

Small-flowered Lipocarpha

Ontario Government Response Statement



Protecting and Recovering Species at Risk in Ontario

Species at risk recovery is a key part of protecting Ontario's biodiversity. The *Endangered Species Act, 2007* (ESA) is the Government of Ontario's legislative commitment to protecting and recovering species at risk and their habitats.

Under the ESA, the Government of Ontario must ensure that a recovery strategy is prepared for each species that is listed as endangered or threatened. A recovery strategy provides science-based advice to government on what is required to achieve recovery of a species.

Generally, within nine months after a recovery strategy is prepared, the ESA requires the government to publish a statement summarizing the government's intended actions and priorities in response to the recovery strategy. The response statement is the government's policy response to the scientific advice provided in the recovery strategy. In addition to the strategy, the government response statement considered (where available) input from Indigenous communities and organizations, stakeholders, other jurisdictions, and members of the public. It reflects the best available local and scientific knowledge, including Traditional Ecological Knowledge where it has been shared by communities and Knowledge Holders, as appropriate and may be adapted if new information becomes available. In implementing the actions in the response statement, the ESA allows the government to determine what is feasible, taking into account social, cultural and economic factors.

The Recovery Strategy for the Small-flowered Lipocarpha (*Lipocarpha micrantha*) in Ontario was completed on July 22, 2019.

Small-flowered Lipocarpha is a herbaceous annual flatsedge that grows in dense tufts. The curved stems reach a maximum length of 20 centimetres (cm) and produce small, green flowers in a dense, oval spike.

Protecting and Recovering Small-flowered Lipocarpha

Small-flowered Lipocarpha is listed as a threatened species under the ESA, which protects both the plant and its habitat. The ESA prohibits harm or harassment of the species and damage or destruction of its habitat without authorization. Such authorization would require that conditions established by the Ontario government be met.

Globally, Small-flowered Lipocarpha is found in South, Central, and North America, with disjunct populations in the Galapagos Islands and Africa. In North America the species ranges from southern Canada to southern Mexico. It is densely distributed at the national scale in the central United States from Indiana to Missouri and Nebraska, and also across most of Florida. It is more sparsely distributed in the Northeast, parts of the Southeast, and the Southwest, extending as far north as the state of Washington.

In Canada, Small-flowered Lipocarpha occurs in southern British Columbia, and in both northwestern and southwestern Ontario. There are 11 extant populations in Ontario, all of which occur in the northwest of the province on the shores of Rainy Lake, Lake of the Woods, and Tide Lake. These northwestern populations were all last observed between 2000 and 2003. There is also one population in Essex County near Holiday Beach that has not been observed since 1987. Although it was not located during targeted search efforts in 2001, it remains possible the viable seeds are present within the sediment (i.e. seed bank) at this location. An additional population documented along the Detroit River was last observed in 1901 and has been classified as extirpated.

Small-flowered Lipocarpha is a small sedge that grows in tufts on sandy substrates, sometimes mixed with gravel and cobbles, close to large waterbodies. Although it can occasionally be found up to 160 m from the water's edge it is typically found on open seasonally flooded beach zones of sand dunes, and likely occurs within the seed bank in adjacent areas that are more frequently flooded. In Ontario the community types where it occurs are sand or gravel beach, sand flats, sand dunes, and marsh.

The plant requires regularly fluctuating water levels to maintain suitable habitat conditions for growth. High water events help to prevent the establishment of terrestrial plants and maintain open, sandy habitat for the species. During these events, submerged seeds of Small-flowered Lipocarpha stay dormant in the substrate and may remain viable under water for more than 45 years. When water levels recede, the seeds of Small-flowered Lipocarpha germinate and new plants are established. Further information is needed to characterize the conditions most suitable for growth of Small-flowered Lipocarpha in Ontario. The existing provincial

populations have not been monitored or studied in more than 15 years, and it is unknown how current conditions have affected the existing populations and available habitat.

Past monitoring of Small-flowered Lipocarpha in Ontario and more recent studies elsewhere have shown that due to the highly specific habitat requirements of this species, it is very susceptible to changes in growing conditions. Given this sensitivity, both the species and its habitat are impacted by water management and flood control activities. Management of water levels for navigation, hydro-electric power, and human safety can degrade habitat by preventing the seasonal flooding needed to maintain appropriate habitat types, or by permanently submerging seeds and preventing germination. Efforts have been made on Rainy Lake since 2000 to restore a more natural water management regime, but the impact of these changes on the species has not been assessed. Alterations to the shoreline through localized activities, such as residential development, flood protection works (e.g. dykes, embankments, retaining walls, etc.), and habitat enhancement activities for other species, may also decrease available habitat or cause habitat to become unsuitable.

Other potential threats to this species include establishment of invasive species such as European Common Reed (*Phragmites australis australis*), and disturbance from recreational activities. Small-flowered Lipocarpha is sensitive to competition from other plants and may easily be crowded out of sites where the dense-growing European Common Reed establishes. The small sedge may also be easily trampled or damaged by heavy use of the shoreline areas in which the plant is found.

Further research is required to gain a better understanding of the current status of each population and population dynamics over the long-term, to evaluate the impacts of changes to the water management regime over the past 15 years, to identify factors limiting germination and establishment of seedlings, and to identify the optimal methods for maintaining suitable habitat. Research is needed to better characterize the species habitat needs, and evaluate the effects of various water level management approaches on populations over time. Additionally, efforts are required to determine whether viable seeds are present at Holiday Beach which may have the potential to re-establish a reproducing population.

Small-flowered Lipocarpha establishment and survival in Ontario appears to be limited by habitat suitability and the associated maintenance of suitable habitat through water management regimes that replicate natural processes. As a result, recovery efforts for Small-flowered Lipocarpha will focus on maintaining the existing populations, enabling natural increases in abundance, and encouraging water level management that supports long-term survival. The government supports recovery actions for Small-flowered

Lipocarpha that increase knowledge of the species, improve understanding of habitat needs, evaluate threat management approaches, improve existing habitat, and promote the education and participation of agencies and members of the public that may use, own, or manage lands containing the species.

Government's Recovery Goal

The government's goal for the recovery of Small-flowered Lipocarpha is to maintain viable populations of the species at extant Ontario locations and to enable natural increases by working collaboratively to better understand and mitigate the existing threats.

Actions

Protecting and recovering species at risk is a shared responsibility. No single agency or organization has the knowledge, authority or financial resources to protect and recover all of Ontario's species at risk. Successful recovery requires inter-governmental co-operation and the involvement of many individuals, organizations and communities. In developing the government response statement, the government considered what actions are feasible for the government to lead directly and what actions are feasible for the government to support its conservation partners to undertake.

Government-led Actions

To help protect and recover Small-flowered Lipocarpha, the government will directly undertake the following actions:

- Continue to protect Small-flowered Lipocarpha and its habitat through the ESA.
- Undertake communications and outreach to increase public awareness of species at risk in Ontario.
- Consistent with the *Interim Park Management Statement for Sandpoint Island Provincial Park* (2012) and the *Sable Islands Provincial Park Management Statement* (2003) continue to monitor populations and mitigate threats.
- Educate other agencies and authorities involved in planning and environmental assessment processes on the protection requirements under the ESA.
- Encourage the submission of Small-flowered Lipocarpha data to Ontario's central repository through the NHIC (Rare species of Ontario) project in iNaturalist and directly through the Natural Heritage Information Centre.
- Continue to support conservation, agency, municipal and industry partners, and Indigenous communities and organizations to undertake activities to protect and recover Small-flowered Lipocarpha. Support will be provided where appropriate through funding, agreements, permits (including conditions) and/or advisory services.

- Continue to manage Crown forests in a manner that minimizes adverse impacts to species at risk and their habitats.
- Continue to implement the *Ontario Invasive Species Strategic Plan (2012)* to address the invasive species (e.g. European Common Reed) that threaten Small-flowered Lipocarpha.
- Continue to implement *Ontario's Invasive Species Act* to control the spread of invasive species (i.e., European Common Reed) that threaten Small-flowered Lipocarpha by restricting the importation, deposition, release, breeding/growing, buying, selling, leasing or trading of European Common Reed.
- Conduct a review of progress toward the protection and recovery of Small-flowered Lipocarpha within five years of the publication of this document.

Government-supported Actions

The government endorses the following actions as being necessary for the protection and recovery of Small-flowered Lipocarpha. Actions identified as "high" may be given priority consideration for funding under the Species at Risk Stewardship Program. Where reasonable, the government will also consider the priority assigned to these actions when reviewing and issuing authorizations under the ESA. Other organizations are encouraged to consider these priorities when developing projects or mitigation plans related to species at risk.

Focus Area: Survey and Monitoring

Objective: Increase knowledge of the status and distribution of Small-flowered Lipocarpha in Ontario.

As there have been no actions to document or survey the extant populations of Small-flowered Lipocarpha in more than 15 years it is important to review the status of these populations. This undertaking will involve developing an approach to monitoring sites that accounts for seasonal/irregular detectability of the plant, and the potential for dormant viable seeds to remain in submerged sediments. The results of these monitoring efforts will help identify what habitat conditions are most necessary for the survival of the species and may provide valuable insights into the effect of different water management regimes on habitat suitability. Collected data may also inform research into population dynamics, and direct restoration efforts to where they are most needed.

Actions:

1. **(High)** Confirm the distribution and status of Small-flowered Lipocarpha in Ontario by developing a survey and monitoring program conducted in a manner that may contribute to research actions. Program may consist of:

- surveying known extant population locations, possibly extant population locations, and other areas of potential habitat;
 - documenting detections and non-detections together with relevant site conditions (e.g soil moisture regime, etc.) to help inform detectability research;
 - completing seed bank assays at the Holiday Beach site to determine if viable seeds are present; and
 - monitoring populations with respect to size, demographics, environmental conditions and the presence of threats.
2. Characterize the habitats in which Small-flowered Lipocarpha is found through classification of occupied sites under the Ecological Land Classification system.

Focus Area: Research

Objective: Improve understanding of population dynamics, habitat needs, threats to the species, and methods for managing identified threats.

In order to ensure proper management of Small-flowered Lipocarpha and identified threats, it is necessary to gain a more thorough understanding of factors influencing the species in Ontario. Although water management practices have changed in some areas where the species is found, research is needed to evaluate how those changes have influenced populations and what regime may be best for the species. Research is also needed to better understand the biology of the species, how habitat conditions may influence growth and reproduction, and what approaches may be used to effectively address other threats. Filling these knowledge gaps will allow for more effective and informed approaches to the recovery of Small-flowered Lipocarpha.

Actions:

3. **(High)** Undertake appropriate actions to investigate Small-flowered Lipocarpha population dynamics at the local and landscape scale and impacts from known threats. Related research actions may include:
- evaluating long-term population trends and assessing the influences of water management regime changes;
 - examining the reproductive biology of the species and increasing understanding of seed banking and dispersal;
 - improving understanding of the species' habitat requirements, including identifying factors or changes that may render a site unsuitable for germination, growth and reproduction; and
 - identifying minimum viable size of populations, especially for locations believed to be vulnerable to extirpation.

4. Evaluate detectability of Small-flowered Lipocarpha plants and seeds under varying conditions to inform monitoring efforts.
5. Investigate potential threats to the species and methods for mitigating impacts including:
 - evaluating impacts to the species from competition with native and non-native vegetation;
 - identifying suitable best management practices (e.g. invasive plant removal, terrestrial vegetation management) for the habitat in which it is found; and
 - evaluating when additional actions to improve habitat and/or promote species survival would be required to improve viability of the population (e.g. small populations, or those with low viability).

Focus Area: Management and Habitat Protection

Objective: Maintain or improve the quality of habitat available for Small-flowered Lipocarpha, and where feasible and appropriate, undertake habitat restoration activities.

Small-flowered Lipocarpha has specific habitat needs related to reproduction that are typically met in a narrow strip along the water's edge. This habitat is limited in scope due to these restrictions and requires certain levels of appropriate disturbance. Although nearly all Ontario populations are on publicly managed lands where impacts from development and deliberate habitat alteration are unlikely, broad-scale water management activities, which may impact multiple sites concurrently, can have a significant effect on the persistence of the species. A collaborative approach is needed to effectively implement broadscale measures to maintain suitable habitat where it exists and restore sites where appropriate. On the ground actions, such as invasive species management and site-level restoration may need to be implemented to ensure existing populations are not crowded out by other species. Encouraging an adaptive approach and the use of best management practices by those involved will help support the recovery of the species.

Actions:

6. **(High)** Collaborate with partners and appropriate organizations to identify and promote adaptive water management regime practices that maintain Small-flowered Lipocarpha habitat.
7. Where deemed necessary (refer to Action 3 and 5) undertake on-the-ground efforts to restore, maintain or enhance Small-flowered Lipocarpha habitat and promote survival of existing populations within Ontario in collaboration with organizations, agencies and interested Indigenous communities and organizations. This may include:

- **(High)** implementing targeted habitat restoration and recovery actions at the Holiday Beach site if viable seed is found, or other (Northwestern Ontario) vulnerable populations to restore viability;
 - implementing general threat management and/or habitat restoration activities at sites where habitat quality is identified to be a limiting factor; and
 - developing best management practices for long-term habitat maintenance.
8. Work collaboratively with appropriate agencies, land managers, and indigenous communities develop strategies to remove and/or monitor the presence and impacts of invasive plants (e.g., European Common Reed) in areas with or adjacent to populations.
 9. Implement approaches to avoid or reduce impacts of recreational activities on Small-flowered Lipocarpha and its habitat where it occurs through the installation of signs, barriers, or other methods.

Focus Area: Outreach and Awareness

Objective: Increase public awareness of and participation in efforts to minimize threats to Small-flowered Lipocarpha.

Although almost all of the existing Small-flowered Lipocarpha populations occur on publicly managed lands, some of the sites where they can be found are in areas that may experience high levels of recreational use, such as those found in Ontario Parks or on Crown Land. If plants are found or re-established at the Holiday Beach location, recreational use of that Conservation Authority may also pose a risk to this small and discrete plant. Therefore, the education and involvement of the public is a key factor in supporting recovery of the species, particularly to help manage the threat of damage occurring incidentally to the species from trampling and foot traffic.

Actions:

10. Promote awareness about Small-flowered Lipocarpha among landowners, land managers and land users by sharing information on:
 - how to identify the species;
 - the species' habitat requirements;
 - protection afforded to the species and its habitat under the ESA; and,
 - actions that can be taken to reduce threats to the species and its habitat (e.g., distributing best management practices for recreational activities to land users).

Implementing Actions

Financial support for the implementation of actions may be available through the Species at Risk Stewardship Program. Conservation partners are encouraged to discuss project proposals related to the actions in this response statement with the Ministry of the Environment, Conservation and Parks staff. The Ontario government can also advise if any authorizations under the ESA or other legislation may be required to undertake the project.

Implementation of the actions may be subject to changing priorities across the multitude of species at risk, available resources and the capacity of partners to undertake recovery activities. Where appropriate, the implementation of actions for multiple species will be co-ordinated across government response statements.

Reviewing Progress

The ESA requires the Ontario government to conduct a review of progress towards protecting and recovering a species no later than the time specified in the species' government response statement, or not later than five years after the government response statement. The review will help identify if adjustments are needed to achieve the protection and recovery of Small-flowered Lipocarpha.

Acknowledgement

We would like to thank all those who participated in the development of the Recovery Strategy and Government Response Statement for the Small-flowered Lipocarpha (*Lipocarpha micrantha*) in Ontario for their dedication to protecting and recovering species at risk.

For additional information:

Visit the species at risk website at ontario.ca/speciesatrisk
Contact the Ministry of the Environment, Conservation and Parks
1-800-565-4923
TTY 1-855-515-2759
www.ontario.ca/environment