UVIC SUSTAINABILITY SCHOLARS PROGRAM

# Summer 2024 Internship Opportunity

TITLE

## Researching the invasive aquatic plant, Parrot's Feather, and its relationship with other native and invasive aquatic plant communities in support of the restoration of S'amunu/Somenos Creek fish habitat and access.

**Organization**

Somenos Marsh Wildlife Society (SMWS)

## Project Background & Overview

Somenos Creek is a 3 km long creek and the S'amunu/Somenos Watershed outlet into the Cowichan River, a Canadian Heritage River, famous for its annual salmon runs. Somenos Creek has a serious challenge with Parrot's Feather, an aquatic invasive plant first found in the creek in 2014, that now covers 70% of the creek's surface. The S'amunu/Somenos Watershed, once known as the largest salmon nursery on Southern Vancouver Island, now has few fish, and both spawning salmon and young fry seeking protection from the fast-flowing Cowichan River now face the barrier of poor water quality and plant density created by the Parrot's Feather infestation. These barriers delay access for spawners into the watershed until the winter floods flush the Parrot's Feather out of the creek which then improves water quality and access for fish.

Unfortunately, the winter 'flushing' often takes place after the main Coho Salmon migration has taken place, resulting in few fish reaching their spawning grounds. Somenos also provides a haven for fry and smolts being washed out to the ocean as they seek shelter before growing larger. They too can no longer access the watershed due to the plant and water quality barriers. Climate change plays an integral role as summer rains are less frequent and limit the stream flow needed to improve water quality and discourage Parrot's Feather growth.

We will be undertaking our second year of Parrot's Feather control to clear a channel to see if this creates improved water quality for fish access to the watershed. We have now acquired a small drone and are undergoing training to help with mapping so this will be a useful tool for the Scholar to use.

## Project Description

The Scholar's research will help us understand the role of neighbouring plant communities, *i.e.* Smart Weed and Lilies, in relation to the Parrot's Feather spread, as we have noticed some communities of these plants have caused a withdrawal of the Parrot's Feather.

The research project will study the relationship of these and other aquatic plants with Parrot's Feather. For example, do Water Lilies provide enough shade to be a barrier to Parrot's Feather growth? Is Smart Weed more aggressive than Parrot's Feather, or do they 'mutually agree' on borders between plants? At one time Parrot's Feather began where Somenos Creek meets Somenos Lake, and now Parrot's Feather has vacated the first 300 meters of the creek. Why has this happened?

## Project Scope

The 3 key objectives would be:

1. Map the presence of the Parrot's Feather and suggest priority removal
2. Review impacts of neighbouring native and invasive plant communities on Parrot's Feather spread
3. Develop removal strategy/protocol in relationship to neighbouring plant communities

The research project will involve monitoring both invasive and native plant growth and water quality to study the relationship between each plant community and measure the impact on neighbouring plant colonies. In addition, the project will involve researching the impact of each plant community on water quality in and around each plant community. We do know that Parrot's Feather causes water below the plant to become anoxic while a related invasive aquatic plant, Eurasian Milfoil, creates oxygen below the plant. Research papers on this topic have informed us that invasive animals and insects are drawn to these anoxic waters while Milfoil attracts native species including fish and amphibians. The project will begin in May to coincide with our 2024 Parrot's Feather management activities. An additional research option would be to determine how to dispose of the harvested material and whether valuable compost could be created from the plant.

## Deliverables

The final deliverable will be a report outlining the project objectives, background, research findings, analysis and recommendations to help control the Parrot's Feather plant in Somenos Creek.

## Time Commitment

The Project would begin in early May 2024 to coincide with the beginning of our 2024 Parrot's Feather control experiment efforts and would end August 15, 2024, to meet the UVic deadline.

## Required/Preferred Skills and Background

- Excellent research and writing skills
- Demonstrated interest in sustainability
- Familiarity with research methodologies and survey techniques
- Statistical analysis
- Familiarity conducting focus group research
- Strong analytical skills
- Ability to work independently
- Project management and organizational skills
- Strong technical and drafting skills
- GIS training or experience
- Familiarity preparing feasibility studies
- Experience with sophisticated water quality monitoring equipment
- Drone survey experience or knowledge

## Additional Information

Preference may be given to an Indigenous scholar for this project. Somenos Creek flows through Cowichan Tribes lands, and we collaborate closely with Cowichan Tribes on this initiative. Our partnership involves the active participation of a Cowichan Elder who sits on our board, emphasizing our positive and longstanding relationship with Cowichan Tribes. This cultural connection is always treated with utmost respect as we operate on Cowichan Tribes lands.

Our overarching goal is to reintroduce salmon to the watershed, given that Somenos was once inhabited by thousands of Cowichan people. We view the restoration of fish populations as our contribution to the process of reconciliation. The Scholar's research is anticipated to play a valuable role in advancing towards this long-range objective.

## Additional Project Requirements

The SMWS is fully equipped with materials and equipment necessary to conduct the research. The project location is in Duncan on Vancouver Island. Ideally the Scholar will be based in Duncan, but SMWS will provide per diem compensation for travel to and from the research site. We have an office and small lab in Duncan that would be available for the Scholar’s use.

**UVic Sustainability Scholars Program**

All current UVic graduate students are invited to apply for an impactful sustainability research project. Sustainability Scholars Program internships are designed and mentored by partner organizations and paid at a rate of $30.87 per hour (after deductions) for 250 hours from May 1 to Aug 15. Explore details on our website and review eligibility criteria before applying. Contact Laurel Currie, Program Manager, with any questions: sustainability-scholars@uvic.ca.