

**Ontario Species at Risk Evaluation Report for**  
**Lakeside Daisy**  
**Hyménoxys herbacé**  
**(*Tetranuris herbacea*)**

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

Assessed by COSSARO as Special Concern

September 2021

Final

## Hyménoxys herbacé (*Tetranuris herbacea*)

L'hyménoxys herbacé (*Tetranuris herbacea*) est classé dans la catégorie des espèces préoccupantes en Ontario par le CDSEPO.

L'hyménoxys herbacé est une petite plante vivace de la famille des astéracées qui peut atteindre 35 cm de hauteur. La base de la plante est entourée de feuilles vert foncé non dentelées qui sont généralement étroites et lancéolées. La plante produit une à dix tiges qui donnent une seule inflorescence chacune. L'inflorescence est formée de demi-fleurons jaune vif et de fleurons jaune doré.

L'hyménoxys herbacé est une espèce endémique de la région des Grands Lacs, dont presque toute la population mondiale se trouve en Ontario, dans la péninsule Bruce et l'île Manitoulin. Elle se trouve dans les prairies et dans les alvars de pavage, des endroits où la roche-mère est à nu et où il y a très peu de terre. Cet habitat rare est maintenu en l'état par les perturbations naturelles, comme les sécheresses et les incendies.

L'hyménoxys herbacé est classé dans la catégorie des espèces préoccupantes en Ontario, en raison de sa vulnérabilité mondiale, de son aire de répartition limitée et de l'importante responsabilité qui échoit au gouvernement provincial pour sa conservation. La modification du statut de cette espèce à la suite de son évaluation en 2002 (espèce menacée) est considérée comme non justifiée, compte tenu du travail de terrain complémentaire qui a documenté les localités plus en détail et du changement de l'interprétation de « fragmentation grave ». De plus, des efforts considérables ont également été déployés depuis 2002 pour protéger l'habitat de cette espèce, ce qui a contribué à réduire les menaces potentielles.

Cette publication hautement spécialisée 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](mailto:cossarosecretariat@ontario.ca)

## Executive summary

Lakeside Daisy is a small perennial plant in the aster family that reaches up to 35 cm in height. Dark green, toothless, lance-shaped leaves surround the base of the plant. The plant produces one to 10 flowering stems each with a single showy yellow flower.

It is found in grassland and pavement alvars, which are areas of exposed bedrock with very little soil. This rare habitat is maintained by natural disturbances, such as drought and fire.

Lakeside Daisy is a Great Lakes endemic that is globally at risk. Almost all of the global population occurs in Ontario on the Bruce Peninsula and Manitoulin Island. There are only two naturally occurring populations that are extant in the U.S. and Lakeside Daisy is listed as Threatened on the federal *Endangered Species Act*.

Lakeside Daisy is classified as Special Concern in Ontario based on its global vulnerability, restricted range and high degree of provincial conservation responsibility. The change in status of this species from the 2002 assessment (Threatened) is considered a non-genuine change based on additional fieldwork that more thoroughly documented the locations and change in interpretation of severe fragmentation. However, there has also been considerable effort to protect the habitat for this species since 2002 that has helped to reduce potential threats.

# 1. Eligibility for Ontario status assessment

## 1.1. Eligibility conditions

### 1.1.1. Taxonomic distinctness

Lakeside Daisy is considered a distinct and separate species (COSEWIC, 2021 IN PRESS).

### 1.1.2. Designatable units

The Canadian population is considered one designatable unit (COSEWIC, 2021 IN PRESS).

### 1.1.3. Native status

Lakeside Daisy is native to Ontario. There are collections and recorded observations going back to at least 1950 (COSEWIC, 2021 IN PRESS).

### 1.1.4. Occurrence

Lakeside Daisy currently occurs in Ontario, with 48 research grade observations in iNaturalist from 2021.

## 1.2. Eligibility results

Lakeside Daisy (*Tetraneuris herbacea*) is eligible for status assessment in Ontario.

## 2. Background information

### 2.1. Current designations

- GRANK: G3 (NatureServe 2020)
- IUCN: Not assessed
- NRANK Canada: N3
- COSEWIC: Special Concern (May 2021)
- SARA: Threatened (Schedule 1)
- ESA 2007: Threatened (2008)
- SRANK: S3

### 2.2. Distribution in Ontario

Lakeside Daisy occurs at 29 locations on southern Manitoulin Island and the Bruce Peninsula. This species is globally rare but it can be locally common in Ontario, where some populations consist of thousands of plants.

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

Lakeside Daisy is endemic to the Great Lakes region of North America, and is present in Ohio, Illinois, Michigan and southern Ontario (Figure 1). The broader biologically relevant range of the Ontario locations is restricted to the province. It could possibly include the occurrence in northern Michigan that shares similar physiographic characteristics at the Bruce Peninsula and Manitoulin Island and is possibly of a similar biogeographic origin, although it grows in a different habitat (fen). The other US locations are separated 100s of kilometers and are in different ecological regions.

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

<b>Adjacent Jurisdictions</b>	<b>Biologically Relevant to Ontario (n/a, yes, no)</b>	<b>Condition</b>	<b>Notes &amp; Sources</b>
Quebec	n/a		
Manitoba	n/a		
Michigan	Yes (possible)	S1; State listed: Endangered; declining	(COSEWIC, 2021 IN PRESS; Michigan Natural Features Inventory, 2021)
Minnesota	n/a		
Nunavut	n/a		
New York	n/a		
Ohio	no	S1; State listed: Endangered	(Ohio Department of Natural Resources, 2021)
Pennsylvania	n/a		
Wisconsin	n/a		
<i>Other</i>			

In the U.S., Lakeside Daisy is listed as Threatened on the federal *Endangered Species Act*. There are only two naturally occurring populations that are extant in the U.S. The Illinois populations were extirpated and then reintroduced. One of two natural, extant populations in Ohio is actively being quarried and the other occurs in the Lakeside Daisy State Nature Preserve encompasses on the Marblehead Peninsula. It has also been introduced at two sites in Ohio, using plants from the natural population. In addition to quarrying, woody succession poses a threat at many sites, as well as trampling and development related to tourism. (NatureServe 2021) In Michigan the sole known population is found on the upland edge of a large fen complex, where it occurs along a roadside edge underlain by a tufa formation (Michigan Natural Features Inventory, 2021).

## 2.4. Ontario conservation responsibility

Ninety-five percent of the world population occurs in Ontario (NatureServe 2021).

## 2.5. Direct threats

Based on the threats calculator the overall threats are medium-low (COSEWIC, 2021 IN PRESS). Six threats were assessed as low impact:

- Housing & urban areas
- Mining & quarrying
- Logging & wood harvesting
- Recreational activities
- Fire & fire suppression
- Invasive non-native/alien species

About half of the critical habitat for Lakeside Daisy is in protected and conserved areas. Approximately 353 ha is in protected areas. An additional 247 ha in private ownership, 71 ha in corporate ownership, and ~5 ha divided among First Nation, Crown, and municipal management (COSEWIC, 2021 IN PRESS).

## 2.6. Specialized life history or habitat use characteristics

Lakeside Daisy has a very small global range that increases its vulnerability to habitat loss or stochastic events. It is restricted to very specific habitat conditions that are rare and do not persist without continued disturbance.

### 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

Not applicable. Rate of reduction in number of mature individuals cannot be determined with present data but any decline would be below thresholds.

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

Not applicable. EOO of 2,610 km<sup>2</sup> and IAO of 256 km<sup>2</sup> are below the threshold for Endangered and there is some observed and projected declines, but population is not severely fragmented, occurs at >10 locations, and does not experience extreme fluctuations.

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

Not applicable. The population estimate of >87,000 individuals exceeds thresholds.

##### 3.1.4. Criterion D – Very small or restricted total population

Not applicable. Estimate of greater than 87,000 mature individuals is above thresholds for D1. D2 not met as population is not vulnerable to rapid and substantial decline.

##### 3.1.5. Criterion E – Quantitative analysis

Not applicable. Analysis not conducted.

#### 3.2. Application of Special Concern in Ontario

Lakeside Daisy has a very small and restricted range in Ontario, and was previously assessed as Threatened. Both the extent of occurrence and area of occupancy are below the threshold for Endangered, but it is not severely fragmented or subject to fluctuations, and occurs at 29 locations. While the population appears to be stable or at a slow rate of decline, this small range does make it vulnerable to extinction. In addition to near qualifying for Endangered, Ontario has 95% of the global population of this Great Lake endemic. For these reasons, Lakeside Daisy is a species of Special Concern in Ontario.

#### 3.3. Status category modifiers

##### 3.3.1. Ontario's conservation responsibility

Ontario has a very high degree of conservation responsibility for Lakeside Daisy. This

was considered in its assessment of a species of Special Concern.

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

Not applicable. This species is listed as Threatened in the US under the *Endangered Species Act*. Most of the world's population occurs in Ontario, and there is an extremely low probability of rescue, including the one occurrence in northern Michigan. The other U.S. occurrences are not biologically relevant to Ontario.

## 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

Lakeside Daisy (*Tetranuris herbacea*) is classified as Special Concern in Ontario based on its global vulnerability, restricted range and high degree of provincial conservation responsibility.

*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 2002 assessment (Threatened) is considered a non-genuine change based on additional fieldwork that more thoroughly documented the locations and change in interpretation of severe fragmentation. However, there has also been considerable effort to protect the habitat for this species since 2002 that has helped to reduce potential threats.

## 5. Information sources

COSEWIC. (2021 IN PRESS). *COSEWIC assessment and status report on the Lakeside Daisy *Tetraneuris herbacea* in Canada*. Ottawa: Committee on the Status of Endangered Wildlife in Canada

Michigan Natural Features Inventory. (2021). Michigan's Rare Plants and Animals. Retrieved from <https://mnfi.anr.msu.edu/species>

Ohio Department of Natural Resources. (2021). State Listed Species. Retrieved from <https://ohiodnr.gov/wps/portal/gov/odnr/discover-and-learn/safety-conservation/about-ODNR/wildlife/state-listed-species>

# Appendix 1: Technical summary for Ontario

Species: Lakeside Daisy (*Tetraneuris herbacea*)

## 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.	2-3 years to reach sexual maturity; generation time calculated as 11 to 21 years with average of 16 years
Is there an observed, inferred, or projected continuing decline in number of mature individuals?	Inferred continuing minor decline Declines inferred from historically larger extent of habitat and from observed reduction in some habitat polygons over a 20-year time frame.
Estimated percent of continuing decline in total number of mature individuals within 5 years or 2 generations.	Unknown; Inferred stable or very small decline
Observed, estimated, inferred, or suspected percent reduction or increase in total number of mature individuals over the last 10 years or 3 generations.	Inferred ~stable or very slight decline Smaller subpopulations on Bruce Peninsula are suspected to have declined; percentage unknown.
Projected or suspected percent reduction or increase in total number of mature individuals over the next 10 years or 3 generations.	Unknown; small reduction as some smaller woodland habitats start to close in at increased rate
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; Inferred gradual on-going declines since historical time periods and expected to continue into the future, with greater loss after three generations (48 years) in 50 – 100 years as habitats become wooded and grow in faster.
Are the causes of the decline (a) clearly reversible, and	a. Yes b. Yes

Demographic attribute	Value
(b) understood, and (c) ceased?	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). <i>If value in COSEWIC status report is not applicable, then use <a href="http://geocat.kew.org">geocat.kew.org</a>. State source of estimate.</i>	2610 km <sup>2</sup>
Index of area of occupancy (IAO). <i>If value in COSEWIC status report is not applicable, then use <a href="http://geocat.kew.org">geocat.kew.org</a>. State source of estimate.</i>	256 km <sup>2</sup>
Is the total population severely fragmented? i.e., is >50% of its total area of occupancy 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. <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>	29
Number of NHIC Element Occurrences <i>Request data from MNRF.</i>	28
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—observed & projected Projected decline in area and quality due to various threats
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

<b>Extent and occupancy attributes</b>	<b>Value</b>
Are there extreme fluctuations in index of area of occupancy?	No

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

<b>Sub-population (or total population)</b>	<b>Number of mature individuals</b>
25 subpopulations in the Manitoulin Island region	~85,584 - 214,000 individuals approx. 4,279,215 ramets includes 2 historical subpopulations still considered extant one unsurveyed area may be an additional subpopulation.
9 subpopulations on Bruce Peninsula ~1690 - 4225 individuals approx. 84,500 ramets	~1690 - 4225 individuals approx. 84,500 ramets

Quantitative analysis (population viability analysis conducted)

Probability of extinction in the wild is unknown.

### Threats

Based on threats calculator the overall threats are medium-low. Six threats were assessed as low impact:

- Housing & urban areas
- Mining & quarrying
- Logging & wood harvesting
- Recreational activities
- Fire & fire suppression
- Invasive non-native/alien species

### Rescue effect

<b>Rescue effect attribute</b>	<b>Value</b>
Does the broader biologically relevant geographic range for this species extend beyond Ontario?	Possibly (one site in Michigan)
Status of outside population(s) most likely to provide immigrants to Ontario	Endangered
Is immigration of individuals and/or propagules between Ontario and outside populations known or possible?	No (very low probability)
Would immigrants be adapted to survive in Ontario?	Yes
Is there sufficient suitable habitat for immigrants in Ontario?	Probably
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?	No

**Sensitive species**

Not data sensitive.

## 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