# **Prioritizing conservation actions: development and application of Marxan type spatial planning tools in the Georgia Basin**

# Lecturer: Richard Schuster

This 6 hour workshop will introduce the development and application of Marxan type spatial planning tools to prioritize land acquisition, easements and incentives in favor of conservation. We are going to use the prioritizr framework (<https://prioritizr.github.io/prioritizr/>) and an example developed for the Coastal Douglas Fir Conservation Partnership (CDFCP) region by the group of Dr. Peter Arcese at UBC (<http://arcese.forestry.ubc.ca/marxan-tool-cdfcp/>)

The reserve design problem will be introduced using examples from the BC Central Coast, Georgia Basin-Willamette Valley of BC, WA and OR. Next, we will briefly introduce approaches for species distribution modeling, followed by an introduction to spatial optimization. We will then use an online tool to explore case studies, indicator communities, and the potential for complimentarity in conservation planning in the CDFCP region, a critically imperiled region of BC that includes ~200,000 mainly privately-owned land parcels on se Vancouver Island, the Southern Gulf Islands and Sunshine Coast.

Once acclimatized, we will form small teams to design, carryout and report on new scenarios aimed at 1) prioritizing CDFCP parcels for the protection of Critical Habitat for SARA-listed species and 2) co-benefits of biodiversity and carbon prioritization, in addition to the old forest and savanna ecosystem goals already identified for the region.

Learning outcomes include understanding:

1. the use of biological indicators and species mapping to predict biodiversity value,
2. the problem of optimization over diverse goals and solutions to it,
3. the valuation of and incorporation of ecosystem services into spatial planning
4. the development and application of Marxan type spatial planning tools and scenarios

**Schedule**

* Introduction to Systematic Conservation Planning - goals, indicators and cost layers.
* Species Distribution Models – approaches and cautionary notes
* Economic, Ecosystem Service and Regulatory Targets.
* Algorithms and Approaches
* Complimentarity – In-class simulations using the CDFCP tool
* Analysis, Graphical Outputs, and Interpretation