

Les Mehrhoff Botanical Research Award Report 2022

Targeted Surveys for Historical/Rare *Collinsonia canadensis* in Four Southern Vermont Counties



*Collinsonia canadensis*, a rare S2 plant in Vermont. (Arlington, Vermont August 2022)

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## Introduction

The *Collinsonia* genus has 11 total known species with 7 occurring in East Asia and the remaining 4 species native to Eastern North America. Of these 4 North American *Collinsonia* species, *Collinsonia canadensis* is the most widespread species of this *Laminaceae* family plant. This species is native to the eastern United States from New England, West to Missouri and Louisiana. Globally, *C. canadensis* is listed as G5, and in New England the status varies from S4 Widespread (in Massachusetts), SH Historical (in New Hampshire) and S2 Rare in Vermont. There was an interesting discrepancy in the ranking data between Massachusetts (S4 Common) and Southern Vermont (S2 Rare), where there would and should be suitable habitat for this species. This research was an attempt to gain a more accurate depiction of the population distribution of this plant in Southern Vermont with the intention of potentially finding enough populations to change current the ranking status from S2 to S3.

The simplest way to begin to find new or expanded populations of this species in Vermont, it was first necessary to review EO data from existing populations. This information was obtained with help from the State of Vermont Natural Heritage Program. The scope of this study did not include surveys for known existing populations, but the existing population information was used to find new populations in areas of high potential. After the list was obtained, it was reviewed to further hone the scope of the project to only include known populations existing in four counties in Southern Vermont: Windham, Windsor, Bennington and Rutland. With this information, there were only known populations in Bennington and Rutland Counties, and this is where the attention was focused.

With the location data for known populations, it was then possible to utilize GIS data, obtainable online through Vermont ANR Atlas, to pursue survey permissions from abutters. From the 11 known populations, 7 were chosen due to a higher probability of new populations based on site conditions and project scope. Once permission was granted from landowners, surveys were conducted during the flowering time for this species in August 2022. When preparing to survey a property, attention was focused on properties with wetlands or waterways. During this initial survey time, if a new population of the target plant was discovered, an additional GIS landowner abutter search was performed, and a second round of permission letters were sent to these landowners. Upon a landowner granting permission, an additional survey was performed for these new locations. Any positively identified *Collinsonia canadensis* plants observed during a survey, regardless of property line, was recorded using a handheld GPS device. As an outlier, a piece of town owned property in Arlington has an extensive population that did not have a known population of this species connected to it. Coincidentally, a picture of *Collinsonia canadensis* was submitted to me by an individual who found a plant that they requested to be identified. This find resulted in all of the additional observations of this plant on the Battenkill River and the additional site surveyed along with the original ten that were abutting known populations.

## Survey and Field Results

As seen in the table below, there were a total of 36 permission letters sent to abutters of known populations of *Collinsonia canadensis*. Of these 36 landowners, 10 granted permission for a botanical survey for this species. While surveying these properties and recording GPS coordinates it sometimes became apparent that populations of this plant were occurring on a neighboring property where there had been no response to inquiries about a botanical survey or no permission requested. The species location information was recorded and is included in this document regardless of permission in the hope that contact with the landowner can be established. If the entire data set is simply looked at in terms of a yes or no question: Were there new populations of this plant discovered? The data could be interpreted to show that in almost every case where a survey was performed, with an educated guess based on habitat and proximity to known populations there is 27.5% chance that a neighboring property in this situation would have this species present.

<b>Total Possible Survey Sites</b>	36
<b>Confirmed Permission</b>	10
<b>Confirmed Observation at these 11 sites</b>	4
<b>Additional Sites w/o permission and Confirmed Observation</b>	7
<b>New Site Observation Total</b>	11

In the locations where this plant was positively identified, it was usually abundant and robust. In total, there were over 400 individual plants observed. The largest of the locations being in Arlington along the Battenkill River and the second in Shaftsbury. One of the smallest isolated populations has only 10 plants present. In some instances, there were so many plants in proximity that one point was an indication of multiple plants.

Associated plants for this species observed frequently while searching for *Collinsonia canadensis*: *Laportea canadensis*, *Verbena utricifolia*, *Carpinus caroliniana*, *Smilax herbaceae*, *Elymus hystrix*, and *Matteuccia struthiopteris*. It was also interesting to note that the presence of all of these 6 indicator species almost always had a population of *Collinsonia canadensis* present. Additionally, observed with these indicator species, there also had to be a water element (stream, brook, wetland, seep, river).

Also, present at most of these sites were invasive plant species. Many of these populations especially along the Battenkill River are at risk without proper remediation of these locations.



An example of multiple *Collinsonia canadensis* plants growing together. Arlington, VT August 2022

Property County	Property Town	Species Present	Acres	Survey Date	Approx. Number of Plants	Permission Status
Bennington	Arlington	Yes	34	8/1/2022	150	Granted
Bennington	Arlington	Yes	37	8/5/2022	60	No Permission
Bennington	Bennington	Yes	192	8/6/2022	10	Granted
Bennington	Shaftsbury	Yes	435.9	8/28/2022	100	Granted
Bennington	Arlington	Yes	2.6	8/28/2022	24	Granted
Bennington	Arlington	Yes	3.7	8/5/2022	1	No Permission
Bennington	Arlington	Yes	6	8/5/2022	1	No Permission
Bennington	Arlington	Yes	125.8	8/28/2022	10	No Permission
Bennington	Shaftsbury	Yes	35	8/28/2022	1	No Permission
Bennington	Shaftsbury	Yes	26.1	8/28/2022	1	No Permission
Bennington	Pownal	Yes	1.58	8/6/2022	50	No Permission

## Discussion

Within the scope of this project were four counties in Southern Vermont, Rutland, Bennington, Windham and Windsor Counties. While all the new populations of this plant were all found in four towns within Bennington County, surveys were performed in the other counties where suitable similar habitat conditions, soils and species composition were present. There were no populations of *Collinsonia canadensis* found during these surveys. Of the 400 plants observed, they represent an expansion of one existing population and three other extensive separate new populations on multiple properties. This data and information will double the number of known populations of this plant in Southern Vermont.

## Conclusion

There's a lot of information to be gained to aid in our native rare, threatened and endangered species, in particular S1 and S2 species. These special groups could benefit from future targeted surveys on abutting properties with suitable sites. In the broader picture, informed targeted surveys like this could prove to uncover new populations and provide the full extent of existing populations to better be able to understand population distributions of some of our most imperiled plants.

## References

Haines A. Farnsworth E. Morrison G. & New England Wildflower Society. (2011). *New England wildflower society's flora novae angliae : a manual for the identification of native and naturalized higher vascular plants of new england*. New England Wild Flower Society ; Yale University Press.