

ACAP Report: Keep Coxheath Clean Bioblitz

Type of Document:

Data Report

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1. Project Overview

Keep Coxheath Clean and ACAP Cape Breton partnered to organize a BioBlitz in the Coxheath Hills area on June 14 and 15, 2024. A private landowner volunteered to host the BioBlitz and welcomed all participants to the area. This is a draft report on the process and results of the Bioblitz.

2. ACAP Cape Breton Contact

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3. BioBlitz Approach

The *iNaturalist* citizen science platform was used to collect observations. The iNaturalist platform is available to anyone willing to sign up via an email address. Observations can be recorded in real-time, using a smartphone to capture photos or second recordings. Observations are georeferenced automatically. Alternatively, a camera and/or recorder can be used, with the user uploading information later and manually inserting geolocations.

On June 14, observations were recorded from 9am-11:30am.

On June 15, observations were recorded from 6am-8:30am and 9am-11:30am.

Once observations are recorded in the iNaturalist platform, anyone with an account can contribute to identifications. While species-level identification is preferred, it is not always possible, due to a number of factors including the quality of photo or recording, identifying features not present or requiring dissection or a microscope, etc.

Several ACAP staff members worked to provide identifications for as many species as possible, and additional 76 observers contributed to identification efforts. Once a consensus on species-level identification is reached, with a minimum of two identifiers participating and agreeing on the identification, an iNaturalist observation is considered "Research Grade." Only research grade observations are included in this report.

4. Results

Across the two days, there were over two dozen BioBlitz participants from ACAP Cape Breton, Keep Coxheath Clean, Eskasoni Fish and Wildlife, the Cape Breton Naturalists Society and additional community volunteers. Fifteen individual observers contributed to the citizen science iNaturalist effort, and a further 80 individuals contributed to identifications. A total of 845 observations were recorded, with 485 or 57% considered research grade observations. A total of 130 species were recorded, of which one species, the Olive-sided flycatcher, is considered a provincial and federal species at risk.

4.1 Overview of Research Grade Observations

Most of the recorded observations were of plants (73%), followed by fungi (11%) and birds (8%). Of the 485 research grade observations, 356 observations were plant species, making it the most commonly observed taxon. With 53 observations, fungi was the next most frequently observed taxa, followed by 40 observations of birds. Of the taxa observed, Arachnida and Protozoa were the least commonly observed, with 2 observations each.

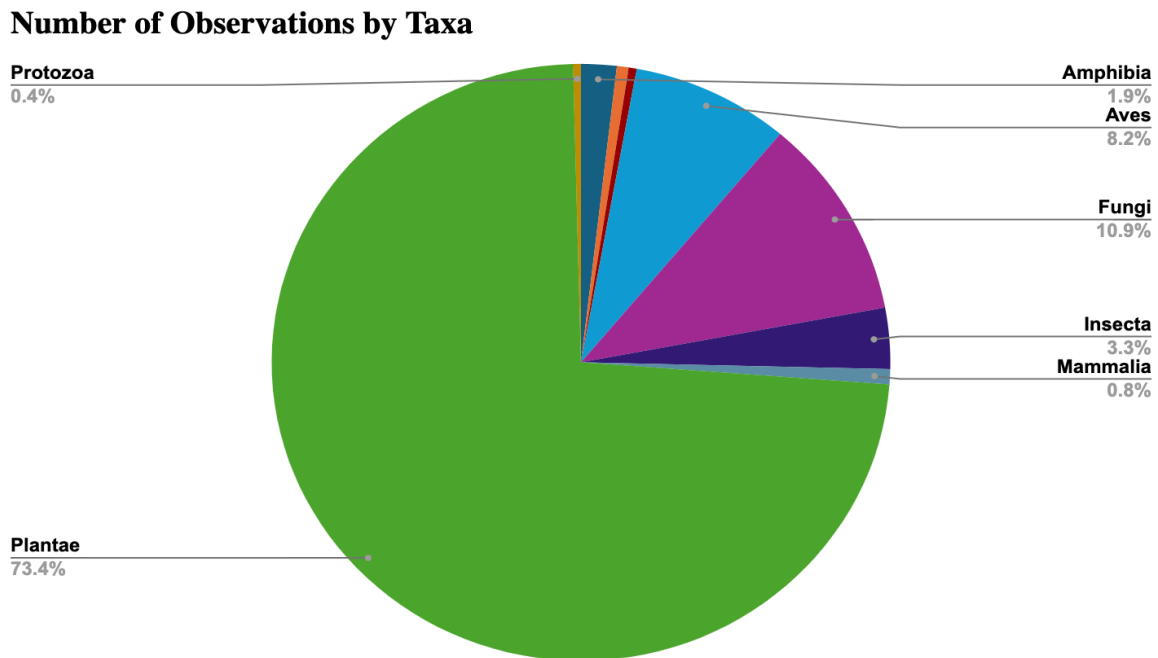


Figure 1. Graph illustrating the frequency of observations belonging to various taxa at the Coxheath Hills/Gillis Lake property on June 14-15, 2024.

All of the most frequently observed species were plants, with the exception of *Lobaria pulmonaria* or Tree Lungwort (Figure 2). Tree lungwort is an epiphytic lichen, which means it grows on trees. This species represents a symbiotic relationship between three different organisms: a fungal ascomycete, green algae, and a cyanobacterium.

Tree lungwort is a large, green, leafy-looking fungus. It is sensitive to air pollution, and therefore serves as a bioindicator of a healthy forest ecosystem. It was the most frequently observed species in our bioblitz, which is a good indicator for the health of the surrounding forest. Because the cyanobacterium in Tree lungwort is a nitrogen fixing organism, this species provides important nutrients to forest soil when it falls off its host tree.

Of the ten remaining most frequently observed species, five are herbaceous or non-woody plants, and five are trees and shrubs.

Most Observed Herbaceous Plants	Most Observed Trees and Shrubs
<i>Maianthemum canadense</i> (Canada mayflower) <i>Aralia nudicaulis</i> (Wild sarsaparilla) <i>Cornus canadensis</i> (Bunchberry) <i>Lysimachia borealis</i> (Starflower) <i>Clintonia borealis</i> (Blue-bead lily)	<i>Acer rubrum</i> (Red maple) <i>Acer pensylvanicum</i> (Striped maple) <i>Abies balsamea</i> (Balsam fir) <i>Fagus grandifolia</i> (American beech) <i>Lonicera canadensis</i> (Canada honeysuckle)

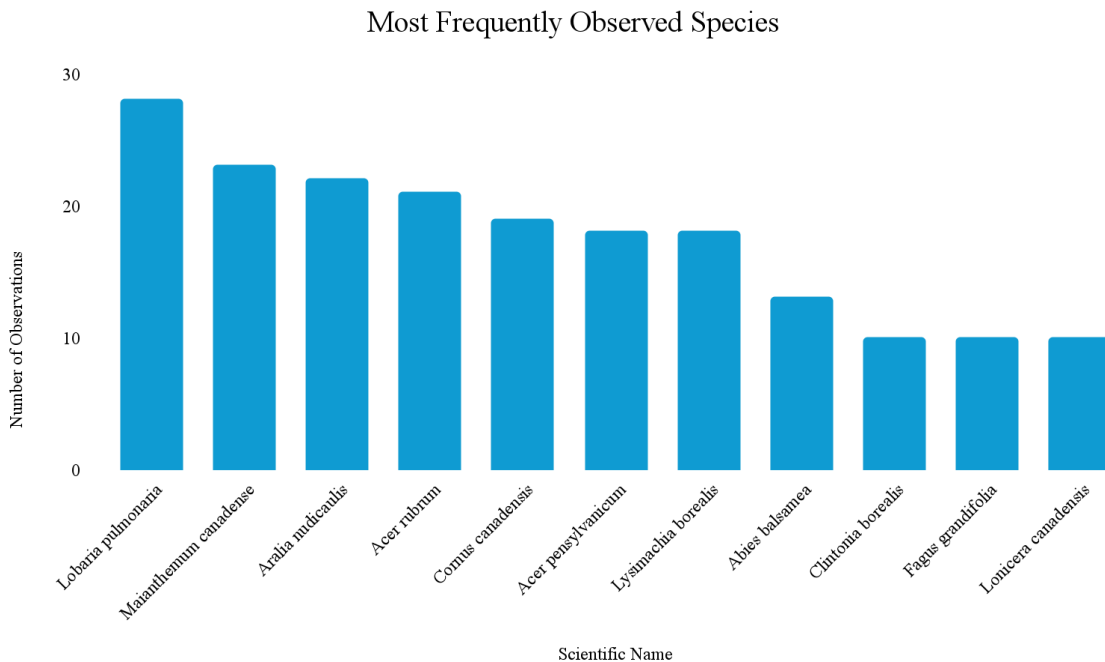


Figure 2. Graph depicting the most frequently observed species at the Coxheath Hills/Gillis Lake property on June 14-15, 2024 with observation counts for each species.

4.3 Wabanaki-Acadian Forest Species

We observed forests of varying complexity and age during the June BioBlitz, from young, early successional forests, to more mature forests with individual trees estimated to exceed 100 years old, Old age trees are defined by the province of Nova Scotia as 125 years old¹. The species observed were characteristic of the Wabanaki-Acadian forest, which covers most of the Maritimes and extends in Maine and parts of New England and Quebec.

We recorded a total of 12 tree species during our BioBlitz. Several of these species are long-lived late successional species, including American Beech (10 observations), Eastern Hemlock (7 observations), Sugar maple (6 observations), Yellow birch (5 observations), and Eastern white pine (1 observation). We observed canopy-height individuals of Eastern Hemlock, Sugar Maple, and Yellow Birch and indeed, some small sections of the forest were dominated by hemlock canopies. Left undisturbed, these forested areas will transition into old growth forest.

The following quote taken directly from the provincial document “An Old Growth Policy for Nova Scotia” emphasizes the importance of old growth forests:

Maintaining and restoring old-growth forests across the province is important for future generations. They are not only supportive of biodiversity but also diverse Mi’kmaq cultural values and practices such as teaching grounds, ceremonial sites, and medicine harvest. Embracing Netukulimk in forestry means respecting the capacities and capabilities of the heterogeneous landscapes that nurture our old-growth forests (Natural Resources and Renewables, 2022, p.3).

For the full document: <https://novascotia.ca/ecological-forestry/docs/old-growth-forest-policy.pdf>

4.4. Species at Risk

Contopus cooperi (Olive-sided flycatcher) was the single species at risk observed during the Keep Coxhealth Clean BioBlitz. The Government of Nova Scotia considers the Olive-sided flycatcher a threatened species. The North American Breeding Bird Survey estimates that the global population of this species declines by 3.4% each year.

The Olive-sided flycatcher prefers mixed forests with wetland areas and dead snags of wood for perching. It forages on the wing, consuming flying insects, like bees, wasps, and flies.

Over 50% of the global population of Olive-sided flycatcher breeds in Canada, migrating to South America in the winter months. Deforestation and habitat loss in their overwintering grounds are a major concern. Conservation efforts in Nova Scotia/Canada may help prevent species population declines.

¹ Government of Nova Scotia, Department of Natural Resources and Renewables. (2022). An Old Growth Policy for Nova Scotia.

For more information:

<https://novascotia.ca/natr/wildlife/species-at-risk/>

https://www.sararegistry.gc.ca/virtual_sara/files/plans/rs_olive-sided%20flycatcher_e_final.pdf

5. Next Steps

We recommend additional BioBlitz events taking place in several locations in the Coxheath Hills, in order to better understand the local biodiversity and species at risk. We also recommend surveying for ecologically significant wetlands, including wetlands exceeding two hectares, as well as old growth tree stands and those with potential to mature into old growth forest.