

False Rue-anemone

Ontario Government Response Statement



Photo: Sam Brinker

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 False Rue-anemone (*Enemion biternatum*) in Ontario was completed on December 7, 2018.

False Rue-anemone is a delicate plant in the buttercup family that grows 10 to 40 cm high. It has small, showy white flowers that bloom in the spring and is found in mature deciduous forests and occasionally swamps in the Carolinian zone. It can be confused with the related Rue-anemone (*Thalictrum thalictroides*) which is found in drier habitats.

Protecting and Recovering False Rue-anemone

False Rue-anemone 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.

The primary range of False Rue-anemone extends from southwestern Ontario in the north, west to Minnesota and Iowa, south to Oklahoma, and east to Tennessee. It is considered globally secure and is relatively common from Iowa to Kentucky. It is rare from eastern Texas to Alabama and also occurs in isolated patches from northern Florida to Virginia and West Virginia. The species may be extirpated from South Dakota and is presumed to be lost from New York where it occurred in Erie County, adjacent to Ontario's Niagara Region. In Canada, False Rue-anemone is restricted to scattered populations in southwestern Ontario.

Nine populations have been reported in Ontario within the Carolinian zone. Five of these populations are extant and range from Port Stanley on Lake Erie, north to London Ontario, and west to Lambton County. The status of four populations have not been recently confirmed and are considered historical: one north of Arva along Medway Creek, one along the Thames River, one near Lynn Valley, and one east of Arva. The largest populations are found within the Medway Valley Heritage Forest in the City of London and along Kettle Creek. Together, these two populations contain more than 80 percent of the known False Rue-anemone plants in Canada.

Recent surveys in 2016 and 2017 respectively, rediscovered the species at Middlemarch Forest and identified new subpopulations in Parkhill Conservation Lands. Additional surveys are required to confirm the species' existence at historical locations and follow-up on evidence that the species may occur or have previously occurred in parts of the Niagara Region.

False Rue-anemone is found on private, municipal and conservation authority lands. The species grows in a variety of vegetation types, typically in mature, deciduous forests dominated by Sugar Maple (*Acer saccharum*). It prefers shade and grows in large colonies on wooded slopes, river floodplains and in shaded woods and thickets. False Rue-anemone has also been recently found in mixed and early successional deciduous forests, which is not typical of previously known habitats. Some populations are also found growing next to windfalls, edge habitats, within large growths of invasive species and along well-used footpaths. Further monitoring in these areas is required to determine the long-term viability of these populations.

False Rue-anemone flowers from April to early May and bears fruit from May to June. It is mainly pollinated by insects and likely germinates in the fall. False Rue-anemone is pollinated by a variety of insects, but the rate of visitation is low since the species does not produce nectar. Wind also plays a role in seed dispersal. Pollinator availability may affect seed production; however, False Rue-anemone relies heavily on vegetative propagation and impacts of pollinator declines are unknown.

The primary threats to False Rue-anemone are competition from invasive plants, soil compaction from off-trail and on-trail recreational use and land development. Goutweed (*Aegopodium podagraria*) has been identified as a primary threat along Medway Creek (London), while Garlic Mustard (*Alliaria petiolata*) has been present at a number of False Rue-anemone sites for many years with no previous evidence of out-competing. However, some sites have not been visited in over a decade, and further investigation is required to determine the potential impact and severity of this threat. Localized threats from off-trail and on-trail recreational use, including all-terrain vehicles (ATV) use, are compacting soils at some locations. Land development has been identified as a threat in some areas where development pressures are increasing. Wood cutting operations, herbicides, pesticides and road salting have also been identified as localized threats to the species. The defoliation of co-occurring canopy species such as ash and beech from pests (e.g., Emerald Ash Borer (*Agilus planipennis*)) and disease may also reduce the habitat suitability for False Rue-anemone by increasing light levels. Further monitoring and research is required to determine the effects these factors are having.

In addition to the unknowns in the threats identified above, knowledge gaps exist regarding species' demographics (i.e., the size, status and behaviours of populations), phenology (i.e., the timing of life cycle events influenced by seasonal variations) and germination.

Ontario's protection and recovery approaches for False Rue-anemone will focus on working collaboratively with land owners, researchers, other jurisdictions and land users to reduce site-specific threats and support viability of populations at extant sites (including any historic populations found to be extant) while improving knowledge of population viability, species' biology, the severity of threats and habitat requirements. As the status of four out of nine populations of False Rue-anemone are currently unknown, recovery efforts will also focus on surveying historical sites to refine knowledge of the current distribution in Ontario. As further information is gathered about the species, including current locations and the long-term viability in Ontario, the need for additional actions, including the potential need for population management actions (e.g., augmentation) may be re-evaluated.

Government's Recovery Goal

The government's goal for the recovery of False Rue-anemone is to maintain existing populations within the species' distribution, promote their viability, and where feasible, enable natural increases in abundance.

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 False Rue-anemone, the government will directly undertake the following actions:

- Continue to implement the *Ontario Invasive Species Strategic Plan (2012)* to address the invasive species (e.g., Goutweed) that threaten False Rue-anemone.
- Work with partners and stakeholders to support pollinator health in Ontario through actions such as integrated pest management and education.
- Educate other agencies and authorities involved in planning and environmental assessment processes on the protection requirements under the ESA.
- Encourage the submission of False Rue-anemone 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 False Rue-anemone 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 False Rue-anemone. 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 False Rue Anemone 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 False Rue-anemone. 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 the species’ distribution, population viability, biology as well as threats and actions that can be taken to address them.

Implementing a standardized long-term monitoring program informed by research will improve our knowledge of the distribution of False Rue-anemone and the long-term viability of its populations. Documenting and monitoring habitat and threats can support improved understanding of False Rue-anemone habitat requirements, provide evidence of habitat degradation, and the severity of known threats. Surveying at sites where the species occurred historically or is predicted to occur can improve our knowledge of the species’ distribution and abundance. Filling key knowledge gaps related to the species’ biology and ecology in Ontario can provide insight to the viability of populations and help guide management actions. Where possible, collaborative efforts to address both monitoring and research priorities are encouraged to support efficient and effective recovery implementation.

Actions:

1. **(High)** Develop and implement a standardized survey and monitoring program. The program should be designed and implemented in such a manner that may contribute to research actions. The program should aim to:
 - conduct presence-absence surveys at locations where occurrences are considered to be historical or where completed predictive modeling indicates it is likely to occur;
 - monitor habitat characteristics and threats at all known populations, and relating them to processes that affect population growth (e.g. pollinator loss, competition for below-ground resources, light availability); and,
 - monitor abundance, demographics and associated reproductive biology (e.g. rates of pollination by different syndromes, reliance on pollinator co-opting, seed production, germination phenology).

2. Collaborate with partners and other jurisdictions to increase understanding of False Rue-anemone population viability and best practices for improving it. This may include:
 - studying the species' reproductive biology such as pollination biology, seed production, seedling mortality, germination and phenology;
 - studying influences on population growth (e.g., potential impacts from pollinator declines, invasive species and different methods of removing them, overstory and soil surface disturbance, impacts of disease and pests affecting forest canopy trees); and,
 - conducting population viability analyses.

Focus Area: Management and Habitat Protection

Objective: Maintain or improve the quality of habitat available for False Rue-anemone, reduce threats and improve population viability.

False Rue-anemone occurs on publicly accessed land (conservation authority, municipal, university/college campus lands) and on private land. Threats to False Rue-anemone and its habitat vary by site but include soil compaction from ATV use and trampling, competition from invasive species and land development. Wood cutting operations, spraying of harmful herbicides and pesticides and road salting are also identified as localized threats for some subpopulations. As a result, a collaborative approach to habitat management is needed to support the recovery of the species.

Actions:

3. **(High)** Work collaboratively with land owners and land managers and the research community to develop, implement and evaluate site management plans to maintain or improve the quality of False Rue-anemone habitat and the viability of populations. Plans should include:
 - appropriate techniques informed by research to remove invasive plants (e.g., Goutweed and Garlic Mustard) threatening False Rue-anemone without harm to the species, and monitoring success of management actions at identified sites;
 - minimizing the use of herbicides and pesticides where they may affect False Rue-anemone and its pollinators;
 - approaches to avoid or reduce impacts of recreational activities on the species and its habitat (e.g., redirecting recreational activities away from the species, erecting physical barriers if appropriate, installing signage to alert users); and,
 - implementing best management techniques to minimize canopy disturbance from tree removal.

4. Implement approaches to avoid or reduce impacts of recreational activities on False Rue-anemone and its habitat including:
 - redirecting recreational activities away from the species;
 - erecting physical barriers, if appropriate; and,
 - installing signage to alert land users to the presence of the species.
5. As opportunities arise, work with local land owners and community partners to support the securement of habitat of False Rue-anemone through existing land securement and stewardship programs.

Focus Area: Awareness

Objective: Increase public awareness of False Rue-anemone to minimize threats to the species and its habitat.

Awareness is key factor in supporting recovery of the species. As the species occurs on publicly accessed land and on private land, increased awareness is the first step to support land owners and land managers in reducing threats to the species such as invasive plants, off-trail and on-trail recreational activities and development.

Actions:

6. Promote awareness about False Rue-anemone among land owners, 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., developing and 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 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 False Rue-anemone.

Acknowledgement

We would like to thank all those who participated in the development of the Recovery Strategy for the False Rue-anemone (*Enemion biternatum*) 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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