

Chautauqua Watershed Notes
For the Chautauqua Watershed Conservancy
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The Little Known Value of Native Bees
By Priscilla Titus
For the Chautauqua Watershed Conservancy



Native bumblebees pollinate many of our less common native plants like this bottle gentian (Gentiana clausa), which is present within several of Chautauqua Watershed Conservancy's preserves.

This fall, I had a wonderful opportunity to take a class on native bee identification. The course was taught by Sam Droge of the U.S. Geological Survey in an effort to create a pool of people with the ability to accurately identify bees. By now, many people are aware of the dramatic concerns over recent declines in European honeybee populations across this nation. But few people realize that the ubiquitous honeybee is just one of over 800 known species of bees that inhabit the eastern U. S., and 2,500 or more species that inhabit western U.S. The honeybee is one of only a few dozen known species that were introduced here, as opposed to those that evolved on this continent.

Native bees are found in a dazzling array of shapes, sizes, and colors. The vast majority of these are solitary, meaning they live their entire life cycle alone with the exception of a brief mating episode. Females build nests with individual cells and provision them with nectar and pollen before laying eggs. The eggs hatch to produce larvae that will grow and pupate the following year without the care of an adult. The nests of native bees are located in a surprising variety of sites including the ground, stems of plants such as raspberries and large grass stems, tree hollows, cliff crevices, and even empty snail shells. Some bee species are semi-social, sharing a common entrance to separate nesting areas, and some simply nest in close proximity with numerous other individuals of the same species. But none work communally to feed and rear young by performing differentiated roles in a large colony like honeybees do.

Bumblebees are among the few native bee species that form colonies. Bumblebee colonies usually have fewer than 50 individuals. Only colonial bees, with differentiated roles have the ability to sting, because in these complex social systems, the queen does all of the egg-laying and the ovipositors of the workers are modified to become stingers for use in defending the colony. Thus most native bees do not sting.

So why the interest in these native bees? Native bees are important pollinators, and pollinators are keystone species, which means that a large number of other species depend upon them for survival. In other words, pollinators are essential to the persistence of most flowering plants, and

consequently support animals dependent on plants for food and shelter (including humans). Honeybees were imported from Europe because they make such large colonies that it is easy to harvest the honey they produce and colonies can be placed where they can pollinate large crop fields. But many plant species are not pollinated by honeybees, and some plant species can be pollinated only by a single specific insect species.

It is astonishing that despite the importance of pollinators, the status of most of our native bee populations is currently completely unknown. No one knows if they are declining in a pattern similar to that of the honeybee. This is because they have been largely ignored in recent decades, so new data cannot be compared with data from the past to inform us whether populations of these animals are increasing, decreasing, or are stable. Whether or not native bees are exposed to and affected by the same maladies that have plagued honeybees, we can be certain that the widespread alteration of habitats that has taken place throughout our nation has affected the ability of these creatures to reproduce and survive.

As landscapes change and habitats are broken up or lost, pollinator conservation is increasingly important. The small-scale habitats these creatures need and their ability to move between patches means that, with careful planning, effective conservation can utilize small spaces in a vast mosaic that includes parks, natural areas, roadsides, and lawns and gardens. For this reason, some states have developed bee conservation guidelines for farmers and other land managers that include such things as designated no-till corridors in agricultural fields that supply habitat for ground-nesting bees. For lack of space and time, this is the briefest of introductions into the world of native bees, but I hope it will inspire you to learn more and to give a second thought to any bee you encounter this spring.

The Chautauqua Watershed Conservancy is a private, not-for-profit, 501(c)(3) organization with a mission to preserve and enhance the water quality, scenic beauty and ecological health of the lakes, streams and watersheds of the Chautauqua region. Its urgent focus is to conserve the endangered natural shore lands of Chautauqua Lake, which provide fish and wildlife habitat and pollution filtering functions essential to a healthy lake. Only four miles (10%) of the lake's shoreline remains in a natural, undeveloped condition. The Conservancy is funded primarily through membership donations. Its 2008 annual membership campaign is currently underway. It is presently raising funds to conserve the Chautauqua Lake's most important remaining natural shoreline habitats, undertake programs to address the root causes of the conditions that fuel lake plant growth, and manage its preserves. It is the only local organization conserving lands in perpetuity for these purposes. Please contact the Conservancy at 664-2166 to join for 2008!