

## **Graduate Internship Opportunity**

### **Summer 2025**

#### PROJECT TITLE

**Examination of Municipal Park Connectivity, and Forest Species Sustainability within North Saanich –A First Approximation**

#### ORGANIZATION

Friends of North Saanich Parks

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### **Project Overview**

#### **Background**

Forest fragmentation occurs when large natural ecosystems are broken into smaller, isolated patches, impacting habitat quality, biodiversity, and species survival. Fragmentation increases light exposure, temperature, wind speed, and reduces humidity, making habitats uninhabitable for some indigenous plants and animals. Smaller fragments can limit species dispersal, reducing overall biodiversity.

#### **Key Studies:**

- Hadid et al. (2015): Found that 70% of the world's forests are near human activity, reducing biodiversity by 13-75%.
- De Matos et al. (2019): Developed a forest sustainability index to identify priority areas for protection.
- Southern Ontario research highlights fragmentation metrics: size, proximity, connectedness, and ecological integrity.

#### **Project Objectives**

1. **Assess Forest Connectivity and Fragmentation:**

- Evaluate the size, condition, and connectivity of North Saanich municipal forested parks.
- Identify whether these parks support species dispersal and biodiversity.
- 2. Identify Opportunities for Enhancement:**
  - Examine other forested tracts in North Saanich that could supplement the existing park system.
  - Propose recommendations for improving species sustainability and habitat connectivity.
- 3. Sustainability Indicators and Recommendations:**
  - Develop indicators to measure forest sustainability and assess patterns of potential ecological health.
  - Provide long-term planning strategies to enhance park connectivity, ecosystem resilience, and biodiversity.

### Context

North Saanich's forested municipal parks are critical for water conservation, nutrient cycling, carbon storage, and the well-being of residents. However, most parks are small (1-2 hectares) and fragmented among residential areas, limiting their capacity to sustain diverse ecosystems and ensure species dispersal.

The forest ecosystems are relatively young, having regenerated after agricultural clearing during European settlement. Old-growth remnants exist in John Dean Park (provincial) and smaller municipal parks like Pavlic and RO Bull. As these forests mature, careful ecological planning will be needed to ensure long-term sustainability and connectivity.

### Key Questions

- Are North Saanich's municipal parks of sufficient size and connectivity to sustain indigenous ecosystems?
- If not, what additional forest tracts or strategies could improve biodiversity and species dispersal?
- What indicators can guide long-term sustainability planning for North Saanich's forested parks?

### Importance

This project will help Friends of North Saanich Parks (FNSP), and local governments develop strategies for enhancing municipal park networks, promoting species sustainability, and preserving ecological health for future generations.

### Project Description

The overall objectives of the project are: A) Examining the municipal park fragments to see if they have sufficient size and quality to sustain flora and fauna B) Finding and assessing forest tracts among non-municipally owned properties in order to potentially extend flora and fauna protection-thus preserving biodiversity and/or permitting it to develop B1) Pinpointing some test cases to potentially extend protection and finally C) Demonstrating how additional protection could be realized.

The Sustainability Scholar will be responsible for mapping the forested parks' present connectivity, according to a rating system. This aspect will include examining whether the network as a whole and/or individual parks are satisfactory in potentially conserving and sustaining indigenous species. Addressing the question will involve delving into the other factors that may limit species biodiversity and sustainability in North Saanich parks where park connectivity is one potential factor.

The Scholar will highlight individual parks or parts of the network that constitute potential species sustainability problems. A rating for overall sustainability will be created and applied to the forest tracts in North Saanich. Finally, the Scholar will formulate some recommendations to improve sustainability centered on the current municipal park system and other forest tracts.

Recommendations can be presented to the North Saanich Municipal Council as a way of seeking change in the present park network. In future, for example, covenants and agreements or collaborative partnerships with owners within the Agricultural Land Reserve, agreements with Federal agencies, or with private strata with larger holdings, as well as agreements with recreational organizations and First Nations could increase canopied protection for flora and fauna. A sample of four forest tracts can explored as examples of potentially increasing the sustainability of the current park network.

The work will be supervised by the Research and Projects Director for the Friends of North Saanich Parks. Background information on the parks will be supplied by FNSP. The Scholar will supplement the existing information with literature searches and contact professionals who may have information on the subject. The project will begin in the spring of 2025.

### Key Deliverables

- 1) A map of North Saanich forested tracts showing a species sustainability rating based on values assigned to key factors. The rating will be shown in 4 examples. The map is a first approximation at 1: 20,000 or a similar suitable scale chosen by the Scholar.
- 2) A map of the individual North Saanich forested parks with a specific connectivity rating based on physical and habitat factors and linked to the broader potential

sustained biodiversity rating found in map 1. This is a first approximation for determining park connectivity at a suitable scale chosen by the Scholar. On the same map the four selected forest tracts might be placed. The option will be up to the Scholar in designing the map.

- 3) Prepare recommendations to improve the connectivity of the future forested parks in North Saanich, if possible, with the aim, in turn, of improving the potential survival of flora and fauna. Some indication could be given, if possible, of how limiting park connectivity is compared to other factors.
- 4) Prepare recommendations to increase forest ecosystem protection in North Saanich by agreements or covenants with respect to non-municipal ownership.

### Scope of Work

- 1) Conduct comparisons of benchmark species habitat requirements to the size and nature of current municipal parks-Discuss and map the results.
- 2) Conduct assessments of a few tracts of land for potential sustainability-Discuss and map the low, medium and high results either at approximately 1: 15,000 or 1: 20,000. The Scholar can choose the most suitable scale.
- 3) Determine the nature of agreements, covenants or partnerships that protect forest ecosystems not in public ownership.
- 4) Make recommendations to improve a) forest connectivity for the park network and for individual parks as necessary and b) other potential ways to sustain species with protected forested tracts. In general, is there a need for larger public land bases, forest ecosystem covenants with other types of ownership and the need to generate protected corridors?
- 5) Place this information within a report.

Any adjustments to these goals will be addressed at the beginning of the Scholar's work period.

### Time Commitment

Work will take place between May 1<sup>st</sup> and August 15<sup>th</sup>, 2025, covering 250 hours. The Scholar will work closely with the Director of Research and Projects for FNSP. The rating systems for park connectivity and the potential species sustainability will be developed based on relevant literature and will consider the factors mentioned in this document. These will be implemented by the scholar. The two draft maps (or one if all material can

be placed on one) for park connectivity, sustainability rating for the tracts will be produced next. These goals will be achieved in approximately the first five weeks.

We anticipate it will take approximately 130 hours. In the next weeks these maps and rating systems will be subject to modification and park management recommendations will be formulated. Another approximately 35 hours should be spent on the park/canopied forest ecosystem management and protection recommendations (including the agreements that might be used) and about 85 hours should be spent producing the final document.

A series of in-depth initial meetings will take place to ensure the Scholar has all the background knowledge, access to literature and direction necessary for the project. FNSP anticipates and recognizes that exploration by the Scholar may modify some of the factors for the rating systems, the mapping scales or other operational elements of this proposal. Periodic in person meetings after the initial series of meetings will take place as the project evolves. The schedules and reporting periods will be determined at the start of the work period. It is the responsibility of the project Director to resolve any questions that Scholar might have as well as to ensure a smooth path in research, prepare the foundation of the project and to supply clarity about the project.

### Preferred Skills & Background

- Excellent research and writing skills
- Demonstrated interest in sustainability
- Familiarity with research methodologies
- Statistical analysis possibly
- Strong analytical skills
- Ability to work independently
- Deadline oriented
- Project management and organizational skills
- Demonstrated background in one of the following: Environmental Studies, Geography, Forestry, Ecology, Botany, or Restoration, or a like academic background
- GIS training or experience, particularly mapping experience; interpretation of existing maps and use of remote sensing materials
- Comfortable interacting with strangers to gain relevant information
- Design and layout skills

### Additional Information

The suitable candidate should be experienced in forest ecology or equivalent, knowledgeable about local Greater Victoria/Saanich Peninsula flora and fauna and with ecosystem characteristics such as those found in the BC Biogeoclimatic Classification system (BEC). The candidate should be skilled in GIS mapping and map/remote sensing interpretation as well as in conducting various literature reviews and evaluating the results. The Scholar should also be able to work independently and require minimal oversight (though there will be continual support and direction from FNSP's Director of Research and Projects). All qualified applicants will be considered for the position.

### Additional Requirements

- The Scholar may use their preferred computer system, but Microsoft Word is preferred for report submission.
- A phone with local calling is required for communication.
- Meetings with FNSP will take place in person, via email, or over Zoom to discuss progress and gather information.
- A vehicle is necessary for field visits to parks. If more than six trips are required, a fuel supplement can be discussed with FNSP.
- Up to 8 field trips are anticipated to various forested tracts, parks, and neighborhoods in North Saanich.
- Research and work can be conducted from home, university facilities, or other suitable environments when not engaging with FNSP.

### Program Information

**Dates:** May 1—August 15, 2025

**Compensation:** Scholars are paid approximately \$7,950 for 250 hours of work (based on UVic Research Assistant pay rate)

**Application Deadline:** January 31, 2025

**Contact:** Laurel Currie ([sustainability-scholars@uvic.ca](mailto:sustainability-scholars@uvic.ca))

[Visit our website](#) to learn more about eligibility and application requirements.