

Branched Bartonia

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.

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 Branched Bartonia (*Bartonia paniculata*) in Ontario was completed on December 7, 2018.

Branched Bartonia is an annual herb that is 10 to 40 cm tall with a green or purple, angled stem and tiny, white flowers. It often grows in *Sphagnum* moss.

Photo: Sam Brinker

Protecting and Recovering Branched *Bartonia*

Branched *Bartonia* 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.

Branched *Bartonia* is considered to be globally secure but has varying degrees of security throughout its range. It appears to be common in parts of New England, New Jersey, and the southeast states from Texas west to South Carolina and north Kentucky. However, it is rare in the remainder of the northeast, the Great Lakes states and on the western periphery of its range.

Within Canada, Branched *Bartonia* is found in Ontario, the Maritimes and Newfoundland. However, the subspecies that occurs in Ontario (*ssp. paniculata*) does not occur in other provinces or territories. Like populations in Michigan and Wisconsin, the Ontario populations are disjunct from those in the rest of the range. The Ontario populations are genetically distinct and likely diverged from the core American range populations as a result of separation during multiple glaciations. Recent studies have shown that this divergence likely happened earlier than previously thought, and further studies are needed to increase understanding of the life history of Ontario populations.

There are over 10 known extant populations of Branched *Bartonia* in Ontario, all occurring in the Muskoka and Parry Sound area near Georgian Bay. Three of these populations have been found since the development of the 2003 status report by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). The provincial population is estimated to be 767 plants; however, given the more recent population discoveries and the fact that the plant is easily overlooked in habitat that requires significant surveying, this number is thought to be an underestimate of the Ontario population.

In Ontario, Branched *Bartonia* is found on conservation reserves, in a provincial park and on private lands. The species tends to inhabit wetland complexes, including bogs and fens, on the Canadian Shield in areas with Sphagnum or other peatland mosses, Tamarack (*Larix laricina*) and Black Spruce (*Picea mariana*). In order to establish shoots and maintain plant health, Branched *Bartonia* relies on open habitat and continuous substrate moisture. The hydrology of these habitats is typically stable but does experience seasonal fluctuations. As a result, Branched *Bartonia* is especially sensitive to habitat drying or water level stabilization that may favour establishment of shrubs. The peatland habitats occupied by Branched *Bartonia* are also highly sensitive to human disturbances such as trampling.

Branched *Bartonia* reproduces by seed, but this is not well understood, and it is not known how long seeds may remain in the seed bank. Additionally, pollination biology and dispersal mechanisms for this species are not well known. Branched *Bartonia* may rely on an association with specific mycorrhizal fungi (i.e., fungi that colonize the roots of a plant thereby increasing their capacity to obtain nutrients) but further research in this area is needed.

The primary threat to Branched *Bartonia* is the impact of invasive species, specifically Glossy Buckthorn (*Frangula alnus*) and to a lesser degree Phragmites (European Common Reed) (*Phragmites australis* ssp. *australis*). Glossy Buckthorn has been documented at three populations and can spread quickly, forming dense thickets. This results in reduction in open habitat, competition for resources and changes in hydrology (drying of habitat). Phragmites has effects that are similar to those of Glossy Buckthorn on Branched *Bartonia* and its habitat and has been documented at one population. Other potential threats to the species include trampling by humans, all-terrain vehicle (ATV) use, peat harvesting, railway embankment expansion, reduction of pollinators and climate change.

There are a number of knowledge gaps associated with Branched *Bartonia* that require further research to support effective implementation of recovery actions. Threats to the species are localized and require population-specific monitoring and actions. In order to support the viability of existing populations, Ontario's protection and recovery approaches will focus on research and monitoring actions to help increase understanding of the species, its threats, ecological associations and life history process; management of threats and habitat to ensure suitable conditions persist for the species; and stewardship and awareness actions to improve knowledge of the species and reduce human-caused threats. Because the sensitivity of Branched *Bartonia* habitat poses challenges to the application of many accepted threat management techniques, and the viability of Branched *Bartonia* populations is unknown, the government may re-evaluate the recommended recovery approaches for the species once additional information becomes available.

Government's Recovery Goal

The government's goal for the recovery of Branched *Bartonia* is to maintain the current distribution and support the viability of existing populations across Ontario.

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 cooperation 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 Branched Bartonina, the government will directly undertake the following actions:

- Continue to monitor Branched Bartonina and manage its habitat in provincial parks and protected areas.
- Continue to implement the *Ontario Invasive Species Strategic Plan (2012)* to address the invasive species (e.g., Glossy Buckthorn, Phragmites) that threaten Branched Bartonina.
- Continue to implement *Ontario's Invasive Species Act* to control the spread of invasive species (i.e., Phragmites) that threaten Branched Bartonina by restricting the importation, deposition, release, breeding/growing, buying, selling, leasing or trading of Phragmites.
- Educate other agencies and authorities involved in planning and environmental assessment processes on the protection requirements under the ESA.
- Encourage the submission of Branched Bartonina data to the Ontario's central repository through the citizen science project that they receive data from (i.e., iNaturalist.ca) and directly through the Natural Heritage Information Centre.
- Undertake communications and outreach to increase public awareness of species at risk in Ontario.
- Continue to protect Branched Bartonina and its habitat through the ESA.
- Support conservation, agency, municipal and industry partners, and Indigenous communities and organizations to undertake activities to protect and recover Branched Bartonina. Support will be provided where appropriate through funding, agreements, permits (including conditions) and/or advisory services.
- Encourage collaboration, and establish and communicate annual priority actions for government support in order to reduce duplication of efforts.
- Conduct a review of progress toward the protection and recovery of Branched Bartonina 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 Branched Bartonias. 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: Research and Monitoring

Objective: Increase knowledge of Branched Bartonias populations, biology, and ecology.

There are a number of knowledge gaps related to Branched Bartonias. Implementation of standardized monitoring, together with ecological research, will provide a greater understanding of the species’ population viability and factors that influence it. Increasing understanding of Branched Bartonias’ ecology will support effective implementation of recovery actions in the future. Given the genetic distinctiveness of the Ontario Branched Bartonias populations, it is of increased importance to understand their life history and support their protection and recovery. Collaborative efforts that address both research and monitoring priorities are encouraged where possible.

Actions:

1. **(High)** Develop and implement a standardized monitoring protocol and program for Branched Bartonias. The program should be designed and implemented in such a manner that it minimizes impacts on the species and its habitat, and such that it may contribute to research actions. The program should aim to:
 - monitor population trends, demographics and associated reproductive biology (e.g., pollination, seed production and germination rates);
 - monitor associated habitat and conditions (e.g., percentage of canopy cover, hydrology); and,
 - monitor and document threats to the species, including the presence of invasive species (e.g., Glossy Buckthorn and Phragmites).
2. **(High)** Collaborate with partners and other jurisdictions to increase understanding of Branched Bartonias’ ecological needs, population viability and the factors that affect it. This may include:
 - investigating seed bank dynamics and associated reproductive biology such as pollination, seed production and seed germination;

- studying factors believed to contribute to Branched Bartonia mortality (e.g., vegetation succession and invasive species);
 - characterizing the habitat and microhabitat of Branched Bartonia with a focus on dependencies on hydrological processes, overstory openness and peatland bryophyte species; and,
 - investigating the potential association of mycorrhizal fungi with Branched Bartonia.
3. Investigate the genetics of Ontario's Branched Bartonia populations in relation to populations in the rest of its range, especially the Great Lakes Region, to more fully understand their distinctiveness and any associated ecological and conservation implications
 4. Conduct presence-absence surveys for Branched Bartonia in additional Central Ontario peatlands.

Focus Area: Management and Habitat Protection

Objective: Reduce threats to Branched Bartonia and its habitat and support continued protection of habitat.

Branched Bartonia is primarily threatened locally by the presence of Glossy Buckthorn and to a lesser degree by Phragmites. As a result, actions taken to address these threats and evaluate the effectiveness of efforts are of great importance. However, it is presently unknown which, if any, steps to mitigate threats can be implemented without negatively affecting Branched Bartonia habitat and what the best approaches to implementing these actions may be. As a result, it is necessary to determine best practices for controlling Glossy Buckthorn and Phragmites in Branched Bartonia habitat. Collectively working to maintain and secure habitat and habitat conditions necessary for the species are also of integral importance in supporting Branched Bartonia across its range.

Actions:

5. **(High)** Assess the feasibility of potential control measures to manage the threat of Glossy Buckthorn or Phragmites in locations where they pose a threat to Branched Bartonia and develop guidance on best practices. Where measures can be effectively implemented without excessive damage to Branched Bartonia habitat or harm to the plant, implement measures and monitor outcomes.
6. Maintain or enhance habitat suitability within and adjacent to areas currently occupied by Branched Bartonia in collaboration with landowners or land managers. Actions should be informed by best practices, include individuals with expertise to minimize any negative effects, and be adapted based on effectiveness.

7. As opportunities arise, support the securement of Branched Bartonina habitat that exists on privately owned lands through existing land securement and stewardship programs.

Focus Area: Stewardship and Awareness

Objective: Increase awareness of the species, its habitat requirements and ways to minimize threats.

Branched Bartonina is found on conservation reserves, in protected areas and on private lands. Collaboration amongst organizations and citizens is needed to support effective implementation of recovery actions. Promoting awareness of Branched Bartonina, and ways to minimize the primary threats to the species (e.g., invasive species), will increase the level of understanding and support coordinated efforts across the species' range. Similarly, given that threats are often localized, supporting increased species' awareness and stewardship of local partners will support reduced threats posed by human disturbance such as trampling, ATV use, peat harvesting and railway corridors. Combining species-specific citizen science efforts with those for other species at risk in the range of Branched Bartonina will improve efficiency and effectiveness.

Actions:

8. Collaborate with organizations, land managers, land users and Indigenous communities and organizations to promote awareness of Branched Bartonina in Ontario by sharing information on:
 - how to identify the species;
 - the species' habitat requirements;
 - actions that can be taken to reduce the spread and impacts of invasive species (e.g., Glossy Buckthorn, Phragmites);
 - the protection afforded to the species and its habitat under the ESA; and,
 - actions that can be taken to avoid or minimize recreational and development impacts to the species and its habitat.

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 program 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 coordinated 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 is published if no time is specified. The review will help identify if adjustments are needed to achieve the protection and recovery of Branched Bartonian.

Acknowledgement

We would like to thank all those who participated in the development of the Recovery Strategy for the Branched Bartonian (*Bartonia paniculata*) 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
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www.ontario.ca/environment