Ontario Species at Risk Evaluation Report for Short-fruited Rush

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(*Juncus brachycarpus*)

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

Assessed by COSSARO as Endangered

January 2026

Final

Executive summary

Short-fruited Rush (*Juncus brachycarpus*) is a taxonomically distinct native plant within the Rush family (*Juncaceae*) and is eligible for status assessment in Ontario.

Short-fruited Rush is a perennial rhizomatous rush that has erect stems that grow approximately 60-100 cm tall. It can reproduce by seeds or by rhizomes that often extend almost a metre from the main stem. Plants produce seeds annually from July to November once they reach maturity at 2-3 years. The absence of a tail-like appendage on the seeds sets this species apart from other species in the genus *Juncus*.

Short-fruited Rush requires specific mesic to wet-mesic conditions in open prairie ecosystems. These ecosystem types are becoming increasingly rarer in Ontario constituting a threat to the species' survival

In Ontario, Short-fruited Rush is found only in the Carolinian Zone of southern Ontario in the City of Windsor. Within the range of occurrences in Windsor, there are three extant sites of Short-fruited Rush. Of these three sites, one was excluded from assessment since the individuals at this site were transplanted as part of a recovery plan, but the species had not spread from transplanted sod blocks. Consequently, the site had not demonstrated a positive impact on the species distribution.

In Canada, Short-fruited Rush is ranked as Endangered. Outside of Canada, the distribution of Short-fruited Rush extends from Massachusetts west to southern Ontario, Michigan, Illinois, and Kansas, and south to Texas and Georgia.

In Ontario, the greatest threat to Short-fruited Rush is ecosystem modification caused by invasive species colonization and growth. Other threats to the maintenance and growth of populations of Short-fruited Rush are fire suppression and human recreational activities due to the proximity of sites to residential subdivisions in immediately surrounding properties. The threats assessment conducted by COSEWIC (2023) assigned an overall threat impact of High. The present COSSARO assessment similarly ranks the overall threat as High.

Short-fruited rush is classified as Endangered in Ontario based on meeting criteria B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v) which refers to the species' highly limited distribution that is continuing to decline, and criteria C2a(i,ii)+D1, which refers to the species' small number of individuals with a projected continuing decline. This status of this species is consistent with the definition of Endangered under the Endangered Species Act, 2007. Short-fruited Rush has not previously been assessed by COSSARO. The classification of Endangered is consistent with COSEWIC's classification for the species.

1. Eligibility for Ontario status assessment

1.1. Eligibility conditions

1.1.1. Taxonomic distinctness

Short-fruited Rush (*Juncus brachycarpus*) is taxonomically distinct within the Rush family (Juncaceae).

1.1.2. Designatable units

The Ontario population of Short-fruited Rush occurs as a single Designatable Unit in the Carolinian Zone of southern Ontario (Windsor) and does not occur naturally in any other parts of Canada (COSEWIC 2024, IN PRESS). The two extant sites of Short-fruited Rush are approximately 1 km apart, occurring within a <1 km^2 area and are considered part of a single subpopulation.

1.1.3. Native status

Short-fruited Rush is native to Ontario and Canada (COSEWIC 2024, IN PRESS).

1.1.4. Occurrence

Short-fruited Rush is native to North America. Its range extends from Massachusetts west to southern Ontario, Michigan, Illinois, and Kansas, and south to Texas and Georgia (NatureServe 2025). In Ontario, its range is very restricted and occurs only in remnants of tall grass prairie habitat in Windsor (COSEWIC 2024, IN PRESS). Its range does not extend to other parts of Canada.

1.2. Eligibility results

Short-fruited Rush (*Juncus brachycarpus*) is eligible for status assessment in Ontario.

2. Background information

2.1. Current designations

- GRANK: G4G5 (NatureServe 2025)
- IUCN: No Status (2025)
- NRANK Canada: N1 (NatureServe 2025)
- COSEWIC: Endangered (November 2024)
- SARA: Not listed (Schedule 1 in 2025. Under consideration for addition)
- MBCA protection: No
- Aquatic species under SARA: No
- COSSARO: Not assessed
- ESA 2007 (Species at Risk in Ontario List): Not Listed
- SRANK: S1 (ranked in 2024 assessed by NHIC)

2.2. Distribution in Ontario

In Ontario, Short-fruited Rush is found only in the Carolinian Zone of southern Ontario in the City of Windsor (COSEWIC 2024, IN PRESS). Within the range of occurrences in Windsor, there are three extant sites of Short-fruited Rush, Reaume Street, Northway Avenue and Chappus Street. Individuals at two of these sites (Northway Avenue and Chappus Street) were transplanted in sod blocks as a part of the prairie grassland recovery program for the Herb Gray Parkway construction (WSP 2024). COSEWIC excluded the Northway Avenue site from their assessment due to the fact that the species had not spread from the transplanted sod blocks and as a consequence had not demonstrated a positive impact on the species distribution (COSEWIC 2024, IN PRESS). The Chappus Street site was considered in the COSEWIC assessment due to the potential presence of plants not manipulated by the transplants. This site is similarly considered in this assessment.

See Figure 1 for the sites' locations.

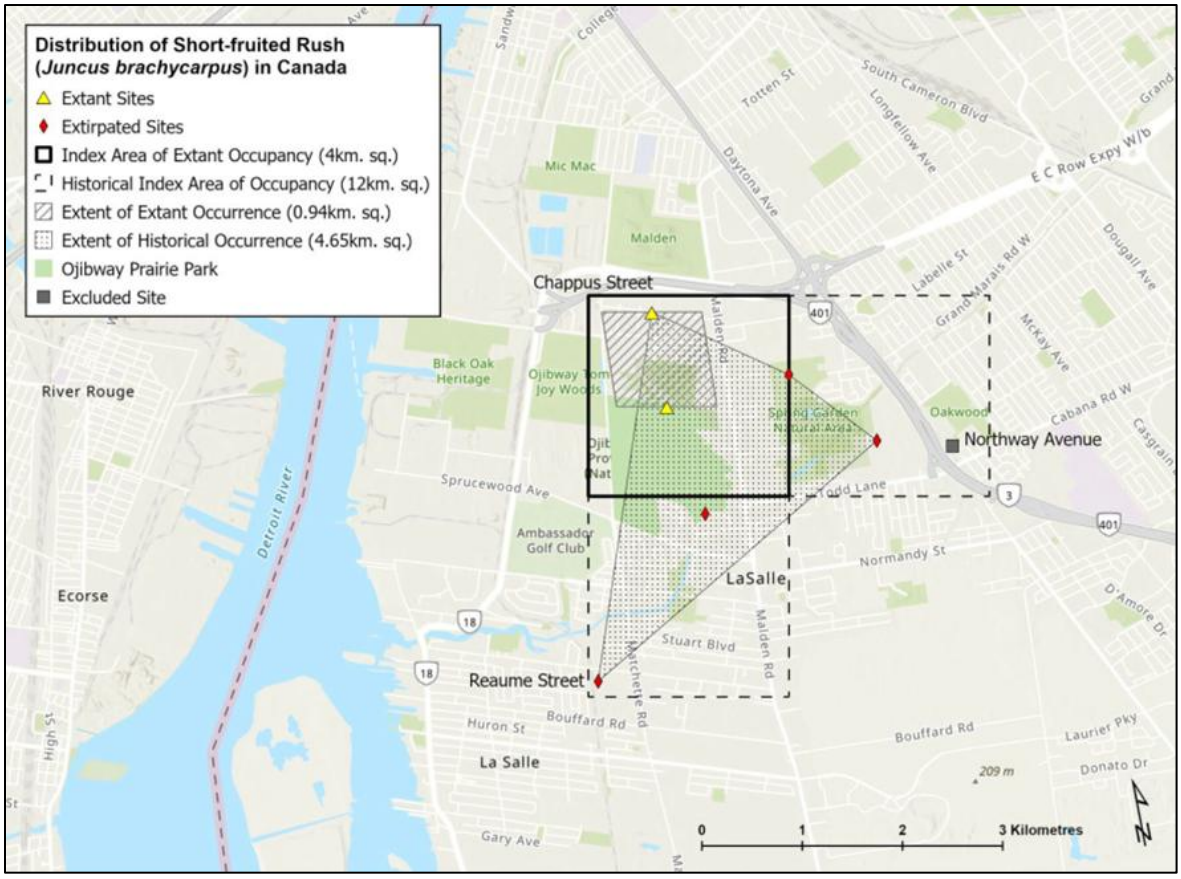

Figure 1. Distribution of Short-fruited Rush in Windsor Ontario (COSEWIC 2024, IN PRESS).

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

In Ontario, Short-fruited Rush is found only in the Carolinian Zone of southern Ontario in the City of Windsor (COSEWIC 2024, IN PRESS). Outside of Ontario, in the United States, the distribution of Short-fruited Rush extends from Massachusetts west to southern Ontario, Michigan, Illinois, and Kansas, and south to Texas and Georgia (NatureServe 2025).

In the United States, Short-fruited Rush is ranked as N4N5, Apparently Secure to Secure. Individual states' rankings range from S1 (Critically Imperilled) for Michigan, New York and Pennsylvania to S3 (Vulnerable) for Kansas, South Carolina, Illinois and Georgia, S4 (Apparently Secure) for Maryland, Kentucky and Virginia and No Status for Alabama west to Texas (NatureServe 2025). See Table 1 for states' rankings.

Table 1. Condition of Short-fruited Rush in Adjacent Jurisdictions and Broader Biologically Relevant Geographic Range

Adjacent Jurisdictions	Biologically Relevant to Ontario (n/a, yes, no)	Condition	Notes & Sources
New York	Yes	S1	NatureServe 2025
Pennsylvania	No	S1	NatureServe 2025
Michigan	Yes	S1S2	NatureServe 2025
West Virginia	No	S2	NatureServe 2025
North Carolina	No	S2?	NatureServe 2025
Kansas	No	S3	NatureServe 2025
South Carolina	No	S3	NatureServe 2025
Georgia	No	S3?	NatureServe 2025
Illinois	No	S3S4	NatureServe 2025
Maryland	No	S4	NatureServe 2025
Virginia	No	S4	NatureServe 2025
Kentucky	No	S4S5	NatureServe 2025
New Jersey	No	SH	NatureServe 2025

2.4. Ontario conservation responsibility

Ontario's conservation responsibility is low. Less than 1% of the species' global range occurs in Canada (COSEWIC 2024, IN PRESS).

2.5. Direct threats

In Ontario, the greatest threat to Short-fruited Rush is ecosystem modification caused by invasive species colonization and growth (COSEWIC 2024, IN PRESS). Other threats to the maintenance and growth of populations of Short-fruited Rush are fire suppression and human recreational activities due to the proximity of sites to residential subdivisions in immediately surrounding properties.

The threats assessment conducted by COSEWIC (2023) assigned an overall threat impact of High. The assigned overall threat impact was based on the following known threats:

- Ecosystem modifications: Invasive species (High), and fire suppression (Medium to High)
- Recreational activities (Low)
- Climate change and extreme weather (Unknown)

Limiting factors to the species' success include:

- Shade intolerance
- Range restriction in Ontario, and

- Specific habitat requirements: high quality mesic to wet mesic tallgrass prairies

2.6. Specialized life history or habitat use characteristics

Short-fruited Rush is a perennial rhizomatous rush that has erect stems that grow approximately 60-100cm tall. It can reproduce by seeds or by rhizomes that often extend almost a metre from the main stem. The plant's leaves are round and do not extend above the inflorescence. The inflorescence is a panicle of 1-10 dense spherical heads that contain 30-100 flowers per head (COSEWIC 2024, IN PRESS). Plants produce seeds annually from July to November once they reach maturity at 2-3 years. The absence of a tail-like appendage on the seeds sets this species apart from other species in the genus *Juncus*. See Figure 2 for a schematic of the species' plant form.

Short-fruited Rush requires specific mesic to wet-mesic conditions in open prairie ecosystems. These ecosystem types are becoming increasingly rarer in Ontario, constituting a threat to the species' survival (COSEWIC 2024, IN PRESS).

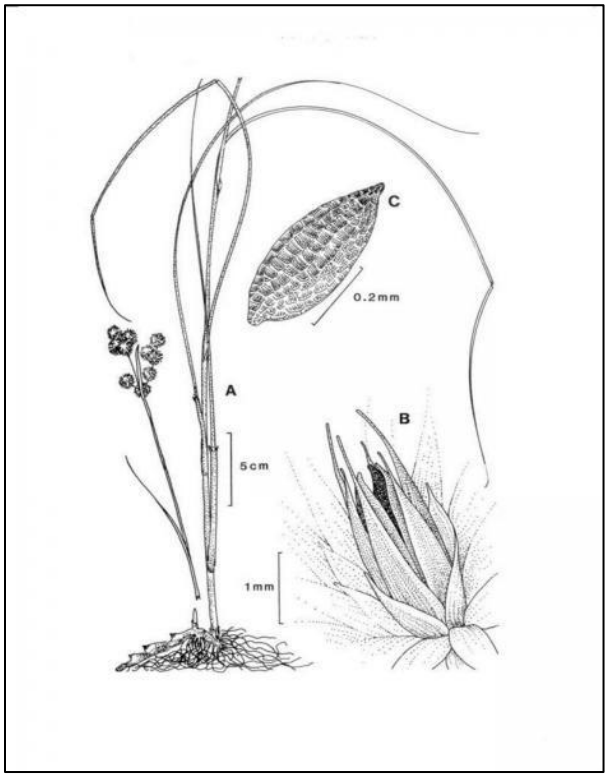

Figure 2. Short-fruited Rush schematic showing plant form, flower and seed (New York Natural Heritage Program 2025).

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. There is insufficient data to reliably infer the total number of individuals.

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

Meets Endangered. B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v). The EOO (4 km^2) and IAO (4 km^2) are both below the threshold for Endangered, and the population is known to occur from (a) fewer than 5 (2) locations, and (b) there is an observed continuing decline in (i) EOO, (ii) IAO, (iii) extent and quality of habitat, (iv) number of locations, and an inferred continuing decline in (v) number of mature individuals.

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

Meets Endangered, C2a(i,ii). There is a projected continuing decline in the number of mature individuals with a single subpopulation of only 130 individulas, which is below the threshold of 250.

3.1.4. Criterion D – Very small or restricted total population

Meets Endangered, D1. The number of mature individuals observed (130) is fewer than the threshold of 250.

3.1.5. Criterion E – Quantitative analysis

Does not apply. No analysis conducted.

3.2. Application of Special Concern in Ontario

Does not apply.

3.3. Status category modifiers

3.3.1. Ontario’s conservation responsibility

Ontario’s conservation responsibility is low. Less than 1% of the species’ global range occurs in Canada (COSEWIC 2024, IN PRESS).

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

Does not apply.

3.3.3. Rescue Effect

Rescue from subpopulations in adjacent states is unlikely due to the Critically Imperilled status of the species in adjacent states' (Michigan, New York, Pennsylvania) subpopulations and limited suitable habitat in Ontario (COSEWIC 2024, IN PRESS). Seeds are not suitable for wind or water dispersal and are unlikely to be dispersed by birds over long distances.

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

Short-fruited Rush (*Juncus brachycarpus*) is classified as Endangered in Ontario based on meeting criteria B1ab(i,ii,iii,iv,v) + 2ab(i,ii,iii,iv,v) which refers to the species' highly limited distribution that is continuing to decline. The species also meets the following criteria for Endangered: C2a(i,ii), and D1 which refers to the species' small number of individuals with a projected continuing decline.

The classification of Endangered is consistent with COSEWIC's classification for the species.

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

Short-fruited Rush has not previously been assessed by COSSARO.

5. Information sources

COSEWIC. 2024. IN PRESS. COSEWIC assessment and status report on the Short-fruited rush *Juncus brachycarpus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xii + 28 pp. https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html

Natural Heritage Information Centre (NHIC) 2025. Ministry of Natural Resources (MNR). Element and observation data provided November 2025).

NatureServe. 2024. NatureServe Explorer. *Juncus brachycarpus* https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.140303/Juncus_brachycarpus [assessed December 15, 2025].

New York Natural Heritage Program. 2025. Online Conservation Guide for *Juncus brachycarpus*. https://guides.nynhp.org/short-fruited-rush/. Accessed December 17, 2025.

Williams Sale Partnership Global Incorporated (WSP). 2024. Right Honorable Herb Gray Parkway. Website: https://www.hgparkway.com.

Appendix 1: Technical summary for Ontario

Species: Short-fruited Rush (*Juncus brachycarpus*)

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.	Approximately 3-10 years
Is there an observed, inferred, or projected continuing decline in number of mature individuals?	Yes, based on data for other *Juncus* species.
Estimated percent of continuing decline in total number of mature individuals within 5 years or 2 generations.	Unknown Insufficient data
Observed, estimated, inferred, or suspected percent reduction or increase in total number of mature individuals over the last 10 years or 3 generations.	Unknown Insufficient data
Projected or suspected percent reduction or increase in total number of mature individuals over the next 10 years or 3 generations.	Unknown Insufficient data
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 Insufficient data
Are the causes of the decline (a) clearly reversible, and (b) understood, and (c) ceased?	a. Possibly b. Yes c. No
Are there extreme fluctuations in number of mature individuals?	Unlikely Insufficient data

Extent and occupancy information in Ontario

Extent and occupancy attributes	Value
Estimated extent of occurrence (EOO).	4 km^2
Index of area of occupancy (IAO).	4 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. Unknown b. Unknown The population is small, fragmented, and isolated; however, it is unknown how much habitat is required to support a viable population.

Extent and occupancy attributes	Value
Number of locations.	2
Number of NHIC Element Occurrences	4
Is there an observed, inferred, or projected continuing decline in extent of occurrence?	Yes, observed.
Is there an observed, inferred, or projected continuing decline in index of area of occupancy?	Yes
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?	Yes, observed
Is there an observed, inferred, or projected continuing decline in [area, extent and/or quality] of habitat?	Yes, there is an observed continuing decline in the extent of habitat
Are there extreme fluctuations in number of populations?	No All know sites are in a single subpopulation
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
Ojibway Prairie Provincial Nature Reserve	85
Chappus Street	45
Total	130

Quantitative analysis (population viability analysis conducted)

Probability of extinction in the wild is Unknown. Analysis has not been completed.

Threats

A threats calculator was completed for Short-fruited Rush by COSEWIC (2024).

The threats assessment conducted by COSEWIC (2023) assigned an overall threat impact of High. The assigned overall threat impact was based on the following known threats:

- Ecosystem modifications: Invasive species (High), and fire suppression (Medium to High)

- Recreational activities (Low)
- Climate Change and extreme weather (Unknown)

Limiting factor to the species success include:

- Shade intolerance
- Range restriction in Ontario, and
- Specific habitat requirements: high quality mesic to wet mesic tallgrass prairies

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	Critically Imperilled
Is immigration of individuals and/or propagules between Ontario and outside populations known or possible?	Possibly
Would immigrants be adapted to survive in Ontario?	Possibly
Is there sufficient suitable habitat for immigrants in Ontario?	No
Are conditions deteriorating in Ontario?	Yes
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 a data sensitive species.

Abbreviations, Acronyms and Initializations

BBRGR: Broader Biological 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
MBCA: Migratory Birds Convention Act
MNR: Ministry of Natural Resources
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