



the weekly anthropocene



dispatches from the wild, weird world of humanity and its biosphere

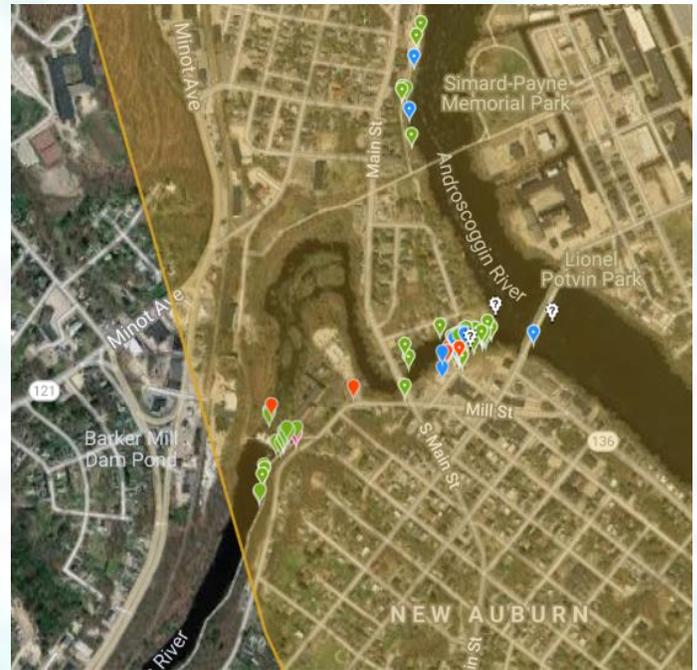
By Sam Matey

Androscoggin BioBlitz Report

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On Saturday, August 11th, Maine Conservation Voters (MCV) and the Androscoggin Land Trust held the Androscoggin River Cleanup & BioBlitz in Auburn, Maine. The Androscoggin Land Trust led the cleanup, the 7th annual river cleanup that they had organized, while Maine Conservation Voters focused on the new BioBlitz component.

The Androscoggin BioBlitz was this writer's capstone project for his MCV internship. A BioBlitz can be thought of as a "biological treasure hunt." In this BioBlitz, participants used the citizen science app iNaturalist to photograph wildlife of the river shoreline and log their observations to the app's database. iNaturalist was chosen because this app not only helps participants identify species (with the aid of an image-recognition algorithm) but helps contribute to science, as scientists often use iNaturalist data to learn about a species' current distribution. Our BioBlitz began at Little Andy Park in New Auburn, near the confluence of the Little Androscoggin and Androscoggin Rivers. The Androscoggin BioBlitz project on the



iNaturalist website collected all of the observations made on August 11th in the Lewiston-Auburn river shoreline area into a single report, making it easier to survey the final observation tallies. (Pictured: a map of the BioBlitz observations. Different colors represent different taxa, or classification groups.) Check it out at www.inaturalist.org/projects/androscoggin-river-bioblitz.

The Androscoggin BioBlitz was wildly successful! Attendees logged 101 observations of 74 different species, over half of which are now Research Grade on iNaturalist. During our day of exploration, we uncovered many fascinating life-forms of the Androscoggin river ecosystem.

One outstanding observation was a northern two-lined salamander (*Eurycea bislineata*, pictured). Found under a rock on the riverbank, this species was an indicator that the Androscoggin River, after a decades-long campaign to clean it up, has reached an admirable state of cleanness. Salamanders breathe through their skin and are notoriously sensitive to even tiny amounts of pollutants. The presence of this salamander can be viewed as a "clean bill of health" for that stretch of river. This observation has already been added to the Maine Amphibian and Reptile Atlas Project (MARAP), an effort to document the distribution of Maine's reptiles and amphibians. Great work!





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Another sign that the Androscoggin River is in prime condition was the sighting of a smallmouth bass (*Micropterus dolomieu*) by this writer. Smallmouth bass are also dependent on good water quality. The Chesapeake Bay Foundation describes them as a “canary in the coal mine,” as problems with a smallmouth bass population are an ill omen for the future of the waterbody as a whole. They are also a highly popular game fish, a circumstance which contributed to their observation during this BioBlitz. A fisher was casting his hook in the spray just below from the Barker Mill Dam on the Little Androscoggin River. He expressed interest in iNaturalist, and kindly allowed his catch to be photographed. The smallmouth bass was released afterwards.



Some of the wildlife we found can be beneficial to humans, too. The American groundnut (*Apios americana*, pictured left) was a staple food of Native Americans, and its tubers are a protein-rich like food that give the plant its alternate common name, “potato bean.” Although it is still cultivated in Japan, it has been neglected in its original homeland, with wild food enthusiasts its last consumers. On the Androscoggin River shoreline, it likely provides a handy food source for local mammals.

In sharp contrast, the Eastern North American Destroying Angel we saw (*Amanita bisporigera*, pictured right) would make a distinctly unwise choice for a meal. This mushroom is deadly poisonous, killing most of the unlucky few who have eaten it!



Another species logged in the BioBlitz was a virile crayfish (*Orconectes virilis*, pictured). A 2007-2008 survey, in which my own academic advisor Dr. Karen Wilson of USM was an integral leader, found that this is the most common crayfish species in Maine, accounting for 94% of total catch (Marquis et al., 2014).

A two-for-one observation caught a slug (likely of the Arion genus, but not yet conclusively identified) crawling on a dead creek chub (*Semotilus atromaculatus*, pictured right).





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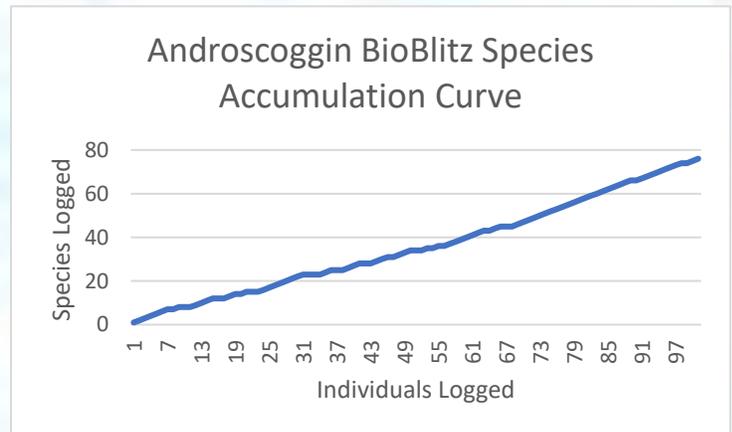


Purple loosestrife (*Lythrum salicaria*, pictured) was occasionally present on the riverbank, and was logged multiple times during our BioBlitz. This plant has become the focus of controversy within the conservation biology community. Historically, it has been targeted as an invasive species, accused of taking over wetlands and crowding out native plants. However, some ecologists now say that it has been unfairly maligned (Lebans, 2014). All we can say is that in the area we surveyed, it made up only a small part of a diverse floral community.

It is fitting to end this sampling of our observations with an image of an osprey (*Pandion haliaetus*, pictured right), as this species occupies the highest trophic level of any that we logged during the BioBlitz. Trophic levels can be thought of as “steps up from the sun” in energy consumption. Plants, which get their energy from photosynthesis, are trophic level 1. Things that eat plants, like cows and small algae-eating fish, are level 2. Ospreys eat large fish, so they are trophic level 4.



The overall takeaway of the BioBlitz can perhaps best be summed up by this rough species accumulation curve. Individual organisms logged are on the x-axis, while species logged are on the y-axis. When a single area is surveyed, these curves will eventually approach a horizontal asymptote (appearing on the graph as a flat line): more individuals will be found, but all the species have been catalogued. This data graphing method is often used by environmental surveyors to check whether they are close to finding all the species in an area or not. As is clearly visible in this accumulation curve, species and individual logs were going up roughly in tandem, with no sign of leveling out. In other words, even after our expansive BioBlitz, we’d just scratched the surface, and were showing no signs of slowing down in our quest to catalog Auburn’s Androscoggin shoreline biodiversity. A continuation of biological surveying in the area would doubtless reveal many more species that we did not log.



In conclusion, our BioBlitz was an engaging exploration of a complex riverine ecosystem. The citizens of Auburn should be proud of this fascinatingly diverse landscape of the Anthropocene.

References:

Lebans, J. (2014, Dec 6). Battling invasive species can be a mistake, ecologist says. *CBC News*. Retrieved from <http://www.cbc.ca/news/technology/battling-invasive-species-can-be-a-mistake-ecologist-says->

Marquis, A., Wilson, K., Gallagher, M. (2009, March). DISTRIBUTION OF NATIVE AND INTRODUCED CRAYFISH IN MAINE: AN ONGOING EFFORT TO DEVELOP BASELINE DATA BEFORE NEW SPECIES INVADE. In *Geological Society of America Abstracts with Programs*, (Vol. 41, No. 3, p. 111).