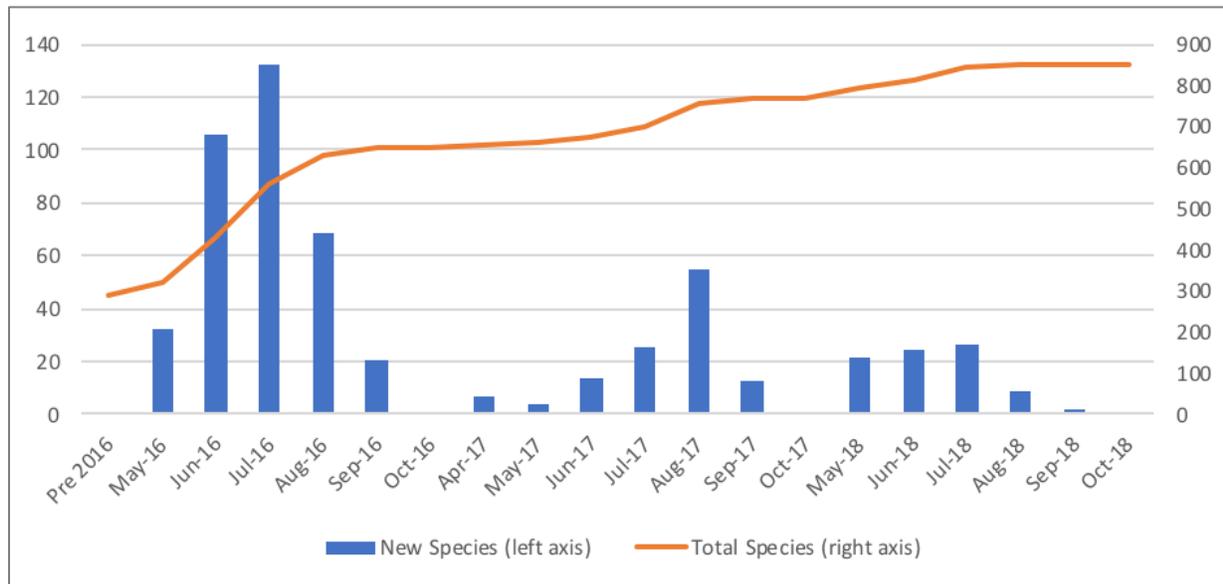


# High Park Moth Study

By Taylor Leedah

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The High Park Moth Study (HPMS) is a citizen science program that documents the moth population of High Park weekly from May to October. The study was founded in 2016 by Toronto naturalist Richard Aaron and is run by a group of enthusiastic volunteers that includes David Beadle, the co-author of the Peterson Field Guide to Moths of Northeastern North America. The project builds upon the information collected from the Annual High Park Moth Night. This yearly event, co-hosted by the Toronto Entomologist' Association and the High Park Nature Centre (HPNC), instigated a species list in 2004. It launched our weekly study with 259



species. Since then, the High Park Moth Study has added 594 species, bringing the total record of unique moths in High Park to 853 (Figure 1. Graph by study member, David Kaposi, demonstrates total number of species witnessed and species added to our list). This article will fill in the details about the how, why and who of the study's progress.

The techniques used to lure the park's moths continue to evolve. Initially, the High Park Nature Centre provided Aaron with seed money to purchase a basic set up of two mercury vapor bulbs, white cotton sheets and rope (HPNC also made available a storage space attached to the centre's building and access to the building's electricity). Home Depot (Stockyard's location) generously donated electrical cords to the study. From the outset, volunteers have also provided homemade sweet bait to attract nectar-feeding moths that do not typically come to lights. Since this initial outfit, the study has accessed new areas of the park and acquired new equipment via public funding: from the Toronto Field Naturalists in 2017 and the Western Beaches-High Park Fund in

2018. This funding has added two large light traps built by Mike King, UV lights and portable batteries.



Heading into the fourth year of the study in 2019, UV flashlights will be added to our gear. The flashlights will be used to search for caterpillars – most of them fluoresce under UV light – in the park’s flora. In 2018, we added the Interrupted Dagger (*Acrionicta interrupta*) to the population list based on the discovery of a caterpillar. This was the first example of a moth being added to the park’s list based on a caterpillar, but we hope to continue to do so in 2019 with UV flashlights. These flashlights will be crucial tools in

accessing new species and broadening the investigation of High Park’s terrain. Looking at the graph in Figure 1, one can see how prodigious this first year was for adding moths. This simply reflects the fact that we were documenting the population throughout the spring, summer and fall for the first time – there was much to be encountered! The following years have and will continue to require innovative methods to access the park’s various environs and its roosting moths.

The sessions are free and open to the public; as well, our master list of species is available to anyone upon request. For instance, the Toronto Entomologists’ Association has integrated over 6,000 of our observations into their Ontario Moth Atlas, which is currently aiding provincial government researchers in making recommendations for Ontario lepidopteron Species at Risk; and we’ve provided data to the Natural Heritage Impact Study for Bloor Street between Keele Street and the Humber River, commissioned by the City of Toronto.

Though the weekly sessions are dependent upon which moths “decide” to show up at our lights, we have also had daytime sessions to target specific moths that rely on particular native host plants growing in High Park. For example, on July 14, 2018 a small group from the study located native lupine plants to sweep for the Lupine Leafroller moth (*Anacamptis lupinella*), which is listed as “possibly extinct” by The Natural Heritage Information Centre (NHIC), Ontario Ministry of Natural Resources and Forestry (MNR). The group counted at least 50 different specimens of the moth during their inquiry that day. As well, a small patch of the park’s Pearly Everlasting was playing host to the Everlasting Tebenna (*Tebenna gnaphaliella*), another moth of concern that has a specific host plant. The study’s participants are constantly reminded of the importance of urban parks and their value in hosting intricate, delicate ecological relations.

These weekly sessions provide an ongoing opportunity for the public to learn about moths in situ (we have a strict no-collecting/no-kill policy). Beadle’s Peterson Field Guide to Moths of Northeastern North America is our core text, and our experience in the field animates the information in the guide. Many edifying moments befall us:

- the time we were hauling our gear back to the HPNC at the end of our session and were stopped in our tracks by groups of caterpillars suspended in tangles of silk on Ailanthus,

and we quickly realized we were gawking at the larval phase of one of our common and favoured moths – the aptly named Ailanthus Webworm moth (*Atteva aurea*);

- the time a dog training clicker was brought to a session to test which moths had tympanums and could “hear” the clicking sound – suddenly a few moths dropped from the sheet in a dramatic death feign, which is a strategy evolved to respond to the echolocation of bats, a mighty predator of moths;
- the act of sneaking up silently and without light on the sensitive Underwing moths suckling the sweet bait we’ve painted on trees;
- witnessing the many ephemeral blooms of particular species within the broad human concepts of “spring,” “summer” and “fall”;
- and succumbing to the reality of moths in High Park – the large, showy species are few and far between, but much is to be appreciated in the pixilated beauty of “micro dust” such as the Beautiful Dafa (*Dafa formosella*), the glacial afro of the Mountain Bucculatrix (*Bucculatrix montana*), and golden flash of the Cherry Shoot Borer (*Argyresthia oreasella*).

It is difficult to portray the kind of obsession that leads a group of people to shake tree limbs and run their feet through the park’s grasses to push moths at the periphery of lights onto the sheets. These experiences are the true value of getting to know the subjects of a field guide.



*Megalographa biloba*, Photo by David Kaposi

These sessions are open to the public, but over the three years a handful of regulars have grown into a core group of volunteers. Richard Aaron deftly managed all aspects of the group for the first two years of the study. In 2018, Aaron stepped down as Director and passed the title onto Taylor Leedah. Leedah has worked to disperse the mountain of work Aaron managed on his own. Dave Beadle and Ken Sproule gracefully manage the study’s data, Jonathan Hayes, Programs Coordinator at High Park Nature Centre, continues to be a valuable link to the facility, and the other members are important fixtures in the handling of weekly sessions, keeping their ears open for new opportunities for the study and providing insight on ways to develop our initiatives.

Those who attend the study regularly have also become a community, which we informally refer to as the “High Park Mothia.” We host pre-season and post-season socials and organize to meet for lectures and documentary screenings related to moths and other insects. We undertake short trips to moth in other locales in southern Ontario, and ten members travelled together to Ohio in 2017 to Mothapalooza, a conference on moths that lures enthusiasts from all over North America. There, among many things, we were introduced to novel techniques for photographing moths, the wonders and importance of including caterpillars in our investigations and we encountered species that are never on the wing in Toronto. We will travel to Mothapalooza again in 2019.

This is just a short introduction to a lively and multi-faceted study – the other insects enjoyed during the sessions and the growing treasure of moth-related jokes and puns are topics for

another issue! If you are interested in attending a High Park Moth Study event, you can be added to our newsletter by sending a message to [highparkmothstudy@gmail.com](mailto:highparkmothstudy@gmail.com). We'd love to meet you and are always welcoming to anyone whose interest is piqued by moths! Additional photos are on the back cover of this issue.