

# 2022 Field Season Results Update Catchacoma Forest, Trent Lakes, Ontario

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*Catchacoma Old-growth Forest*

## Highlights

- Species surveys and habitat assessments were conducted from **July 4 to August 26** in the Catchacoma Forest.
- A total of **543 species** have been identified within the Catchacoma Forest primarily through AFER's work since 2019. 317 (58%) of these species were identified by staff during July and August of 2022.
- Species by taxonomic group: **Plants – 313; Fungi – 99; Arthropods – 48; Birds – 42; Mammals – 12; Amphibians – 9; Amoebozoa – 6; Reptiles – 6; Mollusks – 3; Fish – 2+**

- Total current estimated number of **species-at-risk is 13**: Algonquin wolf (threatened), black ash (endangered), Blanding's turtle (threatened), cerulean warbler (threatened), common five-lined skink (special concern), eastern ribbon snake (special concern), eastern wood pee-wee (special concern), hog-nosed snake (special concern), lichen *Coenogonium pineti* (S3-vulnerable), monarch butterfly (endangered), rusty blackbird (special concern), snapping turtle (special concern) and wood thrush (special concern).
- Invasive species include **purple loosestrife and *Phragmites***.
- Thirteen old-growth trees (ten species) and their habitat were assessed. Tree regeneration seems to be primarily correlated with canopy cover (light availability; e.g., less regeneration beneath dense canopies) and the **abundance of fungi fruiting bodies seems to be greater near older trees**.
- Most mother trees assessed remain in good health, hemlock woolly adelgid (HWA) has not been detected in the Catchacoma Forest and continued assessment for HWA should be pursued in this forest since **HWA was recently detected only 120 km to the south**.
- Lower temperatures and higher humidity levels were found in the intact old-growth areas compared to the logged areas. At the maximum, temperature (mid-afternoon) reached **13 degrees Celsius higher in the logged areas** compared to the intact forest.
- Despite having lower insect species diversity, the intact **old-growth forest appears to support rarer, more specialized insect species**. Assessment of the entire vertical structure of the areas sampled would result in adding a greater number of insects species in the intact forest since most of the vertical structure is missing from the logged areas.
- There are **four distinct wetland systems in the Forest**.
- At least two turtle species (**SARs; Blanding's and snapping**) occur in the Pencil Creek Wetland based on observations of individuals as well as nesting sites.
- **Three of the four wetland systems in the Forest contain fish populations**.
- **Outreach** included two public hikes, one public educational/festival booth, and use of five social media accounts; AFER currently has 1500+ followers on Facebook.

## Introduction

The summer 2022 field crew of Ancient Forest Exploration and Research (AFER), consisting of Lia Le Brun Robles Gil, Jesse S. Mihevc and Scott Somerville, conducted field research in the Catchacoma Forest for eight weeks from July 4 to August 26. This work can be categorized into five distinct projects that focused on general species diversity (primarily terrestrial), mother tree surveys, insects and logging, wetland features and outreach.

## Species Inventory

Prior to this field season, 226 species were documented for the Catchacoma Forest. Knowing that many more species occur there, one of the goals for the 2022 field season was to continue to document the species that are found in the Forest. In order to do this, a wide array of surveys were conducted. Aside from assessing species encountered while hiking on trails and while bushwacking, trail cameras (to document large mammals), song meters (to document birds, wolves, and amphibians) and a bat acoustic recorder were also used.

To date, using both existing information and AFER fieldwork conducted from 2019 to 2022, a total 543 species have been identified within the Catchacoma Forest. This included several species-at-risk (SARs; currently 13 in total) within Ontario. Those SARs confirmed to occur in the Catchacoma Forest this summer included eastern wood-pewee (special concern), wood thrush (special concern), monarch butterfly (special concern), black ash (endangered), Blanding's turtle (threatened), common five-lined skink (special concern), eastern ribbon snake (special concern), and snapping turtle (special concern).

Additionally of note, 11 distinct species of orchids, three species of carnivorous plants (purple pitcher plant, round-leaved sundew, spoon-leaved sundew), and two bat species (big brown bat and silver-haired bat) were found in the Catchacoma Forest this field season. In summary, documented species by grouping include: Plants – 313; Fungi – 99; Arthropods – 48; Birds – 42; Mammals – 12; Amphibians – 9; Amoebazoa – 6; Reptiles – 6; Molluscs – 3; Fish – 2+.

### **Mother Tree Surveys**

Several surveys were conducted on mother trees (those meeting the minimum old-growth diameter) to assess primarily for associated tree regeneration and local habitat. Thirteen old-growth trees representing ten different species were assessed. These species included eastern hemlock, eastern white pine, large-toothed aspen, red maple, red oak, red pine, white ash, white birch, white cedar and yellow birch. Preliminary results indicate regeneration is primarily correlated with canopy cover (e.g., less regeneration beneath dense canopies) and that the abundance of fungi fruiting bodies is greater near older trees. Further analyses of these data are required.

Additionally, mother tree health surveys were conducted, with preliminary results suggesting that most standing mother trees remain in good health. To date, AFER has not detected hemlock woolly adelgid (HWA) in the Catchacoma Forest. However, continued diligent assessment for HWA should be pursued in this forest since HWA was recently detected in Grafton, Ontario only roughly 120 km south of Catchacoma.

### **Insect Diversity, Logging Effects and Temperature (*Independent Project – Jesse Mihevc*)**

Independent projects were also conducted throughout July and August. Jesse Mihevc's independent project assessed insect diversity in the old-growth forest (intact), in areas logged in 2019-2020 and in areas logged in the 1980s. Insect pan traps were set out at six locations, with specimens collected every 1-2 days. Temperature and air humidity readings were also taken.

Different temperature and moisture levels were found between old-growth and logged areas. During sunny days, the maximum temperature difference reached 13 degrees Celsius. For example, at 2:46 pm on the 19th of August it was 40.5 degrees Celsius in the recently cut area and 27 degrees Celsius in the intact old-growth forest. In addition, a roughly 10% difference in air humidity between the intact old-growth forest (higher) and the recently cut area (lower) was recorded. Further analyses are required to assess the significance of these results.

Data also showed that insect diversity was higher within the logged areas. We suspect the highly disturbed nature of the logged areas with more than half of the canopy removed in the recent cut, has created many new ecological niches and has facilitated colonization of a variety of early successional, generalist insect species that seem to be thriving.

It should also be noted that only the ground-level insects in the intact and logged forest were sampled and that assessment of the entire vertical structure of the old-growth forest would result in identification of additional insect species. Despite having lower insect species diversity, the old-growth forest appears to support rarer, more specialized insect species. The final report is expected in early 2023.

### **Wetland Assessment (*Independent Project – Lia Robles Gil*)**

The independent project carried out by Lia Robles focused on a first-stage assessment of the four unique wetland systems found within the Catchacoma Forest. The final report is expected in the next few weeks.

Evidence of at least two turtle species was documented for the Pencil Creek Wetland system including Blanding's turtle (threatened) and snapping turtle (special concern). Turtle nesting sites were documented along the shorelines of the Wetland indicating the superior nature of the habitat for these two turtle species. Pencil Creek, which borders Kawartha Highlands Provincial Park and feeds into Catchacoma Lake, drains through this wetland and is its main water source.

The Little Catchacoma Wetland system associated with Little Catchacoma Lake (NE section of the Forest) also borders the Kawartha Highlands Provincial Park on the north and east arms. The vast majority of the Lake is open water with low emergent plants. The north arm of the Lake contains a beaver dam and is dominated by vegetation including dwarf St. John's wort, purple pitcher plants, black spruce, and yellow-eyed grass. This wetland system is home to several significant vertebrate species including silver-haired bat, big brown bat and the five-lined skink (SAR). Vast areas of Virginia meadow beauty along the shoreline are a unique feature of this wetland.

The Southern Wetland system comprises a series of connected wetlands. While most of them are cattail-dominated and not particularly deep, the northernmost wetland of this system contains unique habitat and numerous fish species, including the brook stickleback and several thus-far unidentified minnow species. A white cedar stand is present and evidence of waterfowl was found. Based on its proximity to roads and ATV trails, this wetland system is most at risk from invasive plants such as purple loosestrife and *Phragmites australis*, which were found nearby.

Finally, the Southern Fen contains a variety of orchids (e.g. rose pogonia, white-fringed orchid, and white bog orchid). Though there are some amphibian species and there is evidence of deer and beaver activity, this is the only wetland system in the Catchacoma Forest lacking a fish community. Aquatic invertebrates such as water boatmen and whirligig beetles were observed and evidence of turtles (e.g. empty turtle shell) was found along the shoreline, yet no live turtles were documented. A beaver dam blocks wetland outflow that likely leads south to Catchacoma Lake.

## Outreach

During July and August of 2022 we also worked on public outreach. Two public hikes, the latter of which included a BioBlitz, were conducted throughout the season. Both hikes were successful, the first in association with Katie Krelove of the Wilderness Committee had over ten participants. In addition, a booth was set up during the Catchacoma Marina's Dockfest, which was also a great success. Additionally, we managed a number of social media accounts as follows.

- Instagram (@ptbo\_oldgrowth): 418 followers, over 100 of which have been acquired over this field season
- Facebook (@ptbo.oldgrowth): 1,500+ followers
- Twitter (@ptbo\_oldgrowth): 36 followers (new this field season)
- iNaturalist ([AFER Catchacoma Forest · iNaturalist](#)): We established a new iNaturalist project in order to engage to public and draw on citizen science to further develop our understanding of the Catchacoma Forest. Thus far, the iNaturalist project has recorded 333 observations of 234 distinct species.
- Linktree ([ptbo\\_oldgrowth | Twitter, Instagram, Facebook | Linktree](#)): We also set up a linktree connecting all AFER websites and social media accounts for easier public access.

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