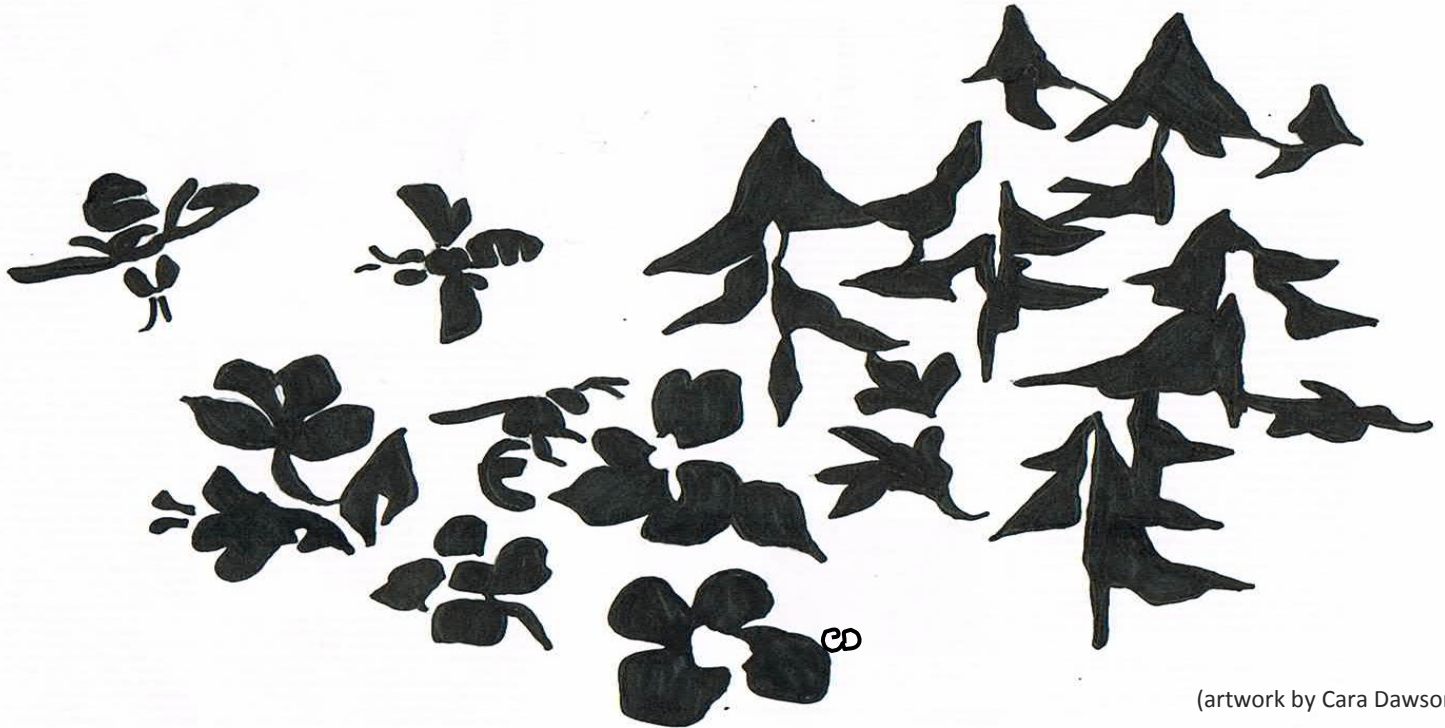




# Wild Pollinators



(artwork by Cara Dawson)

## **Wild pollinators are usually present anywhere there are insect-pollinated flowers.**

In the United States, the monetary value of wild pollinator services has been estimated at \$3 billion dollars per year.

The services provided by wild pollinators are free, and their numbers can be encouraged with low-cost measures to improve nesting habitat and the availability of non-crop food resources. A growing number of producers, especially in organic operations, are choosing to encourage wild pollinators on their land.

The benefits of wild pollinator conservation are twofold. First, the grower gains the services of a diverse array of pollinators on the crop at no (or relatively little) financial cost. The second benefit is to the vast array of wild plants in our wider ecosystem that provide us with vital ecological services (e.g., clean air, water) – many of these plants rely on wild pollinators to reproduce.

The major groups of wild pollinators are described in greater detail on the following pages.



# Bees & Wasps

*Order: Hymenoptera*



Biodiversity within the Hymenoptera.  
Clockwise from top: Wool carder bee, *Anthidium maculatum* (photo by Tom Woodcock); Andrenid bee (family: Andrenidae)(photo by Stephen Marshall); Golden paper wasp (*Polistes fascatus*) (photo by Tom Woodcock)

**Ontario is home to some 400 species of wild bees, in addition to numerous species of wasps which visit flowers.**

While bees are “vegetarian”, some familiar wasps (e.g., yellow jackets, paper wasps) are highly effective predators of insect pests in addition to visiting flowers for nectar.



Bees are often usually considered the most important group of pollinators because they actively collect pollen and nectar to provide for their young. As a result, they visit many more flowers than other species which are foraging for their own needs only.

Encouraging wild bee populations requires that both habitat and off-bloom resources be available (i.e., non-crop plants that flower after the crop has bloomed). Many of Ontario’s wild bees are ground-nesting species that require dry soil with decent structure and low-density vegetation. These nests are easily destroyed by deep tillage. Other native Ontario bees nest in cavities, hollow twigs or stems, and similar protected spaces.

Small carpenter bee (family: Apidae) (photo by Stephen Marshall)



# Flies

Order: *Diptera*



A syrphid fly (*Toxomerus* sp.) foraging on a flower (photo by Stephen Marshall)

## There is an incredible variety of flies that visit flowers.

Some, such as members of the Syrphidae and Bombyliidae families, obtain most or all of their resources from flowers. These hairy flies can move significant quantities of pollen around as they forage.

The Syrphidae are probably the most important pollinating flies in Ontario. Many species are very abundant under the right conditions. Syrphid young (larvae) have a very different lifestyle than their parents, and in some species the larvae prey on slow-moving insects such as aphids.

House flies, blow flies, and anthomyiid flies (families: Muscidae, Calliphoridae, and Anthomyiidae, respectively) can also be effective pollinators. Most flies visit flowers to collect nectar only, although some adult syrphids also feed on pollen.



From left to right: A bee fly (family: Bombyliidae)(photo by Tom Woodcock); a syrphid fly (*Lejops lineatus* Fab.) foraging on a hoptree flowers (photo by Tom Woodcock); a blowfly (family: Calliphoridae) on a flower (photo by Stephen Marshall)



# Moths & Butterflies

Order: *Lepidoptera*



*Smerinthus ocellata*, or Eyed Hawk-Moth (family: Sphingidae)

## Butterflies and moths comprise a large and successful group of insects.

The larvae (caterpillars) feed on plant tissues, yet once they undergo metamorphosis some species no longer feed. Those species that do feed as adults are restricted to a liquid diet of sugary nectar. They use their long, straw-like mouth (proboscis) to probe flowers gently for nectar. They do not interact strongly with the flower, and so they usually do not end up with large quantities of pollen on their proboscis or body. In spite of this, some specialized plants make heavy use of these insects as pollinators, particularly in the tropics.



Left: a foraging skipper (family: HesperIIDae); Right: a Viceroy butterfly (*Limenitis archippus*) (photos by Tom Woodcock)



# Beetles

*Order: Coleoptera*



A flower-visiting beetle (family: Melyridae)

**In Ontario, there are no cultivated crops which rely on beetles for pollination.**

In other parts of the world however there are major crops that rely on beetle pollinators (e.g., oil palm). Beetles will feed on floral tissue, and can cause damage to the flowers and developing fruit. Several groups of beetles, such as the flower scarabs (family: Scarabidae), and members of families Melyridae and Mordellidae are commonly found on flowers. Some soldier beetles (family Cantharidae) feed extensively on pollen and move between many different flowers during their adult lives.



*Left:* a tumbling flower beetle (family: Mordellidae) (photo by Tom Woodcock); *Right:* a soldier beetle (family: Cantharidae) (photo by Fir0002/Flagstaffotos)



# Vertebrates



The Australian Honey Possum (*Tarsipes rostratus*), a marsupial pollinator (photocourtesy of Wikimedia Commons)

## Vertebrates can be important pollinators in many tropical areas.

The most notable vertebrate pollinators are birds and bats, but pollination by primates, lizards, and rodents has also been recorded. In Ontario, few plants have any vertebrate pollinators of significance.



Left: Fruit bats are mammalian pollinators (family: Pteropodidae); Right: Hummingbirds are avian pollinators (family: Trochilidae)