THE CATCHACOMA FOREST STEWARDSHIP COMMITTEE ENHANCES MANAGEMENT OF ONTARIO'S EASTERN HEMLOCK FORESTS THROUGH PARTICIPATION IN FOREST PLANNING

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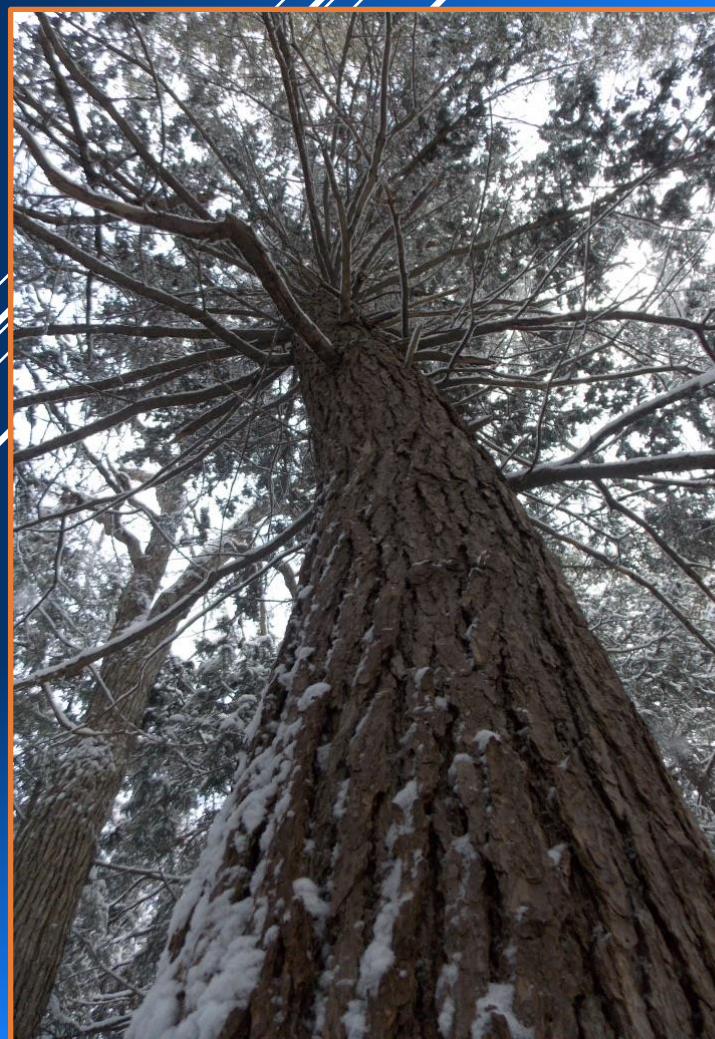
November 21, 2025



Acknowledgements

Curve Lake First Nation

Catchacoma Forest Stewardship Committee members

Youth Leadership in Sustainability (teacher Cam Douglas and ~100 Peterborough High School students)

Funders: Canada Helps, Community Foundation of Greater Peterborough, ECO Canada, GoFundMe, Linda Briden, Marie Windover, Nadurra Ltd., Ontario Wilderness Committee, Nemar Ltd., Peter Currier, Peterborough Foundation, Ron Waters, Rotary Club of Peterborough, Service Canada

Staff: Carling Dewar, Adam Folland, Lia Robles Gil, Ania Marcus, Jesse Mihevc, Sara Nguyen, Scott Summerville, Nicole Wooley

What is The Stewardship Committee: Science, Education, and Action

AFER – **co-founder (2019)**; *research and education focused on ecology and protection of ancient forests*; ***Trillium Seed Grant*** (1 yr; N. Peterborough County); **CATCHACOMA**: 20+ *technical reports*, one *journal paper*, *book* in-prep with ~20 chapters, 20+ *popular press* articles (available at ***ancientforest.org*** and ***catchacomaforest.org***)

Youth Leadership in Sustainability – **co-founder (2019)**; *interns, field and office*

Ontario Wilderness Committee – **co-founder (2019)**; *education and advocacy*

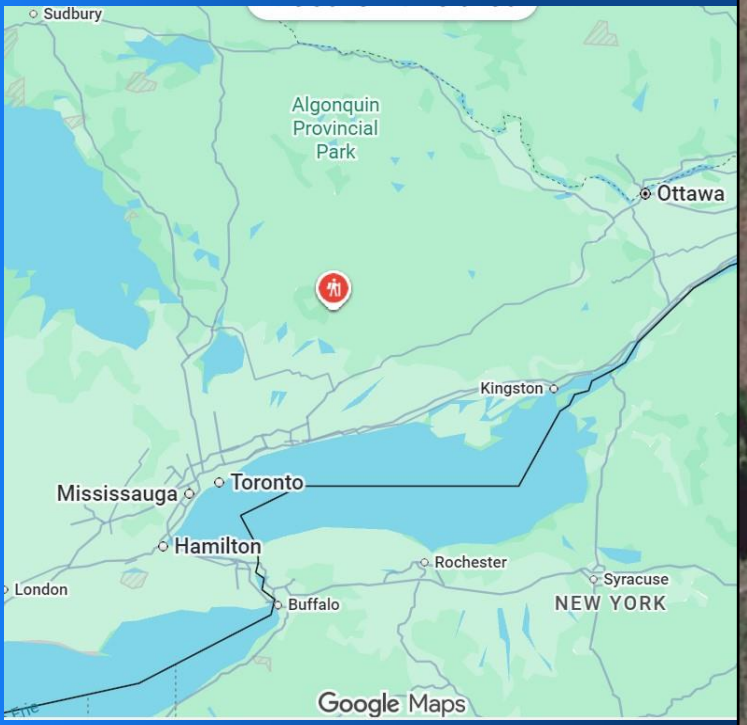
Local Citizens (2020) – cottagers, ecologists, educators, landowners, naturalists, recreationists, retirees, students, and others committed to a **green future**

Curve Lake First Nation (2024) – **formal application to protect Catchacoma Forest**

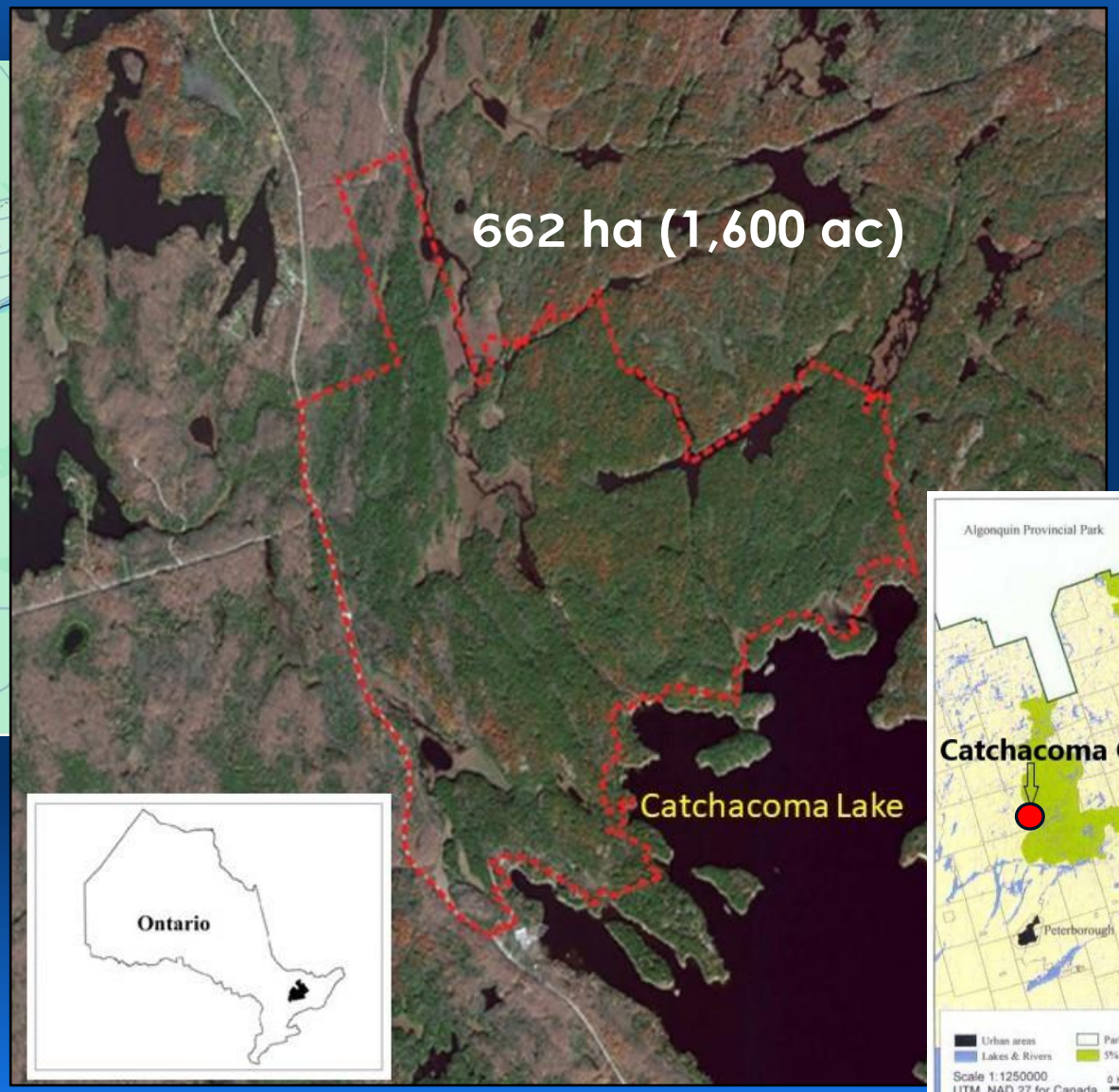
What is Old-growth Forest?

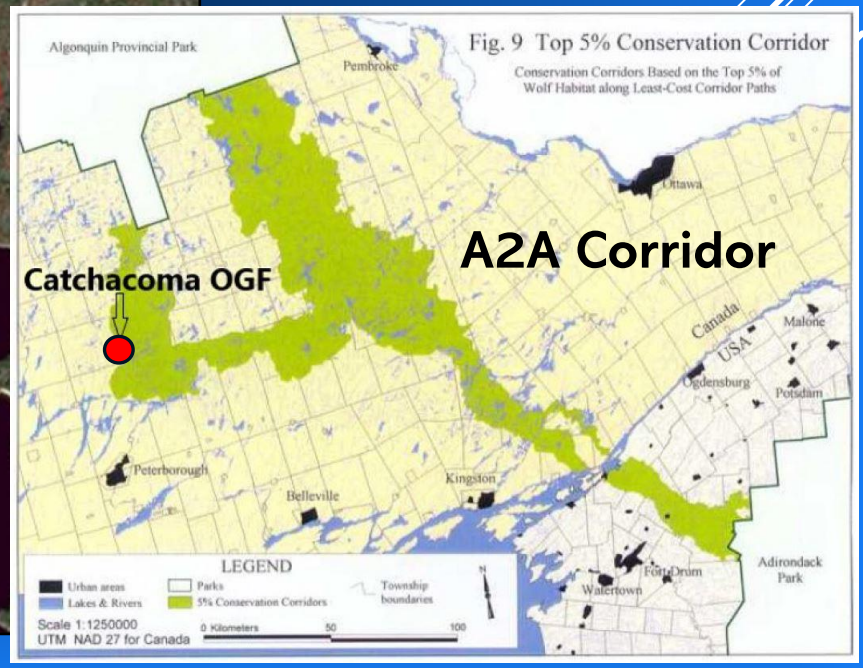
- not an end point, but a **continuum defined by slow ecological change** initiated when forest tree growth begins to slow down (e.g., between 140 and 160 years for eastern hemlock)
- happens when a tree starts to allocate more energy to maintaining its increasingly large size as opposed to using that energy to produce new growth, known as the "**age of onset**"
- as a tree ages, **energy allocation to maintenance increases** and allocation to producing new growth decreases
- **old trees beyond the age of onset are the most important feature of an old-growth forest**, however, **snags (dead standing trees), logs, and integrity** (no or little human disturbance) are also important primary characteristics of old-growth forest
- some **secondary and more variable features** of old growth include: high tree density, multiple vegetation layers, high plant diversity, lichen and fungus, undisturbed soil

Where and What is the Catchacoma Forest?



~200 km from Toronto
~300 km from Ottawa
~50 km from Peterborough

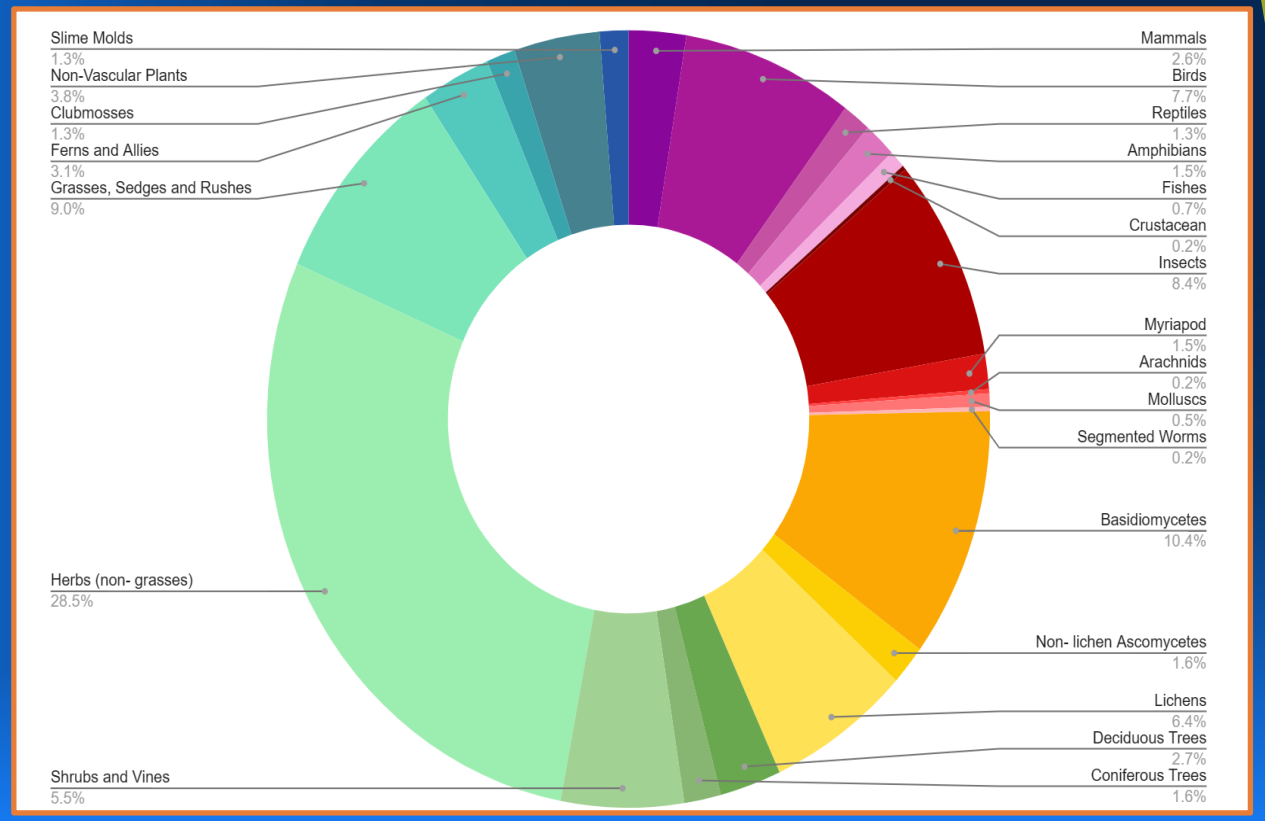


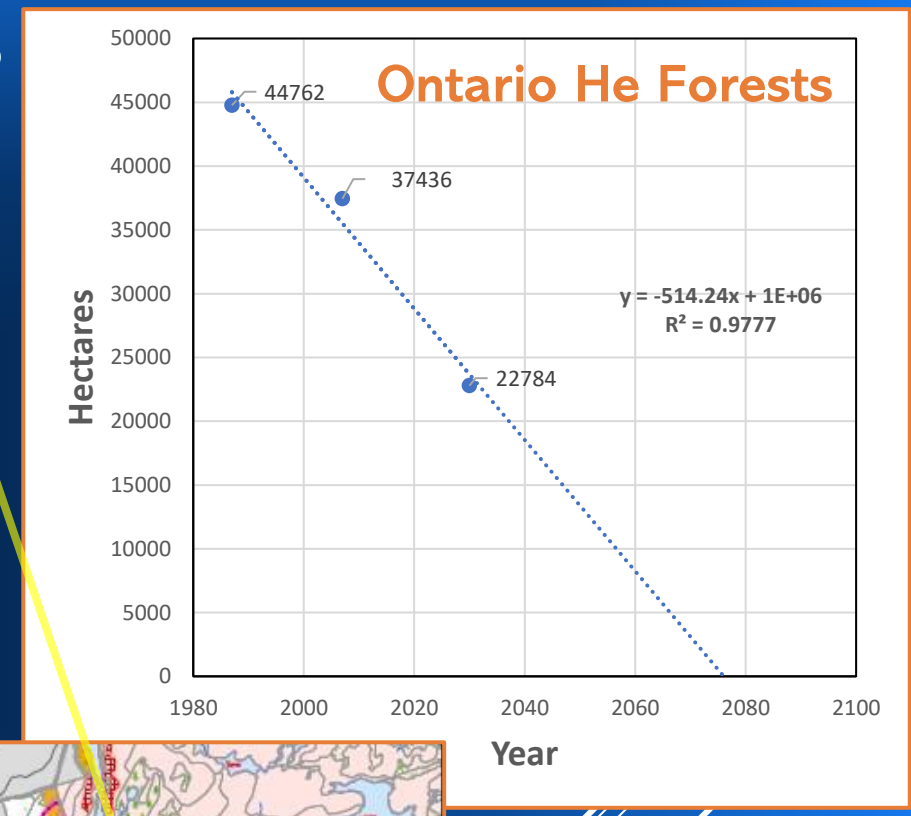


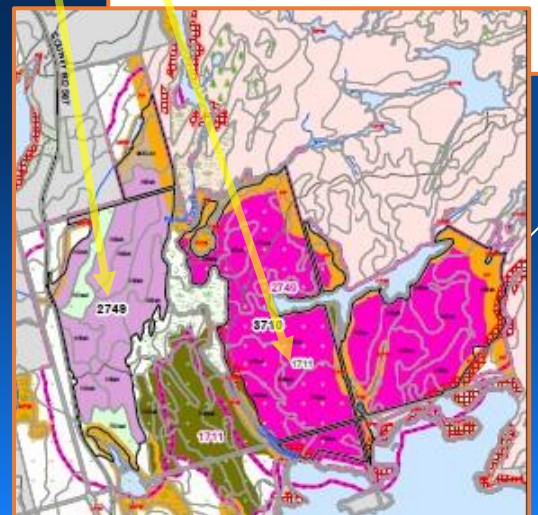
- **Old-growth** *Eastern Hemlock* (dominant)-*Eastern White Pine* (sub-dominant) Forest
- **Endangered** Ecosystem Type; could be gone by 2075
- Canada's **Largest** Known *Eastern Hemlock* OG Forest
- **Unprotected** and **Threatened** by Logging in 2019
- ~30 ha Logged Until **Moratorium** in July 2021

656 Species
23 Groups
(2022)

14 SARs





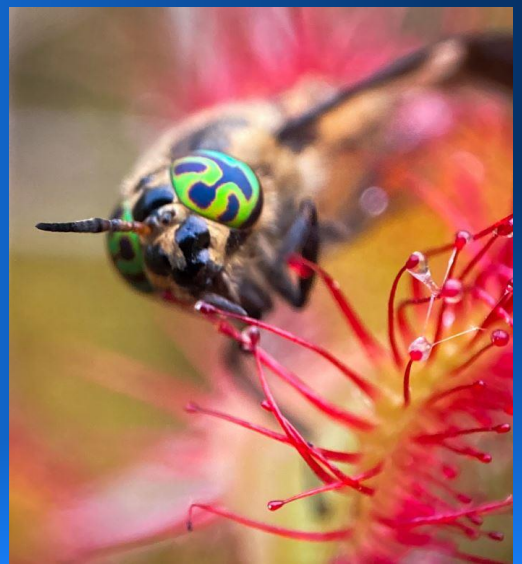


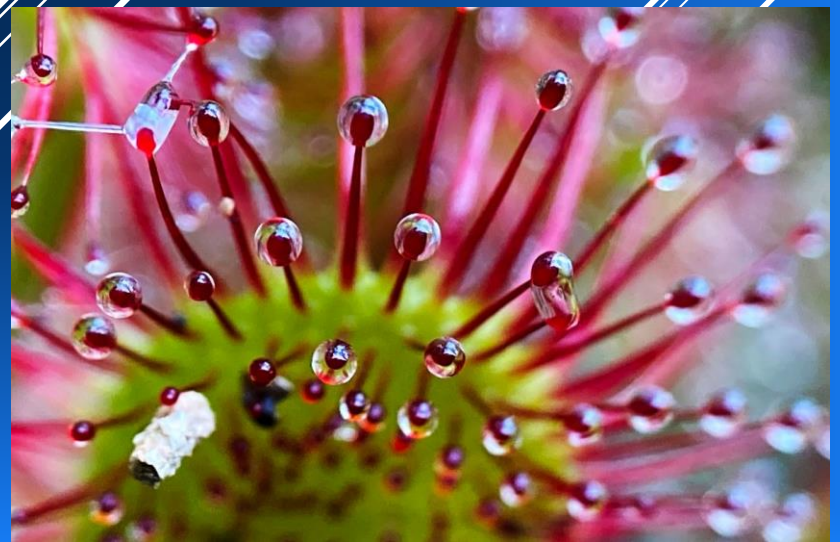
Policy Mechanisms to Protect OG Forests in Ontario (central & northern Ontario)

- **Ontario OGF Policy** – **FAILURE**; no legislative authority; response to 1987 EA review requirements only; nothing done since 2003
- **Forest Stewardship Council Certification** – FAILURE; documented, clear bias towards logging industry from experience/evidence
- **Land-use Designation Change** (*Public Lands Act*) – **FAILURE**; support at the park management level but not the political level (e.g., MECP, MNRF, other)
- **Forest Management Planning** (*Crown Forest Sustainability Act*) – **SUCCESS**; recognition of FM Plan weaknesses by MNRF

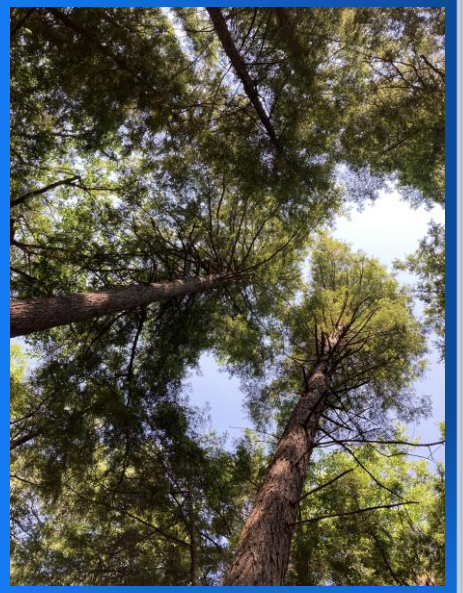
Improved Forest Management from CFSC Forest Planning Participation

- Based on an Order from the MNRF Regional Director (Rew 2021)
- Directed to MNRF Bancroft District Office and Bancroft Minden Forest Company
- Addressed logging, climate change/carbon storage, and old-growth verification and delineation.





Logging Improvements



1. A **1-year logging moratorium** (delay) was placed on harvesting of blocks 2749 and 3710 to allow additional research and values collection work.

2. Following the moratorium, and **once other criteria (e.g., climate change and old growth) are met**, block 2749 will become available for harvest and block 3710 will remain in contingency.

3. If block 2749 is logged, it **should be done using the selection system** not the shelterwood system to manage for old growth values to be included in revised *Silviculture Ground Rules* for the final FM Plan submission.

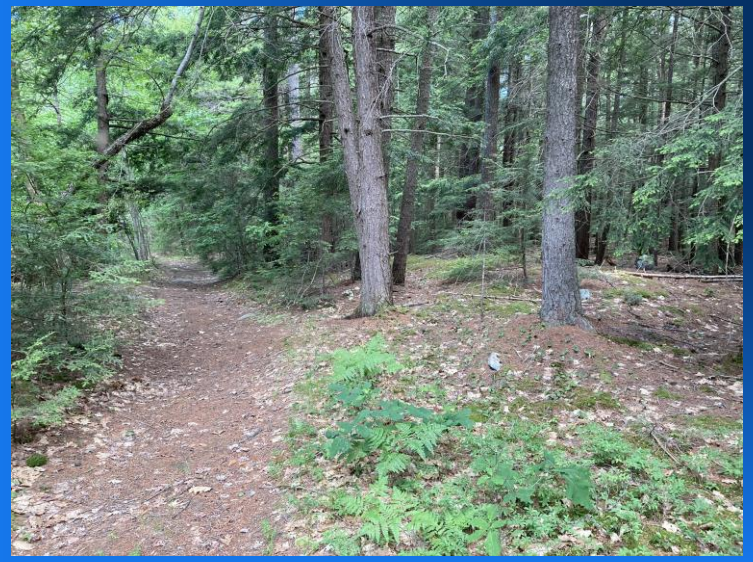
4. An **administrative amendment to the FM Plan** will be required once all conditions described above are fulfilled before logging may proceed.

Climate Change and Carbon Storage

1. The planning team shall prepare a summary of the components of the FM Plan that **supports climate change mitigation and adaptation to be added to the FM Plan** – required to allow logging in blocks 2749 and 3710

2. MNRF Southern Region Office will work with the Ministry's Science & Research Branch for provincial assessment of forest carbon stocks to **(a) enhance knowledge and understanding of logging impacts on forest carbon and (b) inform the development of future FM Plans**

Old-growth Verification & Delineation



1. MNRF Planning Team will **identify and map eastern hemlock stands older than 130 years**, include this map in the final FM Plan, and mapped stands will be considered for the new silvicultural ground rules (selection system).

2. MNRF will **develop technical guidance for old-growth verification and delineation** based on a thorough literature review including Ancient Forest Exploration & Research reports and data, input from sustainable forest licensees, and other stakeholders.

A Rapid Assessment Method for OGF Verification and Delineation, Map Analysis, and Long-term Studies

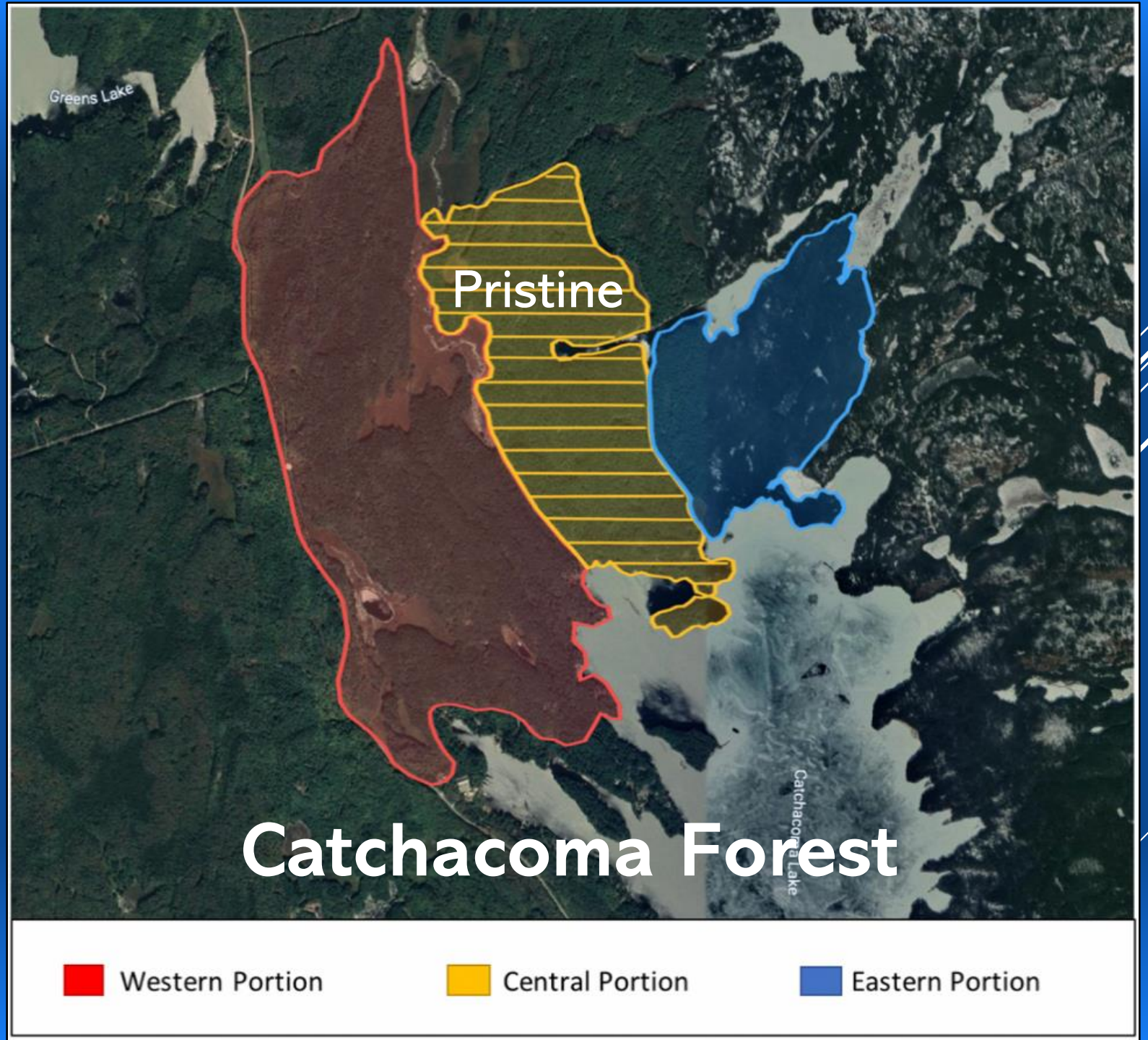
A Project of the Catchacoma Forest Stewardship Committee

- **Tree size**, not tree age (**table of min ages and DBH by species**), is the main field metric
- Sampling strategy for **Central Portion**
    1. 142 plots (*6 x 50 m*) every other 50 m along 19 east-west transects
    2. intensity - ***2% of 181 ha*** (456 ac.)
    3. assessed for **MTs** (OG trees; size estimated, not measured), **logs** (>10 cm diam), **snags** (>10 cm DBH)
    4. natural transition to a GIS analytical database; **resolution of 1.3 ha**
- **~15x faster than intensive sampling in 400 m^2 plots**

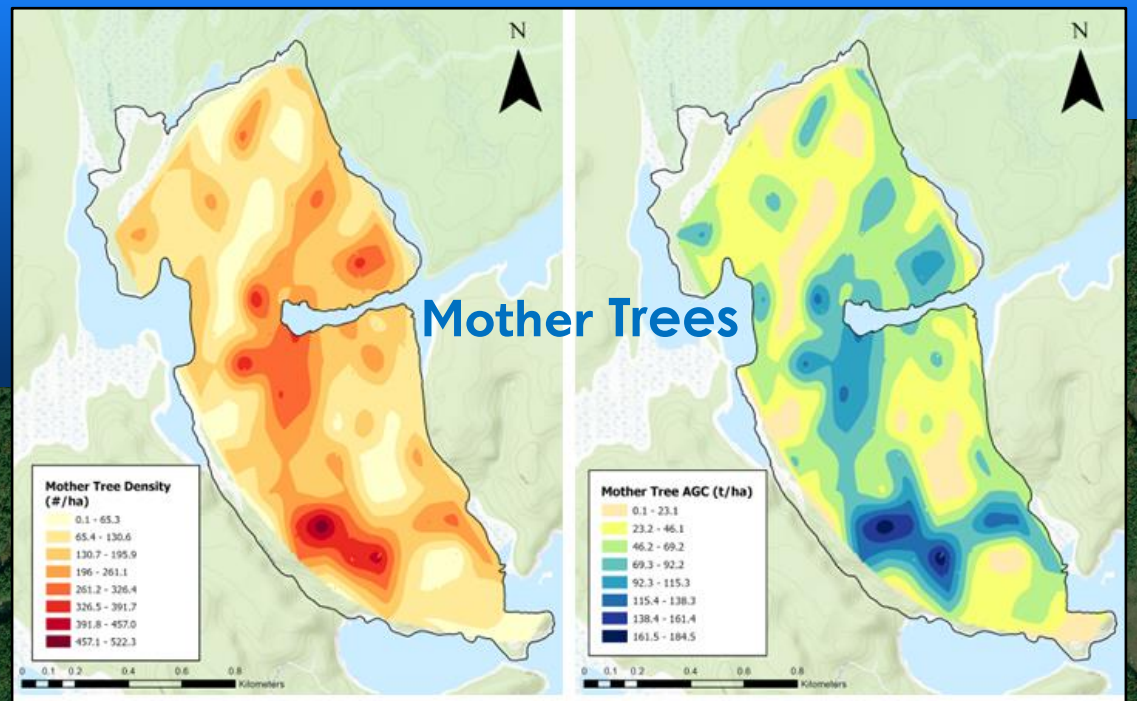
Minimum DBH Values for Mother Trees (*24 spp.*) in Temperate Forests of Central Ontario

Field Estimation Facilitates RAPID Assessment

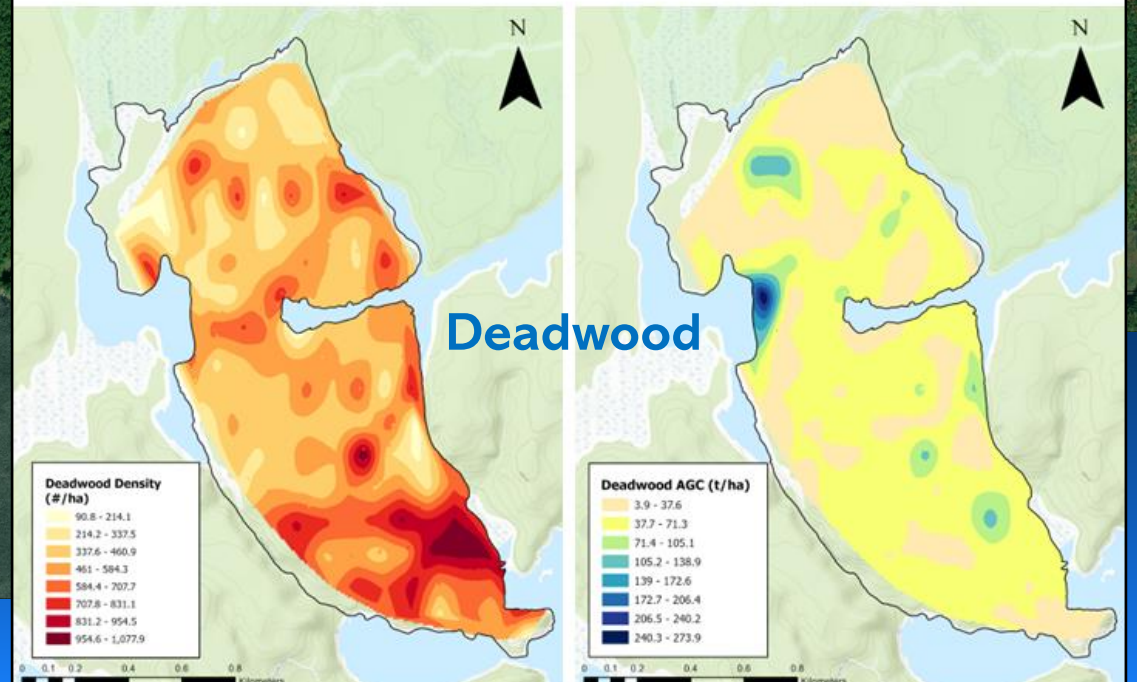
- **Minimum Diameters 15-25 cm** – three species: black spruce in swamps (15 cm), jack pine (25 cm), tamarack (25 cm)
- **Minimum Diameters 26-35 cm** – eight species: American beech (30 cm), balsam fir (30 cm), black spruce in uplands (30 cm), white cedar (30 cm), white spruce (30 cm), red maple (35 cm), sugar maple (35 cm), white birch (35 cm)
- **Minimum Diameters 36-45 cm** – six species: bur oak (40 cm), eastern hemlock (40 cm), poplar (40 cm), red pine (40 cm), white oak (40 cm), yellow birch (45 cm)
- **Minimum Diameters 46-55 cm** – five species: black ash (50 cm), black cherry (50 cm), eastern white pine (50 cm), red oak (50 cm), white ash (50 cm)
- **Minimum Diameters 56-65 cm** – two species: American basswood (60 cm), silver maple (60 cm)


Greens Lake
Pristine
Catchacoma Lake
Catchacoma Forest
Western Portion
Central Portion
Eastern Portion

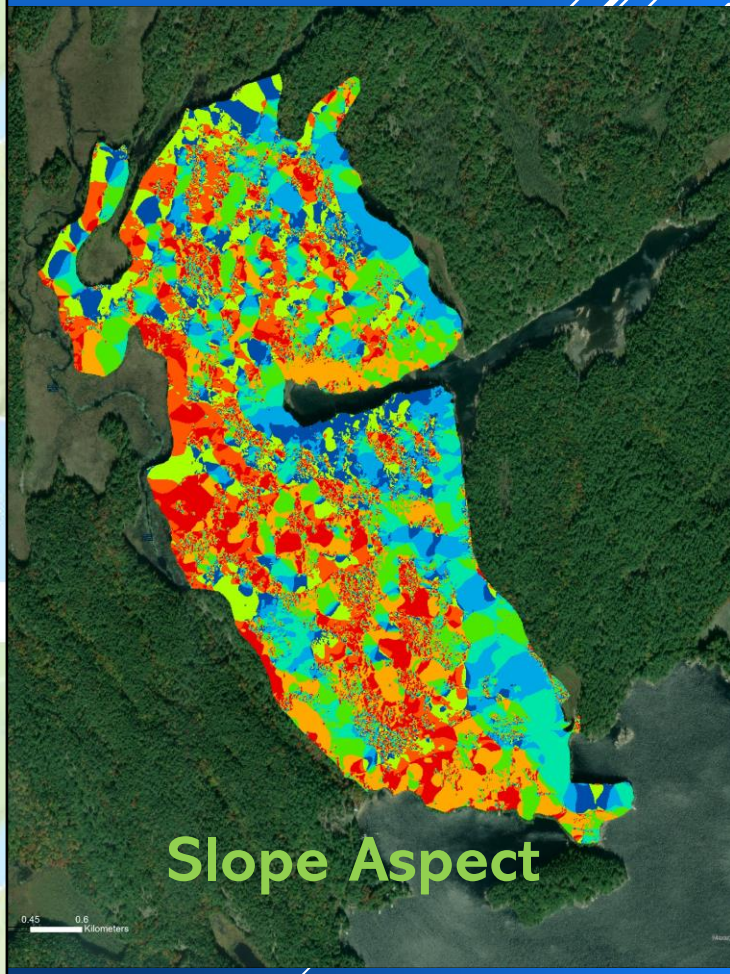
Natural Neighbor Analysis (GIS)



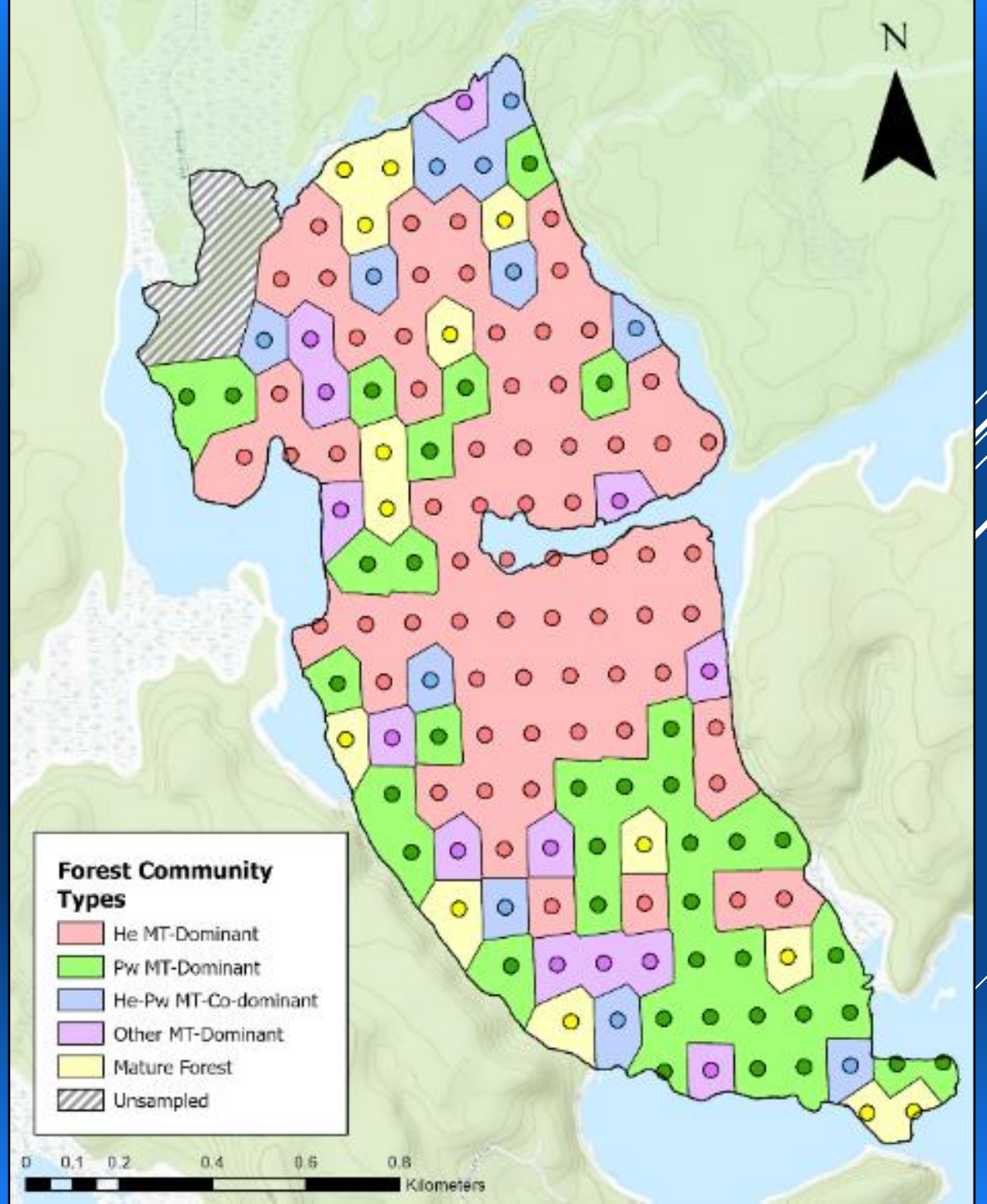
Mother Trees



Deadwood



Four MT Community Types and Mature Forest



Minimum OGF Standards
Eastern Hemlock (dominant)-Eastern White Pine (sub-dominant) Community Type

- eastern hemlock MT (*old-growth tree*) density of **20/ha**
- eastern white pine MT density of **13/ha**
- all MT species combined density of **36/ha**
- deadwood density of **84/ha**
- MT above-ground stored carbon of **9 t/ha**
- deadwood above-ground stored carbon of **7 t/ha**
- OGFs with no logging have the highest level of **ecological integrity**, however, likely that many newly designated OGFs will have a few cut stumps

Summary

- **CFSC has *improved management* of Ontario's hemlock forests at local, regional, and provincial levels**
  - Less ecologically-damaging silviculture and associated logging
  - Mapping of old-growth hemlock forests in the Bancroft-Minden Region
  - Improved consideration of climate change, carbon storage, and impacts of logging in the FM Plan and by MNRF research programs
  - Government commitment to develop a new method for OGF assessment
- **Catchacoma Forest has *huge potential* as a site for research, education, and recreation, and is *culturally significant* to the Curve Lake First Nation**
- **Despite support from all members of the CFSC as well as from government ecologists and park managers, the Forest remains *UNPROTECTED***
- **Citizen-based Stewardship Committees have *potential to improve forest management throughout Ontario* where forests are being logged**