Tracking purple loosestrife in the North Country

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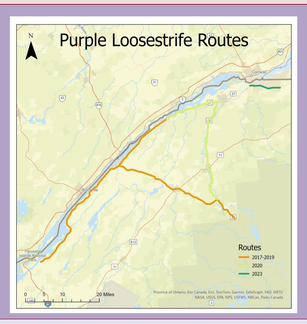
Introduction

Purple loosestrife (*Lythrum salicaria L.*) is an invasive, herbaceous plant that create harmful monoculture stands, frequently in wetlands (Rogers et al 2022). Since 2017, data has been collected on infestation sites throughout northern New York to understand the full spread of the plant.



Objective

Data previously collected is analysed to better understand how purple loosestrife spreads & how effective management practices have been.

Methods

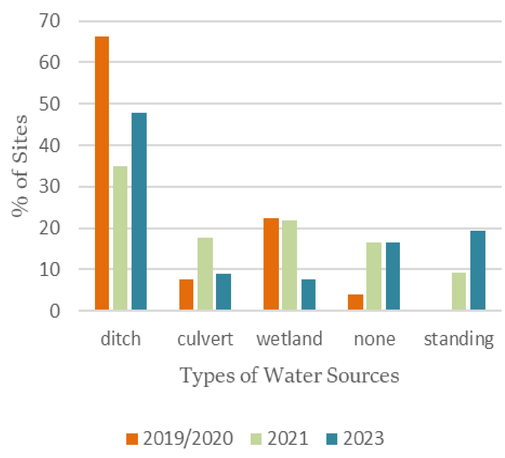
- Organized field data in ArcGIS online.
- Exported data for each year into Microsoft excel for analysis. Each year was put into a table to show information about the infestation & compare across the years.
- In Excel using analysis functions, the top ten other plant species found with purple loosestrife were recorded in a chart & compared across years.
- Analysis also looked at the water type & herbivory levels at the site of the infestations.

Annual Data Summaries

	2017	2018	2019 (280km)	2021 (280km)	2020 (212km)	2021 (212km)	2023 (26km)
Purple Loosestrife	664 sites	685 sites	540 sites	611 sites	265 sites	348 sites	159 sites
Average size of Infestation	41.8m	41.7m	69.5m	56.2m	110m	75.7m	60.2m
Total Distance Invaded	29.24km (10%)	29.29km (10%)	37.30km (13%)	34.45km (12%)	29.24km (14%)	26.33km (12%)	9.06km (34.8%)
Average # of plants	71	80	157	114	301	146	240
Total Number of Plants	49693	56540	85164	69637	79941	50,971	36,270

Herbivory Across Sites and Years

Water Types at Sites



Top 10 species	2019/2020	2021	2023
1	Cattails 407 (49%)	Aster 765 (79%)	Yellow hawkweed 105 (71%)
2	Yellow hawkweed 376 (45%)	Phragmites 702 (72%)	Queen Annes Lace 104 (70%)
3	Queen Annes Lace 369 (44%)	Yellow Hawkweed 699 (72%)	Phragmites 99(67%)
4	Wild parsnip 350 (42%)	Queen Annes Lace 642 (66%)	Wild Parsnip 75 (51%)
5	Chicory 243 (29%)	Goldenrod 624 (64%)	Goldenrod 72 (49%)
6	Canary Grass 231 (27%)	Wild Parsnip 598 (62%)	Chicory 71 (48%)
7	Goldenrod 225 (27%)	Chicory 416 (43%)	Birds foot trefoil 49 (33%)
8	Phragmites 211 (25%)	Cattail 374 (38%)	Common ragweed 44 (30%)
9	Curly Dock 205 (24%)	Smooth Broom 341 (35%)	Aster 41 (27%)
10	Cow Vetch (19%)	Cow Vetch 157 (19%)	Red Clover 35 (23%)

Non-Native | Native | Unkown

Conclusion

- Total % area infested decreased in 2021 compared to previous years, suggesting beetle release has been somewhat effective. The data on herbivory across years also supports this with more sites indicating insect activity.
- Most of the species found with purple loosestrife are non-native though the % of non-native plants seems to be steady.

Next Steps

Monitor entire route in 2024 to gather a new baseline for the entire region.

Use results to help determine management practices and beetle release locations.

References

Rogers, J., Humagain, K., & Pearson, A. (2022). Mapping the purple menace: Spatiotemporal distribution of purple loosestrife (Lythrum salicaria) along roadsides in northern New York State. *Scientific Reports*, *12*(1). https://doi.org/10.1038/s41598-022-09194-w