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: Assessment of Remote Sensing and Imagery Data and Tools for Use by the HHLT.

A – CONTACT INFORMATION

Date: April 8th, 2024
Contact person: Ralph Baehre
Phone: 613-334-5865
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
Telephone: 705-457-3700

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.

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: Level of effort depends on the student expertise and accordingly the appropriate scope decided on for the project.

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:
- *Single year project*
- Multi-year project (requiring follow up or several parts)
- *Ideal for undergraduate students*
- Ideal for graduate students (requires specialized knowledge/in-depth consideration of theory

d) Is your project appropriate for a *single student* or a group (2 persons)?

e) Describe the purpose of the project:
The purpose of this project is to determine the potential for use of remote sensing and GIS imagery to help the HHLT better achieve its land conservation and ecological management mandate. Remote sensing and GIS imagery are seen to provide a broader view of the Haliburton Highlands in the context of its landscape classification, biodiversity, biological connectivity, and ecological changes over time.

The HHLT is currently working towards the development and implementation of strategies and approaches that would ensure it can meet its management, monitoring, and land stewardship responsibilities in perpetuity. Having resources and tools, such as what remote sensing and imagery technologies offer, will allow the Land Trust to better monitor and plan for landscape, biodiversity, and climate change.

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

The outcome of this project will be an assessment of remote sensing and imagery data sources and tools (e.g., Land Information Ontario GeoHub, NRCan, USGS EarthExplorer) as they relate to monitoring and delineating land and water changes relevant to the Haliburton Highlands, and thereby assist in developing proactive and reactive conservation measures.

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

Given that the spatial scope for this project includes the Haliburton Highlands, the value of the assessment will directly be of benefit to Haliburton County in terms of further landscape conservation, protection of biodiversity and resilience to climate change.

D – RESEARCH DESIGN

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

1. *What remote sensing and imagery data sources are available now and possibly in the future for the Haliburton Highlands?*
2. *What are some of the existing tools for remote sensing and imagery data retrieval and processing?*
3. *Could a strategy and/or a protocol be suggested for the HHLT to use remote sensing and imagery tools to better its land conservation and management.*

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

The questions above are addressed individually as follows:

1. *Work involves online reviews of Provincial, Federal, and other remote sensing data sets such as what is available through the USGS. HHLT already has some imagery data and ArcPro projects that uses this data. These could be a part of the assessment.*
2. *A scan of GIS technologies and their usage would be pertinent here. A couple of suggestions of apps include: ArcGIS Landsat App, ArcGIS Landsat Explorer, USGS Earth Explorer, Glovis and use in Esri ArcPro. Different imagery datasets (e.g., IKONOS, LiDAR) could be considered if the project scoping allows for it. The USGS Earth Explorer would help with the selection of imagery sources for the Haliburton Highlands.*
3. *Literature review of how remote sensing and imagery data and tools are used to delineate landscape changes. Methodologies could be ranked according to ease of use and availability.*
4. *Preferred would be the testing and recommendation of a prototype strategy that would address one of the landscape analyses mentioned, e.g., land connectivity, ecological/landscape change. The 'granularity' of the analysis might depend on the imagery and tools available. Thinking that a regional view of the HHLT's area of concern be considered first, then an example property as prototype would be appropriate. This could be done using the most appropriate technique identified.*

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

The HHLT has a couple of volunteers with remote sensing and GIS backgrounds who can provide general guidance and oversight for the project.

E - SCREENING AND/OR TRAINING

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

N/A

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:
Any specific reference to Species at Risk should remain sensitive and confidential with use, if any, to be determined by an HHLT Board member.

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: *Meet with hosts*
Objective: Familiarize students with projects
Date: ***Sept., 2024***.

Task: *Complete detailed project outline/project agreement*
Objective: Finalize project details, responsibilities, logistics, etc. Project scoping.
Date: ***Sept., 2024***

Task: *Initial literature review. Further project scoping (what is manageable for the student?) will determine the depth and breadth of the tasks.*
Objective: To scope what further data and tools maybe required.
Date: ***Oct., 2024***

Task: *Final literature review and confirmation of data and how strategy/protocol to be implemented.*
Objective: Set as endpoint to proceed to next phase, actual data review.
Date: ***Nov., 2024***

Task: *Project check in and review.*
Objective: To set as endpoint to review progress.
Date: ***Jan., 2025***

Task: *Project check in and review.*
Objective: To scope better what needs to be done and project objectives being met.
Date: ***Feb., 2025***

Task: *Final review of strategy framework implementation.*
Objective: To set as endpoint for the strategy framework implementation phase.
Date: ***Mar., 2025***

Task: *Initial review of recommendation phase.*
Objective: Delineate what minor requirements need to be met yet and how a concluding recommendation is being developed.
Date: ***Mar., 2025***

Task: *Final presentation of deliverables.*
Objective: Closure to the project with presentations and/or workshop.
Date: ***Apr., 2025***

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

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.

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.

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

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**
- **Video**
- **Workshop**
- **Presentation to the host organization**

b) **If there are special circumstances where results might not be made public, please explain:**

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 X☐ Possibly**

c) **Can we highlight your project on our website and in social media? X☐ Yes ☐ No**

K – PROJECT PROMOTION

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