

Campus Sustainability Fund Final Report

1.0 - Project Report

1.1 - Project Title:

Campus Garry Oak Ecosystem Restoration Project

1.2 - Report Prepared by:

Please indicate which leader is the main contact person

Name: Larissa Bron

UVic affiliation: Student

[Redacted]

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1.3 - Key Accomplishments

Please describe your projects key accomplishments.

- Executed multiple invasive species management trials in a conservation-concern ecosystem on campus. Invasive species targeted included Scotch broom (*Cytisus scoparius*), English ivy (*Hedera helix*), and snowberry (*Symphoricarpos albus*).
- Reintroduced native species including common camas (*Camassia quamash*), shooting star (*Primula hendersonii*), and woolly sunflower (*Eriophyllum lanatum*) which represent the understory biodiversity rapidly being lost regionally, as well as supporting the preservation of cultural and ecological values of Garry Oak Ecosystems (GOEs).
- Involved students from multiple disciplines to contribute over 1200 volunteer hours by more than 700 people.
- Hosted in-person events throughout the pandemic which allowed students to continue building peer networks and participate in hands-on stewardship activities when university life was mostly online.
- Developed a tool repository near the restoration site with equipment including gardening hand tools, COVID supplies, tarps for mulching trials, and gloves – empowering the UVic Ecological Restoration Club (UVic ERC) to continue restoration efforts after the project end date.

1.4 - Student Learning:

Please describe how the expected student learning opportunities were realized.

- Consistent, hands-on ecological restoration volunteer activities since 2020 have resulted in students participating in and learning about:

1. Regional biodiversity and capturing data within the iNaturalist project for the Campus GOE (<https://inaturalist.ca/projects/uvic-garry-oak-ecosystem-restoration-project>). There are currently 2,048 observations which detail 336 species within the Campus GOE, with 226 uploading observations and 337 people engaged with identifying the species.
2. Planning, implementing, and monitoring community ecological restoration projects. The project has involved at least 20 students in higher-level planning and monitoring for the project, as well as hundreds of people participating in implementing restoration techniques. Students learned about best practices for management, adaptive management, and fundamentals of ecological restoration.
3. Techniques in removal and ongoing maintenance of invasive species such as Scotch broom, spurge laurel (*Daphne laureola*), English ivy, and invasive grasses including sweet vernal grass (*Anthoxanthum odoratum*) and Kentucky bluegrass (*Poa pratensis*). Invasive species were removed using hand tools, with different methods compared, and typically followed up with seeding and planting native species.
4. Networking and building a student community in ecological restoration, including participating in community and UVic ERC volunteering and pursuing the Restoration of Natural Systems diploma at UVic. Students involved in events in the Campus GOE commonly participate in the clubs' efforts with partners such as Parks Canada, the Galiano Conservancy, and Trial Islands Ecological Reserve.

1.5 - Goal Acquisition:

Was the project goal achieved? In answering please describe how the project effected the relevant stakeholders and where the project is currently.

- The overarching restoration goal was to support the understory plant community that provides ecosystem structure and composition, but is currently limited in extent due to trampling, neglect, and invasive species.
- There were four main objectives for the near-term management to achieve this goal, and each was met as follows:
 - a) Suppression of invasive plants.
 - Area estimates of invasive plants that have been removed include:
 - Snowberry: 575m²
 - English ivy: 2000m²
 - Daphne: 1300m²
 - Grasses: 250m²
 - Additionally, diffuse plants such as Scotch broom and Queen Anne's Lace (*Daucus carota*) have been removed from the main meadow area (more than 13 500m²).
 - b) Increase the diversity and abundance of meadow plants through species addition.
 - More than 30 species of native plants have been added to the restoration site as both seeds and starts, including from the UVic ERC's student-led Native Plant Nursery.

- Successful plant establishments observed on iNaturalist include camas, wooly sunflower, white brodiaea (*Triteleia hyacinthina*), Columbia brome (*Bromus vulgaris*), and California oat grass (*Danthonia californica*).
 - Facilities management has altered mowing schedules to promote the flowering and seed set for plants like camas (*Camassia sp.*) to improve the natural seed bank on site.
- c) Shifting recreational use to decrease trampling and soil compaction.
- A change in recreational use has not been directly observed, though over 700 people have participated in restoration activities which include education regarding the conservation value of the Campus GOE. Increasing awareness of the area as a culturally and ecologically important place is likely to contribute to decreased recreational misuse of the area.
- d) Increase community engagement.
- Multiple community members have participated in restoration events and have commented on project implementation. Overall, community members have been grateful for the efforts towards stewarding the Campus GOE, especially in increasing the size of the spring wildflower bloom.
 - Students from multiple faculties including math, psychology, engineering, and physics have participated in events and contributed to growing a dynamic and robust volunteer community.
 - The Campus GOE has become a destination for hands-on campus field trips, including recurring semesterly visits from ES 341 (Past, Present, and Future Ecologies) and GEOG 209 (Environmental Management).
 - We have ongoing collaborations with community partners including Satinflower Nurseries, the UN Decade on Ecological Restoration, and the Invasive Species Council of British Columbia.

1.6 - Long Term Consequences:

How will this project be continued and its accomplishments carried forward?

- The UVic ERC is a student club which has been active since 2011 and the Campus GOE Ecological Restoration Project has been the club's focal campus project since 2019. The club is a permanent group on campus, and it is likely that the momentum from this project will continue since students, faculty, and the community are all currently engaged with participation that increasing each semester.
- The UVic ERC recently received funding to continue invasive species management trials in the Campus GOE and improving educational outcomes at events. This work is positioned to compare methods in suppressing relatively large tracts of invasive grasses.
- All project activities have been documented, as well as many being monitored over time, so that the project can continue to grow and diversify while adapting to the needs of the site and learning from past experiences.
- The Sustainability Fund has decreased barriers to students hosting restoration events by providing funding that was applied to a permanent tool storage space, as well as bulking up the equipment library. This is now more accessible because students do not require a vehicle to

move equipment and many kinds of restoration activities can be practiced due to the diversity of equipment.

1.7 - Lesson's learned:

What advice would you give others attempting similar projects through Sustainability Fund?

- Collaboration is key! This project was developed by one person and would not be possible without ongoing collaboration and involvement from faculty, facilities management, the UVic ERC, and community groups.
- Utilize the funding to build capacity for students to meaningfully engage with your project and create connection to building sustainability within our community. Involving multiple students within project planning and implementation improved the diversity of experiences and knowledge included in collaboration that resulted in a diverse project with many positive outcomes.
- Keep a log of everything you do. The money spent, volunteer hours contributed, and milestones reached quickly melded together into a memory soup that would be challenging to decipher without dated notes.

1.8 - Timeline:

Please provide the *actual* project start and end dates

Start Date: November 2020	End Date: November 2022
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1.9 - Feedback

Do you have any feedback for the Office of Campus Planning and Sustainability or the Sustainability Fund Application Review Committee regarding your experience with the Fund?

Thank you! I appreciate the ongoing support, check-ins, and attention to detail from all staff at Campus Planning and Sustainability. I am very grateful for this funding as it created the foundation for exponential growth of the Campus GOE Restoration Project and the UVic ERC.

2.0 - Project Financials

2.1 – Budget

Please provide a completed final budget describing how the budget provide was actually spent. Please provide receipts for any expenses that have not yet been claimed through the Office of Campus Planning and Sustainability.

- \$3050.00 awarded in November 2020, total spent is \$3043.61 by November 2022.
 - **Projected costs: \$3042.58**
 - Volunteer Appreciation: \$980
 - Food at events, semester wrap up party
 - Native plants: \$721.05
 - Seed mix
 - Equipment: \$1010.92
 - Tarps for mulching trials, fencing, knives, and rakes.
 - Communication: \$50
 - Paper and printing
 - 10% Contingency: \$276.60
 - **Actual costs: \$3043.61**
 - Communication: \$84.00
 - Medium sized “lawn” signs with project overview and contact information for the community.
 - Equipment: \$1969.31
 - 6ft high deer exclusion fencing to protect native planting areas. Constructed of t-posts and chicken wire.
 - Hand tools for removing invasive species. Tools: loppers, secateurs, gloves, linoleum knives, rakes, shovels, and pitchforks.
 - Tool storage bins.
 - Tarps and clear plastic for mulching grass trials.
 - Volunteer food: \$227.10
 - Juice boxes and granola bars.
 - Native plants: \$752.92
 - Seeds and plant starts of multiple species.
 - Safety: \$10.28
 - COVID face masks.

Please submit completed forms electronically to sustcoord@uvic.ca