



Community-Based Research (CBR) Project Proposal Form

U-Links Administration Only

Project Number (automatically generated by CBR database):

Recommended Courses and/or Disciplines (i.e. GEOG4030Y, FRSC4890Y, IDST3700Y/3710H/3720H, ERSC3160H, PSYCH or Alternatives):

Recommended Faculty Advisors:

PROJECT TITLE:

A Carbon Stock Assessment Strategy for HHLT

A – CONTACT INFORMATION

Date: March 22, 2024

Contact person: Ralph Baehre

Phone: 613-334-5865(C); 705-448-9168 (H)

Email: ralpcoll93@gmail.com

B – COMMUNITY ORGANIZATION

a) **Organization's name and address:**

Haliburton Highlands Land Trust

739 Mountain Street

P.O. Box 1478

Haliburton, ON K0M 1S0

b) **Briefly state the organization's purpose and the products or services offered:**

The Haliburton Highlands Land Trust (HHLT) is a not-for-profit, non-governmental organization and registered charity dedicated to conserving the natural environment and enhancing quality of life in the Haliburton Highlands.

The Land Trust seeks to implement conservation management practices that build climate change resilience, protect lands and waters and maintains biodiversity.

One area of conservation management that is becoming more prevalent is carbon assessment of lands, and particularly those lands that require nature-based conservation solutions for protection. Ontario Nature lists the following benefits of assessing carbon stocks: improving land management, increasing protection, achieving sustainable forestry certification, enhancing public education, informing future research priorities, and potentially attracting financial support for conservation. With this project, the HHLT wishes to explore methods for assessing carbon sequestration in the Haliburton Highlands such as the Highlands Corridor and the Land Trust's properties and to make strides towards deciding on a strategy for estimating carbon sequestration and completing a preliminary carbon assessment.

Our vision:

A Haliburton County and surrounding areas with an abundance of protected lands and waters, where healthy, connected ecosystems allow wildlife and people to thrive, and help in the fight against climate change.

Our mission: To protect the lands and waters we love for future generations.

We do this by:

- *Taking care of the properties entrusted to us.*
- *Identifying additional significant natural areas for conservation.*
- *Promoting good stewardship of private lands and waters.*
- *Increasing knowledge of the natural heritage of Haliburton County through research and education*
- *Encouraging strong environmental protection policies and decision making*

We envision a future where the Haliburton Highlands is characterized by natural spaces and connections that support healthy and representative ecosystems and landscapes.

c) **Has an immediate supervisor or board approved this application?**

Yes

C - PROJECT SCOPE

a) **Full year undergraduate CBR projects are allotted 220 hours total, per 1-2 students on a single project. The condensed hours are similar to six weeks of full-time work. Full term students would be working on this project from September to April as part of a course, while balancing work from other courses as well. Does the scope of your project fit within this timeframe?**

Yes • No • Comments:

b) **Select the theme(s) for your project:**

- Cultural • Economic • **Environmental** • Social • Other:

c) **Based on the timeframe and complexity of your project, please indicate the potential project scale:**

These items are negotiable as scoping of the project may occur:

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- *Single year project: initial monitoring of Barry Wetland's flora and fauna*
- *Multi-year project (requiring follow up or several parts)*
- *Ideal for undergraduate students as a case study for biological monitoring.*
- *Ideal for graduate students (requires significant critical thinking skills, analyses and knowledge of conservation research and practices)*

d) Is your project appropriate for a single student or a group?

Group

e) Describe the purpose of the project:

f) How will the project benefit your organization and/or clients?

The HHLT's goal is to establish standard, science-based carbon assessment practices to achieve long-term conservation management objectives. These practices would allow for nature based conservation solutions to be developed to fulfill its mandate. Being able to model the existing carbon stock of areas in the Haliburton Highlands would be a key driver in planning for conservation management.

g) How will the results of this project benefit Haliburton County?

Land and water conservation in the Haliburton Highlands matters deeply to people who live in Haliburton County and surrounding areas. The HHLT's work is focused on private land conservation and complements the mandates and activities of other organizations and agencies in the area, including municipal, provincial and federal governments, conservation authorities, and other NGOs.

We envision a future where the Haliburton Highlands is characterized by natural spaces and connections that support healthy and representative ecosystems and landscapes.

D – RESEARCH DESIGN

a) What are the proposed research questions to be answered?

Ontario Nature has a documented strategy for carbon stock assessment. Based on a preliminary critique, is this strategy appropriate for use by the Land Trust? Are there other strategies?

Specific to a HHLT property or properties, or other areas in the Haliburton Highlands, how should a carbon stock assessment be designed and implemented?

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What are the results of implementing such a strategy, for the selected areas in the Haliburton Highlands?

What does field validation say about the value of the carbon assessment modelling?

How will carbon assessment modeling and field validation lead to supporting nature-based conservation solutions for the area?

b) What are your ideas on how these questions might be answered (i.e. survey, literature review, field work etc.)?

1. *A detailed review of the Ontario Nature's 'Beginners Guide to Measuring Carbon Stock to Support Conservation'. Accompanying this resource are a number of other learning U-Tube tutorials such as: [Tutorial: Estimating carbon stocks \(youtube.com\)](#) , and [Calculating Carbon for Conservation using InVEST \(youtube.com\)](#)*
2. *A review of the literature for other strategies, if decided to be in scope. A general critique and comparison of the strategies based on the requirements for implementation and possible outcomes.*
3. *To have In-the-field completion of monitoring protocols for field validation. The ON's Beginner's Guide provides some guidelines for completing field validations.*
4. *A summary review of nature-based solutions that might arise from carbon stock assessments.*

c) Do you have knowledge of or expertise with these types of research methods?

The HHLT has members with related knowledge and expertise.

E - SCREENING AND/OR TRAINING

a) Do the students require any specific screening or training? (e.g. police checks, confidentiality agreements, CPR, WHMIS):

No.

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EXAMPLES: Projects involving vulnerable populations may require police checks. Some types of field work may involve WHMIS or other safety related training. Students and hosts working on boats need to understand and follow the U-Links Boat Safety Guidelines.

F – RESEARCH ETHICS

a) Does the research involve human subjects? (i.e. surveys, interviews)

Yes • **No** •

NOTE: If yes, the students may be required to submit an application for ethical review of the research. This process may take several weeks and will need to be taken into consideration when creating project timelines.

b) If your project involves collecting human subject data (i.e. interview transcripts), would you like access to that “raw” data at the end of the project, in addition to receiving the “summary” of data in the final report?

Yes • **No** •

c) Does the organization/employer have policies about research ethics approval?

Yes • **No** •

If yes, please explain:

G – PROJECT TASKS AND TIMELINE *(This section should be completed by the final draft)*

a) Please outline the major tasks and timelines involved in completing the project.

These tasks include important information to be gathered, key stakeholders who should be involved, relevant dates for your organization, and critical meetings for the student to attend. Your Coordinator can help you complete this section.

Task: Set initial meeting with host organization

Objective: For students to meet with the host organization to provide clear goals, objectives, and provide orientation and background resources to students.

Date: ?? 2024/2025

Task: Complete project agreement

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Objective: Clarify and scope the requirements of the project.

Date: 2024

Task: Review of the key resources provided.

Objective: Gather relevant literature to begin to answer host's questions

Date:

Task: Proceed with the modeling protocol.

Objective: To replicate the case studies as done by ON for the Land Trust AOI.

Date:

Task: Complete the modeling protocol.

Objective: Provide a carbon stock assessment as dictated by the protocol.

Date:

Task: Identify field validation requirements.

Objective: Establish a monitoring regime and collection of data to answer research questions.

Date:

Task: Repeat modeling protocol with field validation data.

Objective: Finalize the carbon stock assessment.

Date:

Task: Relate modeling results to nature-based solutions

Objective: Share research and knowledge gained during this project.

Date:

b) Indicate important start and end dates for the project, if applicable:

Date:

H – RESOURCES

NOTE: All known and needed resources should be listed in this section (e.g. for project coordination, data collection and analysis, software, hardware, photocopying, office supplies, workspace, travel expenses, food and refreshments, training, etc.). Students' travel expenses are reimbursed by U-Links at the end of the term.

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- a) What resources are needed to support the research – financial or otherwise? Please indicate what, if any, resources your organization might be able to provide.

Requirements include:

- GIS processing and storage capabilities
- Field collection and processing equipment (e.g., tree metrics and soil samples).

HHLT can:

- upload data into the GIS and provide opportunities to map and do further analyses.
- support the students in familiarization with the GIS requirements and data modeling.

- b) Do you anticipate needing funding or other types of resources? If so, please explain (including any ideas on where resourcing may be obtained):

No.

I – KNOWLEDGE SHARING

NOTE: Please note the researcher(s) will own the copyright for all work completed as part of his/her involvement, but the lead organization/group/employer may use all project outputs in whole or in part, as it sees fit as long as the researcher(s) is duly credited as the author. If work is completed collaboratively, copyright will be decided by all project participants.

- a) How are the project results to be circulated and made useful to the broader community? Please indicate all that applies from the list below:

- Academic article
- Conference/forum
- Manual
- Marketing, promotional, newsletter, outreach materials
- Policy brief
- Report
- Roundtable

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- Video
- Workshop
- Presentation to the host organization
- Not sure of the above, let's talk some more

b) If there are special circumstances where results might not be made public, please explain:
None.

J - ACKNOWLEDGEMENT

- a) Are you able to credit U-Links when utilizing project results for the development of new programs, funding applications, policy, and other community endeavors? (Suggestions: cite U-Links and display our logo in your organization's printed matter and on your website, credit U-Links when speaking about your project in public and in the press, social media etc.) Yes.
- b) Following successful completion of the research project, with results beneficial to the goals of your organization, would you consider a financial contribution to U-Links? Yes No Possibly
- c) Can we highlight your project on our website and in social media? Yes No

K – PROJECT PROMOTION

Please “insert” an image below to help promote your project proposal.

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Photo: Scott Gillingwater



Photo: Paul Heaven

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