**Developing a Culture of Forest Conservation:**
**Mapping Old Growth in Peterborough County**



*Catchacoma Old-growth Forest, Northern Peterborough County*

Ancient Forest Exploration & Research
November 26, 2019

## 1. Introduction _____

This document addresses the next steps and adaptations required to apply our old-growth forest mapping and survey model to our proposed larger study area, which includes public lands in Ontario's Temperate Forest Region (see Figure 1).  They have been grouped into the following categories: tools, outreach strategies, project design, and criteria for success.

## 2. Tools _____

- **Staff** - more will be required including full-time, part-time and seasonal
  - We will need four field ecologists that can travel regularly to carry out old-growth forest surveys from May-August each year for three years.  It is best to verify the old-growth mapping before we send citizen scientists to the field to collect data and many undocumented old-growth forests are rare,

threatened or endangered - the sooner we find them the better.  This work requires some experience, however, some advanced citizen scientists can handle this task.
- o Travel from our office location in Peterborough to reach some sites (e.g., west of Thunder Bay) will be extensive and one 4x4 vehicle will be required.
- o We will need an office team in charge of project planning and coordinating field crews.
- o Very substantial GIS mapping and analysis will be done to develop and apply the most accurate mapping of old-growth forest possible for our study area.  We plan to integrate the biomass metrics available from the Canada National Forest Inventory with Forest Resource Inventory mapping produced by the provincial government.
- o We will need to conduct a detailed literature review of old-growth forests and forest history in our study area.  Fortunately, provincial biological inventory reports are available at the MNRF library in Peterborough where one of our offices is located.
- o A larger public outreach effort and more citizen scientists to manage will require more office administration.
- o There will be more demands for survey design, expedition planning, training, data collection, data entry and analysis, map production, and report preparation.
- o Some new techniques will be developed.
- o This project may also require the development of existing policies and creation of new policies to anticipate new challenges that may arise as the project expands.

- **Project Advisors**
  - o *Canadian Museum of Nature* (Dr. Troy McMullin), Project Advisor (unpaid), lichen ecology and taxonomy
  - o *McMaster University* (Dr. Robert Henderson - retired), Project Advisor (unpaid), outdoor education and wilderness travel
  - o *Ohio State University* (Dr. Peter Curtis), Project Advisor (unpaid), forest carbon dynamics and forest sampling
  - o *Trent University* (Dr. Raul Ponce-Hernandez), Project Advisor (unpaid), GIS and remote sensing

- **Workplan/Workplace Strategies**
  - o Use SMART (specific, measurable, attainable, realistic, and timely) targets and goals
  - o Gantt Chart for the overall project and the use of other project management software for more detailed work planning (Trello)
  - o Reference to these planned documents will alert us if we start to veer off track or experience other forms of mission drift

- **Creation and Use of a Project Journal**
  - o Enhance transparency of organization through regular newsletter provision
  - o Project review documentation
  - o Evaluation framework support

- **Improved Communications Technology**
  - o Update business email server
  - o Purchase of SPOT devices and radios for field work communication

## 3. Outreach Strategies for Citizen Scientist Recruitment

- A total of 60 youth conducted AFER old-growth surveys through **Outward Bound Canada** (OBC) in 2019, and   OBC will participate in this project again next year.  We will strive to double the number of old-growth forest surveys conducted by OBC each year of the three-year term.  We will also work with OBC to design expeditions specifically to target areas of high priority old-growth forests.

- A total of 26 youth conducted AFER old-growth surveys through the **Youth Leadership in Sustainability** Class (YLS) in 2019, and YLS will participate in this project again next year. We will strive to recruit other outdoor education teachers and their classes within our study area using emails, phone calls, face-to-face meetings and presentations.

- We will connect with **canoe-tripping children's camps** in our study area for volunteer recruitment.

- We will identify and develop partnerships with other **local/regional and provincial non-profits** similar to those in Peterborough County we have already partnered with (e.g., Peterborough Field Naturalists) and we will conduct outreach to their members to recruit volunteers.

- We will **increase our social media presence** using Instagram, Facebook, and Twitter, and we will expand our *Peterborougholdgrowth.ca* website to include our entire study area.

- The variety and frequency of **outreach events will be increased** with organized public field trips to old-growth forests such as the Catchacoma Forest, presentations, social events, contests, etc.

- We will also use **targeted advertisements/marketing** to increase our reach and opportunities.

- We will pursue **corporate partnerships** (e.g., for volunteers, in-kind support, sponsorships, etc.).

- We will connect with groups who could provide **guidance on old-growth forest conservation efforts**.

- We will **connect with restoration groups** to determine the feasibility of old-growth restoration in target areas.

- We will identify **other educational/networking opportunities**.

## 4. Project Design

- **Mapping of old-growth forests** throughout our study area will begin in-office using FRI data, national inventory biomass metrics, and GIS software to locate significant old-growth forest areas. Most of this mapping will occur early in the 3-year term but will continue through years two and three.

- With strategic targeting of the most endangered old-growth forests, AFER will deploy a **staff field team** to ground truth areas of suspected old-growth forests and simultaneously complete field surveys during each summer field season of the project. A staff field crew is needed for three reasons: (1) to conduct surveys in areas of difficult access (distant location, steep and rugged landscape, etc.), (2) to target the highest priority stands quickly, and (3) to verify locations as old growth for later efficient deployment of citizen scientists to collect more detailed data.

- We will develop **overnight and weekend trips** for citizen scientists from the general public to maximize time spent collecting data.

- Our field protocols (field survey methods) have been developed, field tested, and refined, however, we will incorporate a **new sampling protocol for lichens**.

- **Bioblitzes** will be organized throughout the study area, particularly in the locations where staff don't regularly travel to. With this technique, large amounts of data can be collected in a single day with facilitation from AFER staff, diligent volunteers, and our field team.

- Relationships with outdoor education programs and other forest conservation groups will be fostered to **expand our impact** with more interpretive hikes and public data collection events.

## 5. Criteria for Success _____

The success of our outreach strategies will be measured by the **level of engagement** (hours committed, retention, and feedback) from our citizen scientists.  Evidence of our success in 2019 is addressed in our *Accomplishments* document (uploaded).  Success will also be measured through our **evaluation** process, which will be both qualitative and quantitative and will therefore employ mixed methods in attaining a comprehensive, ongoing evaluation of our programming.

### *Qualitative features*

- Public engagement feedback surveys (see our *Impact, Feedback and Lessons* document.)

- Online administration through e-mailing list

- Hard copies to be completed after events

- Comparison of participation between AFER events - what engagement strategies, activities, and avenues of knowledge sharing work well?

- Comparative analyses with similar case studies external to AFER - understanding the value-added components of our project for our participants

- Interviews with key stakeholders - we will survey our partners for their disposition on AFER's presence and success on this work.

- The following evaluation frameworks will be applied
  - Arnstein's Ladder of Participation (1969)
  - Brown, G. and Chin, S. Y. W. (2013).  Assessing the effectiveness of public participation in Neighbourhood Planning. *Planning Practice and Research* 28:563–588.
  - DO-RITE (define, observe, record, intervene, test, evaluate)

### *Quantitative features*

- Area of old-growth forests mapped, verified, and addressed with *Ancient Forest Conservation Strategies*

- Contribution of citizen scientists (e.g., plots/transects sampled, in-kind monetary value)

- Natural capital (monetary) value of the old-growth forest landscapes that we focus on

- Quantity of trees aged and the contribution of age data to developing better relationships between diameter and age to better focus field surveys

- Creation and publication of technical reports

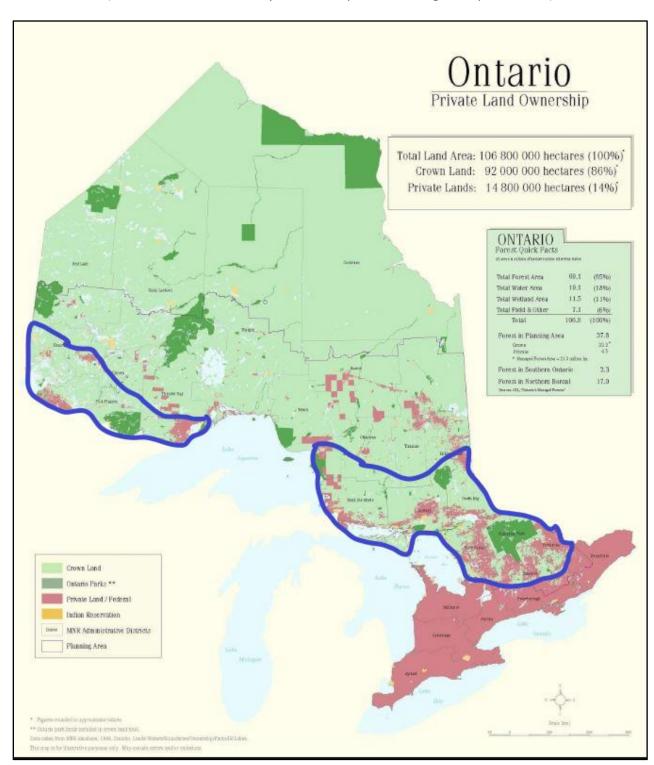- Old-growth forest documentation and knowledge sharing/communication

**Figure 1.  Map of the Study Area: Public Lands in Ontario's Temperate Forest Region**
(within the blue boundary lines; red=private land, green=public land)