

Bee Watchers

Bee Fact Sheet

- 4,000 North American species
- 800 species, 65 genera, east of the Mississippi River
- Approx. 219 species in New York City (19 more since last year!)
 - Perhaps as many as 500 species as yet undescribed in North America
 - North America has a very rich bee fauna, even relative to the tropics; local faunas, even in the Northeast can be very high in number of species.
- Many co-evolved with individual plant genera.
 - 1/3 of all flowering plants require animal pollination.
- Bees have been around for 100 + million years.
- Almost all collect pollen and nectar (oil).
- Most are solitary; most follow nectar sources.
- Most simply nest by making holes in the ground; some in plant tissue (pith); a few build nests (from biomaterials) or will occupy holes made by others (e.g., beetle holes).
- 20% of species are nest parasites (kleptoparasites) of other bee species; insert their larvae into host bee nest, kill host larvae and use host food resources; more common in the East; some stealthy; some large/robust, barge in.
- Most don't sting (Europe honeybees and bumblebees do).
- Most are nonaggressive (bumblebees are).
- Found in all habitats
 - Most have habitat & plant preferences.
 - About 1/3: have strong host plant preferences; 1/3 preferences, but not restricted to 1 plant species, and 1/3 are plant generalists.
 - Nest preferences for sandy soils
 - Preference for open, successional habitats for nesting (often a limiting factor)
- Large seasonal turnover of species
 - Generally found from late March to late October)
- Some species produce multiple generations per year (multi-voltine).
- Urban habitats tend to be very low in Lepidopteran species (butterflies and moths) (except for migrants) but robust in bee species. (A study in Harlem recorded 45 species.)

Why Monitor?

- There is not a lot of data on species commonality, so it's hard to assess whether and which species are in decline, which are not. We need much more data.
- Most species operate within a small range (100 meters).
 - Many populations can be managed in small areas. (Lends itself well to urban conservation.)
- Bees can be used to monitor environmental health, especially because of their interactions with plants.

- Bulk of museum collections of bees were made prior to World War II era. Bees are purported (anecdotally) to be in decline, but we really don't know; we need fresh data.
- 26 known species of introduced bees in U.S., potential pests; probably more introductions, especially those that nest in wood; problem is on the increase; needs monitoring. Impact on natives not known.
- Reasons for monitoring:
 - Species list (occurrence)
 - Relative abundance
 - Species richness (# of species)
 - Frequency/ pollination services
 - Percent of area occupied
 - Identification of important bee habitats (for conservation)
 - Detect changes (once there is replicate data)
 - Correlation to native plant population health and decline

Bee Conservation

- Key factors in bee conservation:
 - Presence of preferred pollen plants
 - Presence of nest habitat sites
 - Supplemental nectar sources/sites

On Line Resources:

Bug Guide: www.bugguide.net

Discover Life: www.discoverlife.org