

# NEWSLETTER

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## iNaturalist in Newton: The First 17 Years

By Jon Regosin and Greg Berkman

**Editor's Note:** Please see the online version of this article for the many links cited in the article below.

Did you ever wonder how many turtle species can be found in Newton? Or perhaps you are curious about ferns? Or native bees? Are we losing native plants and animals over time due to stressors such as climate change or invasive plants? Perhaps some southern birds or emerging non-native invasive species, such as the spotted lanternfly, are becoming more common.

On a personal level, an increased awareness of and appreciation for the plants and animals that call our neighborhoods, parks, and open spaces home can enrich our lives. After all, engaging with nature is increasingly recognized as important to our health and well-being. The expression "miss the forest for the trees" is a caution against missing the big picture. But sometimes, a focus on the trees (including an ability to identify tree species) is needed for a deeper understanding of the forest.

If you are interested in improving your local natural history knowledge, plant, or bumblebee identification skills, how do you get started? Not long ago, this required field guides or complex species identification keys. While these are still essential and helpful tools (e.g., Go Botany key), today's aspiring and expert naturalists are fortunate to have iNaturalist, a powerful tool for documenting and identifying plants, animals, and other forms of life. iNaturalist users can upload photos, and iNaturalist will generate identification suggestions using a constantly improving machine learning tool. iNaturalist also has a robust community of users, many of whom will also propose identifications for other users' observations. When 2/3 of users agree on an identification, it is considered a more reliable "research grade." See the box on the next page for more information about how to explore Newton's biodiversity.

iNaturalist is more than just a species identification tool — it's a powerful database that enables us to track biodiversity at multiple scales and detect changes over time. For example, we can use the iNaturalist website to see all the species observed in Newton (<u>https://</u> <u>www.inaturalist.org/observations?place\_</u> <u>id=178797&view=species</u>) or all the plants seen in Cold Spring Park (<u>https://</u> <u>www.inaturalist.org/observations?project\_</u> <u>id=cold-spring-park-newton-</u> <u>ma&view=species&iconic\_taxa=Plantae</u>).

iNaturalist in Newton, 2008–2024 — In 2008, iNaturalist made its debut in Newton with the reporting of one bird (Mallard) and two plants (Sassafras and Enchanter's Nightshade, both in Auburndale Park). Since that time, there has been rapid growth in the number of species reported, with a total of 3,064 unique species observed as of December 31, 2024 (Fig. 1, next page). We continue to add species at a fairly rapid rate, although the rate is slowing down. For example, in 2024, there was a 15% increase, with 401 species added.

The breakdown of species observed by taxonomic group is shown in Figure 2 (next page). Plants, insects, and fungi account for 34%, 36%, and 18% of the observed species, respectively. If we look at the Conservators'



iNaturalist project to track biological diversity at seven of



Newton's Parks/ Conservation Areas (<u>bit.</u> <u>ly/43XOT0G</u>), 60% of the species reported in iNaturalist for Newton have been observed at these sites, and the number of species grew by 290 during 2024, an increase of 19%.

#### An iNaturalist journey with

**bees** — To illustrate how nature observation, aided by iNaturalist, can improve our understanding and appreciation of nature while contributing to local knowledge, I'll describe my recent experience observing bees. A few years ago, I knew very little about bees or bee identification. I began taking photos of bees (and other insects) and posting them to iNaturalist. Over time, the quality of my photos improved (all taken with a smartphone camera), and I started to occasionally net bees so that I could get even better closeup photos (most of our native bees do not sting, but be careful!). As my observations were identified in iNaturalist, my identification skills have improved significantly, and I can now identify many of the bees I observe (to species or genus). Here is a link to my Newton observations of 50 bee species, including photos: <u>https://www.inaturalist.org/</u> observations?place id=178797&taxon id=630955&user id=naturalist2073.

Through these efforts and the efforts of many other iNaturalist users, our understanding of Newton bees is increasing significantly. From 2021 to the present, the number of bee species documented in Newton has increased from 18 to 57 (<u>https://www.inaturalist.org/observations?place\_id=</u>).

These include many beautiful organisms with fascinating life histories: for example, numerous mining bees (genus Andrena) that fly for brief periods in the spring and are often chased by parasitic nomad bees (genus Nomada); three common bumblebees that are relatively easy to distinguish in the field and 1-2 less common species; numerous leafcutter and resin bees (family Megachilidae) that carry pollen on hairs on their abdomens instead of on the legs like most bee species; longhorned bees that tend to specialize on sunflowers in the mid-late summer (genus Melissodes); and several fall bees that specialize on asters and goldenrods (e.g. Cloudy-winged and Hairy-banded Miners). We also have at least five non-native bee species that may negatively impact native pollinators, in addition to non-native honeybees. Next steps may include working with the community to survey bees in Newton pollinator gardens and other beerelated citizen science initiatives.

#### How to Explore Biodiversity in Newton

- Get out and explore A diversity of birds, insects, plants, fungi, and lichens can be found almost anywhere! Get out and observe. Consider grabbing a field guide or posting photos to iNaturalist to enhance your identification skills. Newton Conservators' website provides resources and maps to help you plan your explorations (<u>https://newtonconservators.</u> org/parklist/). The Conservators Conservation Areas and Parks Survey lets you explore the plants and animals that have been seen in Newton open spaces (<u>https://www.inaturalist.org/projects/newton-maconservation-areas-parks-survey</u>). For example, before visiting Edmands Park, you could use this resource to filter and view a list of all the birds that have been seen in the park in June.
- Attend a Conservators' BioBlitz In addition to offering many guided nature walks, Newton Conservators has been offering a series of BioBlitz events each year (<u>https://newtonconservators.org/</u><u>events/</u>). These are like our guided walks, but the focus is on honing our species identification skills and documenting what we find on iNaturalist. Topics have included vernal pools, plants, pollinators, and more.
- Become an iNaturalist user Download the smartphone app and start making observations (<u>https://www.inaturalist.org/</u>). Focus on something of interest to you, like plants or pollinators, or post photos of whatever you see. You will be learning about nature and the many fascinating organisms that share our environment and contributing to our collective knowledge of Newton's biodiversity. Getting started tips can be found here: <u>https://inaturalist.freshdesk.</u> com/en/support/solutions/folders/151000552105.

