Master's student (S1-MSc2), **Testing UN SEEA in ResNet Landscapes**
Start Date: Fall 2021
Salary: $18,000/year + possibility of additional scholarships
Duration: 2 years
Location: Department of Natural Resource Sciences, McGill's Macdonald Campus
Supervisors: Dr. Klara Winkler and Dr. Elena Bennett

Description
Natural resource accounting frameworks are an important tool for tracking the contribution of ecosystem goods and services to the economy at the national and sub-national levels. The best example may be the new international statistical standard *System of Environmental-Economic Accounting Ecosystem Accounting* (SEEA EA). Developed by United Nations in collaboration with numerous international and national organizations, the SEEA EA is aligned with the standard national economic accounting principles, the application of which results in the creation of data that can be compared to standard economic indicators of GDP, employment and trade for use in decisions on economic development policies that impact the environment. The SEEA statistical standard has proven instrumental in harmonizing and prioritizing collection of environmental statistics in other domains (land, freshwater, energy, waste, etc.) and points to its usefulness in the context of ecosystems and the services they provide.

The NSERC funded research project ResNet conducts place-based research in six Canadian sea- and landscapes to better understand the relationships between nature and people. This can involve identifying and measuring or modelling ecosystems; their extent, condition, the services and the benefits they provide.

The task of the student will be to compare the UN SEEA EA to one or more ecosystem service frameworks across ResNet landscapes, with the goal of improving our understanding of how different ES frameworks lead to different understanding of the world around us. The position will be co-supervised by Dr. Winkler and Dr. Bennett and be part of the ResNet Synthesis team in Dr. Bennett's lab.

The successful applicant will have the opportunity to engage with other ResNet researchers and partners, including Statistics Canada, who are deeply engaged in UN SEEA EA.

Ideal Qualifications

We seek a candidate with an BA or BSc degree with a specialization in environmental science, geography, economics, ecology, or similar. Familiarity with ecosystem services and knowledge of ecology and economics will be considered an asset.

We recognize that diversity is central to strong and innovative teams and that scientific labs in academia are often lacking in diversity. We therefore encourage candidates to indicate voluntarily on their applications if they are a woman or non-binary gender, an Indigenous person, a person with a disability, or a member of a visible minority group.

To Apply:
Send a cover letter describing your background and fit to the position, along with a CV, and list of references in one pdf to resnet.nrs@mcgill.ca. As we have multiple positions open, please explicitly state the position for which you are applying. References will only be contacted for short-listed candidates. Applications will be reviewed on a rolling basis. The position will stay open until a suitable candidate has been identified.

PhD student (S1-PhD1), **Understanding ecosystem service indicators**
Start Date: Fall 2021
Salary: $21,000/year minimum + possibility of additional scholarships
Duration: 4 years
Location: Department of Natural Resource Sciences, McGill's Macdonald Campus
Supervisors: Dr. Elena Bennett and Dr. Murray Humphries

Description
Working within the ResNet synthesis team, with co-supervision by Dr. Humphries and Dr. Bennett, this student will investigate indicators used to monitor ecosystem services at a variety of scales around the world, with special attention to exploration of interactions among services and interactions among places (e.g., through trade). The PhD project will involve research to better link ecosystem accounting (e.g., the System of Environmental Economic Accounting) to ecosystem monitoring by improving our understanding of the information needed to monitor the ecosystem services in common ecosystem accounting frameworks and identifying major gaps in Canada's current ES monitoring efforts.

Other aspects of the project might include developing a scientific framework for multi-scale ecosystem service data collection and analysis. This fundamental work will ensure that care is taken to measure services across project landscapes in a comparable manner that can scale up to a national scale observatory. Research shows a remarkable variability in the way ecosystem services are conceived and measured, including a significant gap between the way that are viewed in the economic and ecological communities, which has limited the scientific community's ability to synthesize across studies. The scale at which ES are measured has an impact on measured outcomes and understanding, so care must be taken in devising an observatory that aims to be functional for both landscape- and national-scale decision-making. Furthermore, most ecosystem service proxies show poor fit to primary data, making them unsuitable for use in decision-making. Therefore, it is critical that we begin by carefully considering comparability, measurability, and scale.

Ideal Qualifications
We seek a candidate with an MSc degree that focused on ecosystem service measurement or similar, with experience working across multiple scales, and as part of large projects. The successful candidate will be data-oriented with excellent skills in managing, analyzing, and synthesizing ecosystem service data. Familiarity with ecosystem service modelling or ability to build ecosystem service models would be a plus. A good publication record indicates capacity to write the high level papers we anticipate will be the outcome of this PhD.

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Postdoctoral Researcher (S1-RA1), **Building an ecosystem service dashboard for Canada**

Start Date: As soon as possible
Salary: ~$50,000, commensurate with experience
Duration: 3 years
Location: Based at McGill's Macdonald Campus
Supervisor: Dr. Elena Bennett
Project info: http://www.nsercresnet.ca

Description
This research position will work across all landscapes and themes of the ResNet to build and road-test a prototype dashboard for monitoring ecosystem services across Canada using machine learning alongside inductive modeling. We will start by developing a prototype dashboard for monitoring ecosystem services at multiple scales. The successful applicant will use generalized models of ecosystem service networks built by the ResNet project team (theme 3), incorporate predictions arising from models of ecosystem service supply and demand (theme 2), and quantitative data and other knowledge forms from across the project's target landscapes (landscapes 1-6), including decision-space maps (theme 1). This level of integration will ensure that the dashboard is useful to decisions made in Canada's working landscapes. The aim is to ensure that to account not only for production of *or* demand for ecosystem services, but include flows from one landscape to another that are often ignored in ES decision-making. Ultimately, the dashboard will enable Canada to incorporate data and model-based projections from ongoing monitoring systems for ecological and social-ecological change into its national accounting system for ecosystem services. The platform will be the source of information needed to enable better decision-making for ecosystem services in and across Canadian working landscapes. For more information on the project, please visit http://www.nsercresnet.ca.

Ideal Qualifications
We seek a candidate with a PhD with experience in dashboard development and programming, ecological modeling and ecosystem services, or a related field. Necessarily skills include top-notch inductive modelling skills, excellent capacity for synthesis, good people and communications skills to work across the entire project. High level programming skills needed to build a prototype user interface for the dashboard will be valuable.

Application Procedure
To apply, send in one document a cover letter describing your background and fit to the position, along with a CV, and list of references in one pdf to resnet.nrs@mcgill.ca. Please explicitly state the position for which you are applying. References will only be contacted for short-listed candidates. We encourage candidates to indicate voluntarily information on their application if they are a woman or non-binary gender, an Indigenous person, a person with disabilities, a member of a visible minority group.

Application deadline: Open until filled. Only short-listed candidates will be notified.