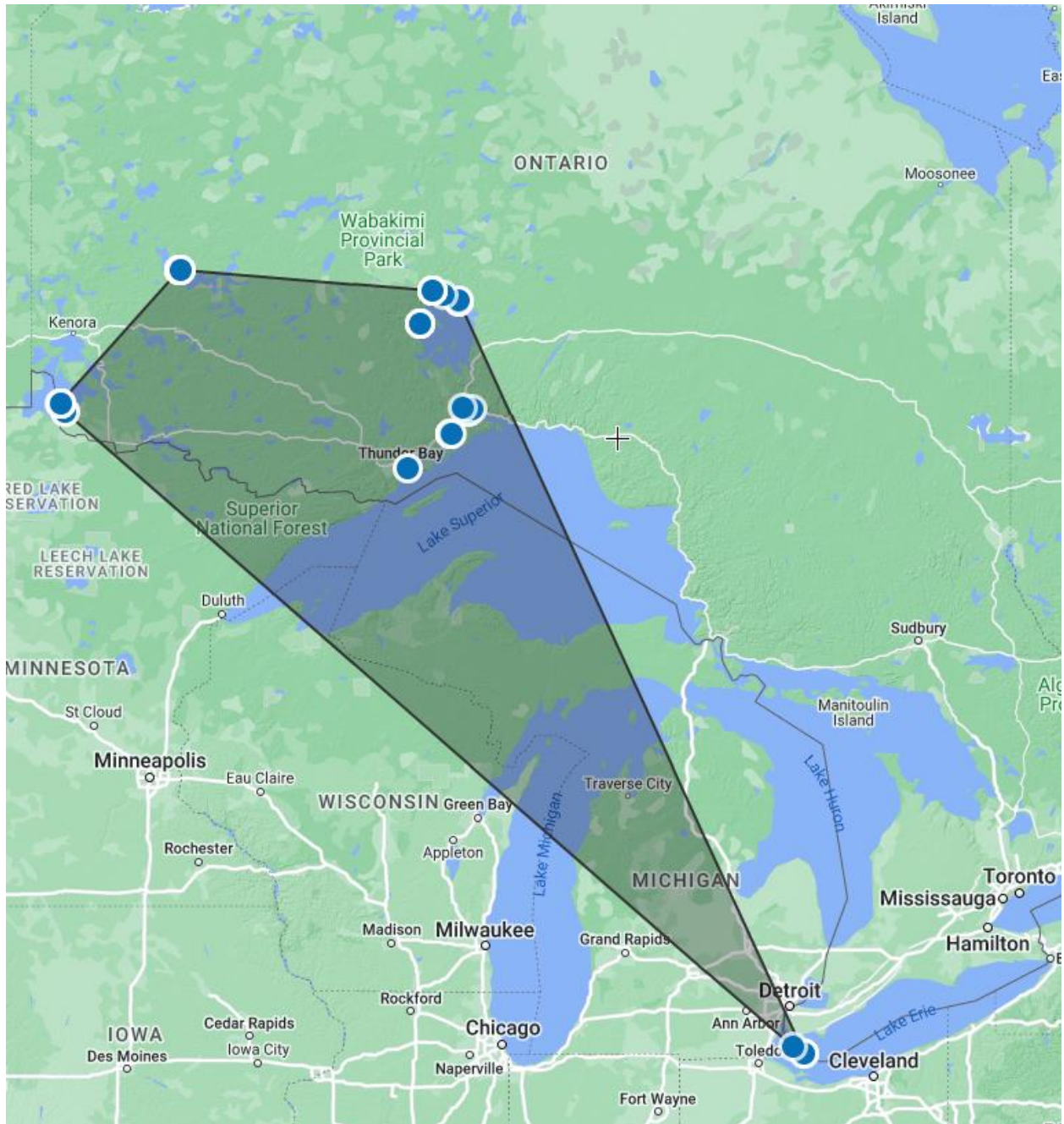


Figure 1. NHIC Confirmed breeding observations for American White Pelican, linked to Element Occurrences, since 1994. Created for this report using [GeoCAT](#) [website accessed November 06, 2022].

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

American White Pelican is a widely distributed North American species, present throughout much of Canada and the United States. The continental population is biased to the west, with Ontario among the northeastern extent of the breeding range. The

species is migratory, with summer breeding ranges concentrated in the Canadian prairie provinces and patches of the western United States, and birds travelling south to overwinter in the southern United States and Mexico. The continental population is considered to have Eastern and Western metapopulations separated by the Continental Divide (Anderson and King 2005), although occasional movement of individuals across the divide does occur and there is no genetic differentiation (Anderson and Anderson 2005; Reudink et al. 2011).

Ontario's population of breeding American White Pelican is the eastern tip of the species' stronghold reproductive populations in Canada's prairie provinces. These populations, along with some breeding sites in the United States, comprise the summer range of the eastern metapopulation. Individual site-fidelity to breeding colonies is unstudied, however, genetic evidence suggests genetic homogeneity across the species' range and therefore high levels of dispersal (Reudink et al. 2011). The latter may be associated with high variability of the suitability of breeding sites, e.g. differing water levels between years, that drives fluctuating colony sizes and regular redistribution of individuals between them (American White Pelican Recovery Team 2011).

Drawing from the above factors, the BBRGR for Ontario's American White Pelican population can be considered as the breeding population east of the North American Continental Divide. Overall, the continental population of American White Pelican has been a conservation success story: following early 20th century declines resulting from persecution and disturbance, the introduction of legal protections to the birds and their breeding habitat resulted in a remarkable rebound (American White Pelican Recovery Team 2011). The overall population has increased from an estimated 30,000 individuals in 1933 (Thompson 1933) to 134,000 in 2005 (King and Anderson 2005). The eastern metapopulation accounts for most of these numbers.

However, despite the notable recovery of population numbers, the situation for American White Pelican remains complex. Despite the relatively large breeding range, the species is limited to relatively few breeding locations due to its tendency to form large congregations at individual colonies. Notably, four locations distributed across Montana, North and South Dakota, and Minnesota appear to account for almost 50% of the continental population (Sovada et al. 2008). The high concentration of individuals at few locations means that the larger population remains vulnerable to stochastic events affecting birds in these areas. This risk was illustrated in the mid-2000s when the four aforementioned locations became impacted by West Nile virus: chick mortality increased from $\leq 4\%$ in 2002 to a maximum of 44% following the arrival of the virus (Sovada et al. 2008).

The current status of American White Pelican in the four states described by Sovada et al. (2008) as containing almost 50% of the continental population varies from vulnerable to imperiled, where ranked. Elsewhere, the species is considered Secure or Apparently Secure in the prairie provinces that account for the majority of the Canadian population, and varies between Vulnerable and Critically Imperiled elsewhere in the international range.

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	n/a	-	-
Manitoba	Y	S4	(Natureserve 2022)
Michigan	n/a	-	-
Minnesota	Y	S3	(Natureserve 2022) High mortality in mid-2000's associated with West Nile virus (Sovada et al. 2008)
Nunavut	Y	S1	(Natureserve 2022) No known breeding colonies
New York	Y	SRN	(Natureserve 2022)
Ohio	n/a	-	-
Pennsylvania	n/a	-	-
Wisconsin	Y	S4	(Natureserve 2022)
<i>Other Relevant Jurisdiction</i>	North Dakota South Dakota Montana	SNR S2 S3	(Natureserve 2022) High mortality in mid-2000's associated with West Nile virus (Sovada et al. 2008)

2.4. Ontario conservation responsibility

The Ontario population of American White Pelican accounts for less than 25% of the global range and population

2.5. Direct threats

American White Pelican is vulnerable to disease, changes in water level at their nesting sites, pollution, and human disturbance. The species is impacted by various diseases, with the most recent threat being Highly Pathogenic Avian Influenza (HPAI). Changes in water level may flood or expose their nests, and as shoreline nesters they are vulnerable to pollution in the lakes they occupy. American White Pelican is highly sensitive to human disturbance, which may cause temporary or permanent nest abandonment and chick mortality.

A threat calculator completed by COSSARO in November 2022 found an overall threat impact of medium based on the following threats:

- Energy production and mining: low; Ontario's population is exposed to oil spills in the Gulf of Mexico during overwintering.
- Human intrusions and disturbance: low; while intentional persecution occurs elsewhere in the species range it is not known in Ontario where only low levels of unintentional human disturbance are recorded.

- Natural systems modifications: negligible; the species is vulnerable to water level changes, but Ontario locations appear highly robust.
- Invasive & other problematic species & genes: medium; American White Pelican is vulnerable to various disease included avian botulism (15–20% mortality in western metapopulation), Newcastle disease (up to 90% mortality in isolated cases), West Nile virus (>40% mortality in US), and HPAI.

2.6. Specialized life history or habitat use characteristics

American White Pelican is colonial, with the population concentrated at a small number of locations. This makes them unusually vulnerable to disease.

2.7. Existing Conservation and Recovery Actions

American White Pelican has been protected in Ontario since 1997, and along with protections under the ESA is also listed as a Specially Protected Bird under the *Fish and Wildlife Conservation Act, 1997*.

A provincial Recovery Strategy and Government Response Statement for American White Pelican were produced in 2011. A review of progress was published in 2016.

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 apply. Ontario's population has increased notably within the last three generations. Mortality due to HPAI have occurred, but there are insufficient data to estimate long-term rate of decline.

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

Does not apply. Species' IAO meets the threshold for Endangered (B2). However, subcriteria are not met.

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

Does not apply. Ontario population exceeds thresholds.

3.1.4. Criterion D – Very small or restricted total population

Does not apply. Ontario population exceeds thresholds.

3.1.5. Criterion E – Quantitative analysis

Does not apply. No analysis has been conducted.

3.2. Application of Special Concern in Ontario

Applies. The species is near to meeting thresholds under criterion B, and could become Threatened if threats such as Highly Pathogenic Avian Influenza or other factors continue to affect the Ontario population.

3.3. Status category modifiers

3.3.1. Ontario's conservation responsibility

Does not apply. Species is not globally threatened.

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

Does not apply. Status is vulnerable–imperilled in US states containing more than 50% of the population, but apparently secure–secure in provinces containing the bulk of the Canadian population; jurisdictions containing the eastern population, which can be considered the BBRGR, tend to have higher rankings (S1–4). Populations throughout the BBRGR face the same threats.

3.3.3. Rescue Effect

Does not apply: western populations are larger and likely to support immigration into Ontario; however, they face the same disease threats as 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

American White Pelican (*Pelecanus erythrorhynchos*) is classified as Special Concern in Ontario based on being close to meeting Criterion B and the potential that the species could become threatened if threats such as Highly Pathogenic Avian Influenza continue to impact the Ontario population. This status differs from that assessed by COSEWIC

(Not at Risk) due to the much smaller proportion of the Canadian population found in Ontario.

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

The change in status of this species from the 2009 assessment is considered a genuine¹ change based on population increase and establishment of several new breeding colonies at separate locations.

5. Information sources

American White Pelican Recovery Team. 2011. Recovery Strategy for the American White Pelican (*Pelecanus erythrorhynchos*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. vi + 29 pp.

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Thompson, B.H. 1933. History and present status of breeding colonies of white pelican (*Pelecanus erythrorhynchos*) in the United States. U.S. Dept. Int. Natl. Park Serv. *Contrib. Wildl. Occas. Paper No. 1*. 82 pp.

¹ A change in the classification of a species during reassessment by COSSARO may be for genuine or non-genuine reasons. Genuine reasons may include a reduction in threats to a species such that status of the species has improved, or the continuation of threats to the species such that the status of the species has further deteriorated. Non-genuine reasons may include new information on population size or threats that was not available during a previous assessment, the use of previous COSSARO criteria that may have yielded a different result or, taxonomic revisions that result in changes in range, population sizes or designatable units.

Appendix 1: Technical summary for Ontario

Species: American White Pelican (*Pelecanus erythrorhynchos*)

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.	15 years
Is there an observed, inferred, or projected continuing decline in number of mature individuals?	No based on observed population counts.
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.	~300% increase inferred from the number of contemporary vs. historic locations (13 vs. 4)
Projected or suspected percent reduction or increase in total number of mature individuals over the next 10 years or 3 generations.	Unknown due to potential HPAI mortality
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: HPAI mortality has been recorded but the population impact has not been quantified
Are the causes of the decline (a) clearly reversible, and (b) understood, and (c) ceased?	a. Unknown b. Unknown c. Unknown Any potential declines related to HPAI are 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).	267,453 km ² (calculated using confirmed post 1994 NHIC breeding records)
Index of area of occupancy (IAO).	68 km ² (calculated using confirmed post 1994 NHIC breeding records)
Is the total population severely fragmented? i.e., is >50% of its total area of occupancy 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.	4–12 (4 if defined by major watersheds with a confirmed breeding colony, and 12 if defined by colony)
Number of NHIC Element Occurrences	14
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
Total population	Exceeds 10,000

Quantitative analysis (population viability analysis conducted)

Probability of extinction in the wild is unknown.

Threats

A threat calculator completed by COSSARO in November 2022 found an overall threat impact of medium based on the following threats:

- Energy production and mining: low; Ontario's population is exposed to oil spills in the Gulf of Mexico during overwintering.

- Human intrusions and disturbance: low; while intentional persecution occurs elsewhere in the species range it is not known in Ontario where only low levels of unintentional human disturbance are recorded.
- Natural systems modifications: negligible; the species is vulnerable to water level changes, but Ontario locations appear highly robust.
- Invasive & other problematic species & genes: medium; American White Pelican is vulnerable to various disease included avian botulism (15–20% mortality in western metapopulation), Newcastle disease (up to 90% mortality in isolated cases), West Nile virus (>40% mortality in US), and HPAI.

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	S1–4
Is immigration of individuals and/or propagules between Ontario and outside populations known or possible?	Possibly
Would immigrants be adapted to survive in Ontario?	Probably (though facing the same disease vulnerability)
Is there sufficient suitable habitat for immigrants in Ontario?	Yes
Are conditions deteriorating in Ontario?	Unknown, long-term impacts of HPAI are not understood
Is the species of conservation concern in bordering jurisdictions?	Yes, some
Is the Ontario population considered to be a sink?	No
Is rescue from outside populations likely?	Unknown, outside populations face same threats

Sensitive species

American White Pelican is not a sensitive species in Ontario.

Acronyms

BBRGR: Broader Biologically Relevant Geographic Range
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