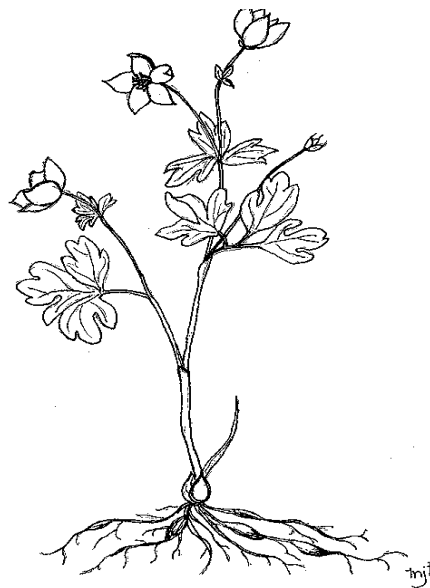


COSEWIC
Assessment and Update Status Report

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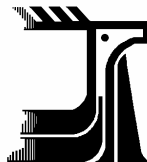
False Rue-anemone
Enemion biternatum

in Canada



THREATENED
2005

COSEWIC
COMMITTEE ON THE STATUS OF
ENDANGERED WILDLIFE
IN CANADA



COSEPAC
COMITÉ SUR LA SITUATION
DES ESPÈCES EN PÉRIL
AU CANADA

COSEWIC status reports are working documents used in assigning the status of wildlife species suspected of being at risk. This report may be cited as follows:

COSEWIC 2005. COSEWIC assessment and update status report on the false rue-anemone *Enemion biternatum* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 19 pp. (www.sararegistry.gc.ca/status/status_e.cfm).

Previous report:

Austen, M.J.W. 1990. COSEWIC status report on the false rue-anemone *Isopyrum biternatum* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. 32 pp.

Production note:

COSEWIC would like to acknowledge Melinda J. Thompson for writing the update status report on the false rue-anemone *Enemion biternatum*. The report has been overseen and edited by Erich Haber, Co-chair (vascular plants) of the COSEWIC Plants and Lichens Species Specialist Subcommittee. False rue-anemone *Enemion biternatum* was previously designated by COSEWIC as False rue-anemone *Isopyrum biternatum*.

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Également disponible en français sous le titre Évaluation et Rapport de situation du COSEPAC sur l'isopyre à feuilles biternées (*Enemion biternatum*) au Canada – Mise à jour.

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False Rue-anemone — Drawing by M.J. Thompson.

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Interspecific interactions

No information was found regarding competitive or interspecific interactions that affect *Enemion biternatum* populations. The population ecology of *Enemion biternatum* in Ontario remains unstudied.

POPULATION SIZES AND TRENDS

Information about meta-populations in Ontario is summarized in Table 1. This information is based on field visits made by Austen during May and June 1989 and fieldwork conducted by J. Bowles in the summers of 1986, 1988, and 1989. Estimates of numbers of plants per sub-population are presented for localities visited in May 1989 by Austen. These estimates were based on stem counts for smaller populations and on the amount of area covered by colonies for larger populations. Updated information is based on field surveys done by M. Thompson in May 2003 and June 2004 (six days).

Numbers represent total number of stems found at the site, both vegetative and flowering. It is difficult to determine the number of clones represented in some of the sub-populations without damaging the plants. The use of the term "subpopulations" indicates separate groupings of plants (or separate clones) that are part of a larger meta-population with each of the subpopulations generally being less than 1 km apart (NHIC, 2002).

Summary of extant populations

At one time, *Enemion biternatum* was found within 8 areas of southwestern Ontario. The 1990 status report (Austen, 1990) documented 4 areas for Ontario. Six populations in Ontario were extant as of the year 2003. These sites are Medway Creek, Kettle Creek north of Port Stanley, Ausable River, Parkhill, Thames River, and Kettle Creek. Three of these populations (Medway Creek, Kettle Creek north of Port Stanley, and Ausable River) consist of 2 to 10 subpopulations.

The Medway Creek population in Middlesex County represents an important segment of the Canadian population due to the large numbers of plants. *Arisaema dracontium* and *Lithospermum latifolium*, both rare plants in Ontario, are also found in the area. The 10 subpopulations within this population are in a public use area, which is unlikely to be developed because it is a floodplain zone managed by the Upper Thames River Conservation Authority (Austen, 1990).

Table 1. Ontario population summary for *Enemion biternatum*.

EOID	Sub-population#	Location	1897, L Boughner	pre 1986, D. Britton	1988-1989, J. Bowles	1989, M. Austen	1993, M.J. Oldham	1994, J. Bowles	2002, D. Bradley	2003-2004, M.J. Thompson
2	2a	Medway Creek				1 colony, 200 plants				Not found
2	2b				4 colonies					Not found
2	2c					<500 plants				Not found
2	2d				?					Not found
2	2e				1 colony, 2500 plants					Not found
2	2f					3 colonies, 12500 plants				Not searched
2	2g					4 colonies, 1750 plants				Not found
2	2h					15000-20000 plants				35000 plants
2	2i					1 colony, 500000-700000 plants				500000-700000 plants
2	2j					1 colony, 50-75 plants				Not found
1	1a	Kettle Creek, North of Port Stanley				30 colonies, 12500 plants				10000 plants
1	1b					25 colonies, 10000 plants				10000 plants
1	1c					8 colonies				Not found
1	1d					10 colonies, 800 plants				Not found
1	1e					100s of thousands of plants				10000 plants
1	1f					9 colonies, 12000 plants				10000 plants
1	1g					6 colonies, 3500 plants				3000 plants
1	1h					2 colonies, 3500-5000 plants				3000 plants
4	4a	Ausable River				14 colonies, 2500-3000 plants				Not found
4	4b						20-30 colonies, 50-100 plants per colony			1000 plants
5	5	Thames River						?		No permission
3	3	Parkhill							11 colonies, 400 plants	Not surveyed
6		Middlemarch Forest		?						Extirpated
7		Lynn Valley	?							Extirpated
17	17	Kettle Creek					?			Not found

Note: EOID indicates the Element Occurrence ID number associated with information stored for each occurrence at the Ontario Natural Heritage Information Centre, Peterborough. The question marks indicate that only occurrence was noted and no population data were provided.

Similarly, the population located along Kettle Creek and its tributaries (Elgin Co.) is also particularly significant since the scattered subpopulations, often with thousands of plants each, are found associated with other rare taxa such as *Mertensia virginica*. Some subpopulations here are often bordered by farmers' fields or steep wooded slopes on one side and Kettle Creek or one of its tributaries on the other. This area is under the ownership of one family. The population found along the Ausable River (Lambton County), was the only one found in the county by Austen (1989).

Population 3, located at Parkhill Conservation Area, was thought to be extirpated and was last collected in 1893. This population has since been rediscovered (Bradley, 2002).

Population 5, located along the Thames River is likely extant (M. Oldham, pers. com). There has been no data collected on this population to date. The record is based on a sighting by Jane Bowles in 1994 (NHIC, 2002).

LIMITING FACTORS AND THREATS

In Canada, several subpopulations of *Enemion biternatum* are impacted by soil compaction and trampling, due to their proximity to public areas and trails. Loss of habitat due to invasion of tall grasses, wood cutting operations, soil erosion, and agricultural activities also pose threats to other Canadian populations of the *Enemion biternatum*. Spraying of herbicides and pesticides also occurs to the detriment of these plants. Road salting may be a limiting factor for at least one Canadian occurrence of *Enemion biternatum* (Austen, 1990).

Some populations of *Enemion biternatum* were found growing in conditions considered to be atypical for the species; adjacent to windfalls and tree cuts, edge habitats, within large growths of the exotics *Alliaria petiolata* or *Aegopodium podagraria*, amongst tall grasses, and along well-used footpaths. It is assumed that plant populations in these areas are on the decline; however, research is necessary to determine how seedling growth, seed output and germination in these populations differ from populations growing in more typical habitats (Austen, 1990).

The majority of landowners are unaware of the presence of *Enemion biternatum* on their land, or its rarity. The Upper Thames River Conservation Authority is aware of populations growing on their property through the work of J. Bowles.

The abundance of the exotic horticultural plant *Aegopodium podagraria* poses a strong threat to the *Enemion biternatum* population in the floodplain area of the Thames River, University of Western Ontario.

Populations 1 and 2 are threatened by their proximity to public areas and trails. In these areas, plant subpopulations may be threatened by soil compacting and trampling by foot, bicycle and/or ATV. These two populations are also threatened by

encroachment of *Aegopodium podagraria* and tall grasses, respectively. *Enemion biternatum* plants in subpopulation 1h are already growing in a long narrow strip, in contrast to their normal growth pattern of large clumps.

Subpopulations 1g and 4 may be threatened by wood cutting operations or tree falls found in the immediate vicinity of the plants. Population 2g is susceptible to soil erosion. In addition, subpopulations 1c, 1d and 1h are close to the edge of fields where the potential for mowing damage to plants is relatively high. Herbicides or insecticides sprayed on crops in the spring could harm plants in the area. Subpopulation 1c is also threatened by garlic mustard (*Alliaria petiolata*) encroachment. Road salting may affect subpopulation 1e, which is down-slope from the road in a low-lying area. Thompson also observed a small group of people camping in the immediate vicinity of subpopulation 1e. Because this is one of the largest subpopulations of *Enemion biternatum* found in Ontario, camping here should be discouraged.

Certain subpopulations (2a and 2j) are limited to small clumps consisting of very few plants therefore these populations are at a higher risk of elimination due to their low population sizes.

The limiting factors presented above are based on details provided by Austen (1990). Development in the region of the floodplain habitats has only an indirect bearing on the species. The floodplain itself is a regulated habitat but the increase in population and development surrounding the habitat likely has resulted in an increase in trail use and substrate compaction as well as general disturbance that could promote expansion of alien species.

SPECIAL SIGNIFICANCE OF THE SPECIES

There is no information regarding any special economic or biological significance of this species. The species is promoted, however, by gardeners in the United States as a suitable plant for shady woodland gardens. There is no readily available Aboriginal Traditional Knowledge pertaining to this species in the literature.

EXISTING PROTECTION OR OTHER STATUS DESIGNATIONS

Enemion biternatum was designated, in 1990, as Special Concern in Canada by the Committee on the Status of Endangered Wildlife in Canada (Austen, 1990). This species has an S2 rank in Ontario, a National rank of N2 in Canada, and a Global rank of G5. The species is now officially listed in Ontario as Special Concern under the recently approved Species At Risk in Ontario (SARO) list (see <http://www.ontarioparks.com/saro-list.pdf>). This species has likely been extirpated from New York and South Dakota. This species is listed as Endangered in Florida and listed as a species of Regional Concern in South Carolina.

Table 2. North American Conservation Status Ranks for *Enemion biternatum* (NatureServe, 2002).

U.S. & Canada State/Province Heritage Status Ranks		
United States		Canada
Florida (S1)	Arkansas (SR)	Ontario (S2)
South Carolina (S1)	Indiana (SR)	
Virginia (S1)	Kansas (SR)	
West Virginia (S1)	Minnesota (SR)	
Alabama (S1)	Missouri (SR)	
North Carolina (S2)	Ohio (SR)	
Iowa (S4)	Oklahoma (SR)	
Illinois (S5)	Tennessee (SR)	
Kentucky (S?)	Texas (SR)	
Michigan (S?)	Wisconsin (SR)	
Mississippi (S?)	New York (SX)	
	South Dakota (SH)	

Conservation Rank
S1: Critically Imperiled
S2: Imperiled
S4: Apparently Secure
S5: Secure
S?: Unranked
SR: Species Reported
SX: Presumably Extirpated
SH: Possibly Extirpated

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- Staff at The Natural Heritage Information Centre, Peterborough, ON
- COSEWIC Secretariat for information on sources of Aboriginal Traditional Knowledge
- Jane Bowles, Department of Botany, University of Western Ontario
- David Bradley, Ontario Ministry of Natural Resources

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