



Lumberjack Grant Application

PROJECT TITLE:

**Mass Rearing of Purple Loosestrife Biocontrol Agents:
Improving Efficiency and Numbers in 2023**

Submitted by (name):	Derek Thorn and Rosie Page
Organization:	Lumberjack's FLOW AIS program and Wisconsin Headwaters Invasives Partnership (WHIP)
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Counties:	Forest, Vilas, Oneida

Mission Statement: *Lumberjack Resource Conservation & Development Council, Inc., a multi-county, nonprofit in Northeastern WI, strives to enhance area natural resources, promote a higher standard of living and improve the quality of life for area citizens by fostering partnerships between public and private sectors and strategically investing in area natural resources.*

SUMMARY: Review the Lumberjack Mission Statement above. How does your project align with Lumberjack's mission? Be specific. The more alignment points, the better your project is viewed.

Answer:

Habitat change from invasive species is recognized as one of the most harmful forces affecting our native plants, animals, and landscapes. This is even more pronounced in the Northwoods, because invasive species can significantly alter the success of three main local industries: forestry, tourism, and recreation. Lumberjack recognizes the importance of preventing invasive species from damaging our area natural resources and residents' lifestyles in our rural communities, and therefore Lumberjack currently employs several individuals to work on protecting area natural resources, focusing on the control of invasive species.

Through this grant proposal, Rosie Page (Wisconsin Headwaters Invasives Partnership) and Derek Thorn (FLOW AIS) wish to collaborate in 2023 on the control of invasive purple loosestrife (PL or *Lythrum salicaria*), an exotic plant found on hundreds of shorelines and wetlands in the Lumberjack RC&D area. For the past roughly ten years, Lumberjack RC&D employees have been involved with raising biocontrol beetles for this species. Now, we are proposing an updated growing system known as a "mass rearing cage", in which beetles are reared in a tent on plentiful PL plants, then transferred to infestations in the wild where they feed and keep PL numbers manageable.

This project will enhance our area's natural resources by directly addressing aquatic invasive species (AIS) prevention and control in Forest and Vilas Counties. Purple loosestrife is a highly opportunistic species that colonizes gaps in vegetation quickly and can transform shorelines and wetlands from wet to dry in very little time. Changing our landscape and damaging waterways will directly degrade the quality of our natural resources, but it also changes the experience of area residents, who

choose to live in the Northwoods to enjoy an outdoor lifestyle. Invasive species are also known to damage property values because of their negative impacts on native plant communities, both on land and in water.

The battle against purple loosestrife is an ideal example of partnerships between private and public entities, both in the Lumberjack area and statewide. Since the first Wisconsin beetle release in 1994, thousands of volunteers of all ages have contributed to the initiative: students, retirees, professionals, natural resource staff, and landowners all pitch in to help dig PL plants, grow biocontrol beetles, release them, clip flowerstalks, report their work, and help each other learn new ways of being most effective. In our area, PL biocontrol is arranged by county AIS staff and Lumberjack staff, with multiple cooperative arrangements with lake associations and other nonprofits. For example, WHIP works with volunteers at the privately-owned Tenderfoot Forest site in Land O'Lakes, while FLOW handles numerous requests each summer from lake groups asking for assistance with beetle releasing and PL identification. It is a complicated but effective team project, known to be a very gradual success story since the 1980s when PL control was still rare.

Working together on this project would be a valuable way to streamline our Lumberjack PL work and ensure local access to enough biocontrol beetles in our counties. This project embodies partnership by having two entities working together, which strengthens the Lumberjack sponsorship and investment in both programs (WHIP and FLOW).

We are confident that our project aligns very well with Lumberjack's mission statement.

OBJECTIVES: What problems, concerns or opportunities will this project address? You will be asked to show how your objectives were met when you present your follow-up presentation to the Council.

Answer:

Purple loosestrife (PL) is a highly aggressive invasive wetland species that is native to Europe and Asia and can release more than three million seeds per plant. Due to the complications of managing a plant in a mucky wetland, the most efficient control method since the 1990s has been **biocontrol**. This is the practice of using one species (the natural predator) to manage another (the prey), and in our state the process has been coordinated by the DNR Wisconsin Purple Loosestrife Biocontrol Program for over 25 years. It is an especially useful control method in areas where access to the plants is difficult, and it completely avoids having to introduce chemicals (herbicides) into sensitive waterways to control the PL.

In recent years, our programs have raised PL beetles by placing them on potted plants covered by nets and held up by a clothesline or similar support. In contrast, we now propose switching to using a mass rearing cage, which eliminates much of the maintenance work on the potted plants (especially transporting them across large counties), and it will allow us to raise as many biocontrol beetles as possible, most efficiently. Instead of driving pots (filled with heavy, wet soil and beetles), to new locations for release, a cage allows beetles to be captured, held in small tube nets, and then driven to new sites. Multiple biocontrol groups across state are switching to this method in 2023 (funded through various sources depending on their location), thanks to an offer from the WI DNR to supply the cages at no cost to local groups. We have worked with the state biocontrol coordinator, Jeanne Scherer, to maintain communication and ensure we are up to date on best management practices for this field.

Another advantage of our new method is that the WI DNR has interest in starting overwintering projects to study these starter beetles, and this would position Lumberjack as an ideal partner on this work. Leading biocontrol researcher Bernd Blossey (Cornell University) has found that PL plants and beetles that are kept outside during the winter perform more efficiently and feed more successfully in the following season, compared with those kept or reared in a greenhouse. In addition, our DNR colleagues report high demand for biocontrol beetles from lake associations and there are many examples of successful donations received from private groups in exchange for beetle deliveries.

FORMULATION & EVALUATION: Why is this project the best way to address the issues described above? How will the outcome be evaluated? Be specific – outcomes that can be measured are viewed more favorably.

Across the Midwest, this is becoming the favored approach for handling biocontrol of PL because it streamlines the process of rearing and releasing beetles. On a local level, this approach will enhance our ability to collaborate and be efficient with our resources, as detailed below.

Mass rearing cages allow:

- Faster and more efficient beetle collection
- Easier sharing with partners
- No need to drive multiple pots to multiple locations across large rural counties
- Much less plastic to collect at end of season and a decreased cost for new pots
- Potential for overwintering of plants in pots, for an earlier headstart on growing in spring

A Lumberjack mass rearing cage will help to:

- Prepare plants for overwintering
- Streamline our work and mileage costs
- Ease the burden on our volunteers who are aging
- Have greater confidence in beetle supply to control PL
- Inform the DNR and other groups regarding success and new ideas

Measurable Outcomes:

- Minimum of 15 known sites supplied with beetles
- Plentiful beetle supply reared in cage (enough for 200 per site)
- Fewer hours spent readjusting nets and pots due to weather (compared with 2022)
- Fewer volunteer hours spent carrying heavy pots with wet soil (compared with 2022)
- Minimum of 10 new sites supplied with beetles

Answer:

ASSISTANCE NEEDED: Why is assistance needed from Lumberjack? Who within your organization will run the project? Describe the assistance you are receiving from other partners. Include Letters of Support as outlined in Lumberjack's Granting Policy.

Answer:

Both project applicants (Derek and Rosie) have grant funding through other sources (federal Great Lakes Restoration Initiative and state DNR Surface Water grant) to support baseline PL beetle activities at certain sites, which is an important foundation for this project. However, those grants are meant for much more than PL and are often squeezed to include as many invasive species projects as possible. Therefore, this grant proposal would support our time managing the rearing cage and supplying PL beetles to sites that need them for control.

This project will also serve as a launch pad for securing a future state Surface Water AIS grant that will focus on establishing an "insectary" which is a local site meant to support large numbers of starter beetles.

We have received an offer from Forest County to house the cage and maintain watering of the plants. We also have interest from Vilas County Land & Water staff in partnering on this project, offering time and site visits, in exchange for supply of biocontrol beetles.

Finally, with a mass rearing cage, we would also be better equipped to partner with the private sector and accept additional future PL contracts with WPS as WHIP did in 2022.

Proposed Activities and Budget:

Activities

Pickup and setup of cage and frame: 8 hours x 2 staff = 16
Stocking of pots and filling with soil and roots: 8 hours x 2 staff = 16
Checking every week for June and July (1 staff): 4 hours x 8 weeks = 32 hrs
Gathering of beetles within the cage = 8 hours x 2 staff = 16
Driving beetles to sites = 16 hours x 2 staff = 32 hrs
Tear down of cage in September = 16
Total hours = 128 which is 64 per staff
128 hours x 25 = 3200 for staff time

Supplies

Soil and kiddie pools = 200
Tarps= 80
ShopVac= backpack style \$500 (Home Depot price, including vacuum, battery, and charger)
= 780

Travel= \$625 to cover regular visits to the cage site, at federal mileage rate (estimated 1000 miles at 0.625 \$/mile)

Total budget = 3200 + 780 + 625 = \$4605

PROJECT OUTLINE & TIMETABLE: List the project steps and expected completion dates. Could there be any possible roadblocks? If so, list them here.

Answer:

Projected season is May to October, with most activities occurring in June and July.

Month	Task
April	<ul style="list-style-type: none"> • Inspect site, gather and purchase any needed supplies • Hold planning meeting with partners
May	<ul style="list-style-type: none"> • Set up cage • Dig rootstock to grow in cage • Pot roots and set up watering plan • Create schedule for cage visits
June	<ul style="list-style-type: none"> • Monitor plant growth • Monitor local beetle activity • Catch starter beetles to stock cage
July	<ul style="list-style-type: none"> • Monitor beetle activity as numbers increase • Collect beetles using shopvac and sock netting • Transport beetles to PL sites for feeding and management • Collect beetles repeatedly as needed
August	<ul style="list-style-type: none"> • Transport beetles to PL sites as they continue to emerge • Clip flowerheads at accessible PL sites (such as shorelines) to contain infestations long-term
September	<ul style="list-style-type: none"> • Hold planning meeting with partners to determine best plan of action for overwintering plants • Take down cage and secure supplies for winter storage

Possible Roadblocks?

- Need for volunteers at time of setup and teardown
- Weather events affecting the cage
- Starter beetle availability

BUDGET: Complete the attached Budget Form. Remember the 50% match value requirement with 15% of the match being cash. List each match donor in the 'Match' column and submit a corresponding Letter of Support with specific value of in-kind/services or cash for the project

Match required: 50% = 2145 (15% or \$322 must be cash)

WHIP GLRI cash amount for digging and beetle release: \$600
 FLOW LMPN cash amount for digging and beetle release: \$600
 2 Cages and frames from WDNR: \$1400
 Inkind hours from Forest County to help with setup and water: \$400
 Inkind hours from Vilas County staff: \$1240

- Lakes Specialist time: Landowner permissions, paperwork, strategizing, cage setup, summer fieldwork = 30 hrs x \$28/hr = \$840
- LTE time: summer fieldwork, site monitoring, data entry= 25 hrs x \$16/hr = \$400

Total match = \$4240.

LUMBERJACK BUDGET FORM



Project Name: **Mass Rearing of Purple Loosestrife Biocontrol Agents**

WHIP, FLOW, Vilas County, Forest County

Starting Project Date
Jan 1 2023

Ending Project Date **1**
Dec 31 2023

Income (SPECIFY)	Cash	Match (Cash & In-Kind) 2,3
YOUR Request of Lumberjack RC&D	\$ 4,605.00	
WHIP Great Lakes Restoration Initiative funding		\$ 600.00
FLOW Surface Water grant funding		\$ 600.00
Wisconsin DNR contribution		\$ 1,400.00
Forest County inkind contribution		\$ 400.00
Vilas County inkind contribution		\$ 1,240.00
Other Revenue Source (list in Match Column)		\$ -
Other Revenue Source (list in Match Column)		\$ -
Other Revenue Source (list in Match Column)		\$ -
Total Income	\$ 4,605.00	\$ 4,240.00

Percent of Match=Match Total/Lumberjack Request **92%**

LJ Percent of Total = YOUR LJ Request/Total Expenses **52%**

General Expenses (SPECIFY & include Match expenses)		
Labor (including cage setup and teardown, stocking pots, cage visits, collecting beetles, release at field sites, and coordination) = 128 hours at \$25/hr		\$ 3,200.00
Supplies (including planting soil, tarps, kiddie pools to contain pots, and ShopVac tool to collect beetles safely)		\$ 780.00
Travel (mileage for regular cage visits and distribution of beetles throughout counties). = estimated 1000 miles x federal rate 0.625		\$ 625.00
Two mass rearing cages from WI DNR		\$ 1,400.00
Labor from Vilas County Lakes Specialist and LTE for coordination, cage setup, and summer fieldwork		\$ 1,240.00
Labor from Forest County staff for cage setup and watering of pots		\$ 400.00
WHIP GLRI funding for coordinator travel, landowner communication and coordination		\$ 600.00
FLOW state funding for purple loosestrife activities		\$ 600.00
Total Expenses		\$ 8,845.00
NET 4		\$ -

1 Lumberjack Project funds are available for one year from the date of the approval notice

2 Match Value must equal at least 50% of the Lumberjack Request and 15% must be in cash