



THE BEES IN
YOUR
BACKYARD

A GUIDE TO TEN OF THE
MOST COMMON BEES
IN THE FOX VALLEY

APPLETON POLLINATOR
PROJECT
SUMMER 2018

DEAR CITIZEN SCIENTIST,

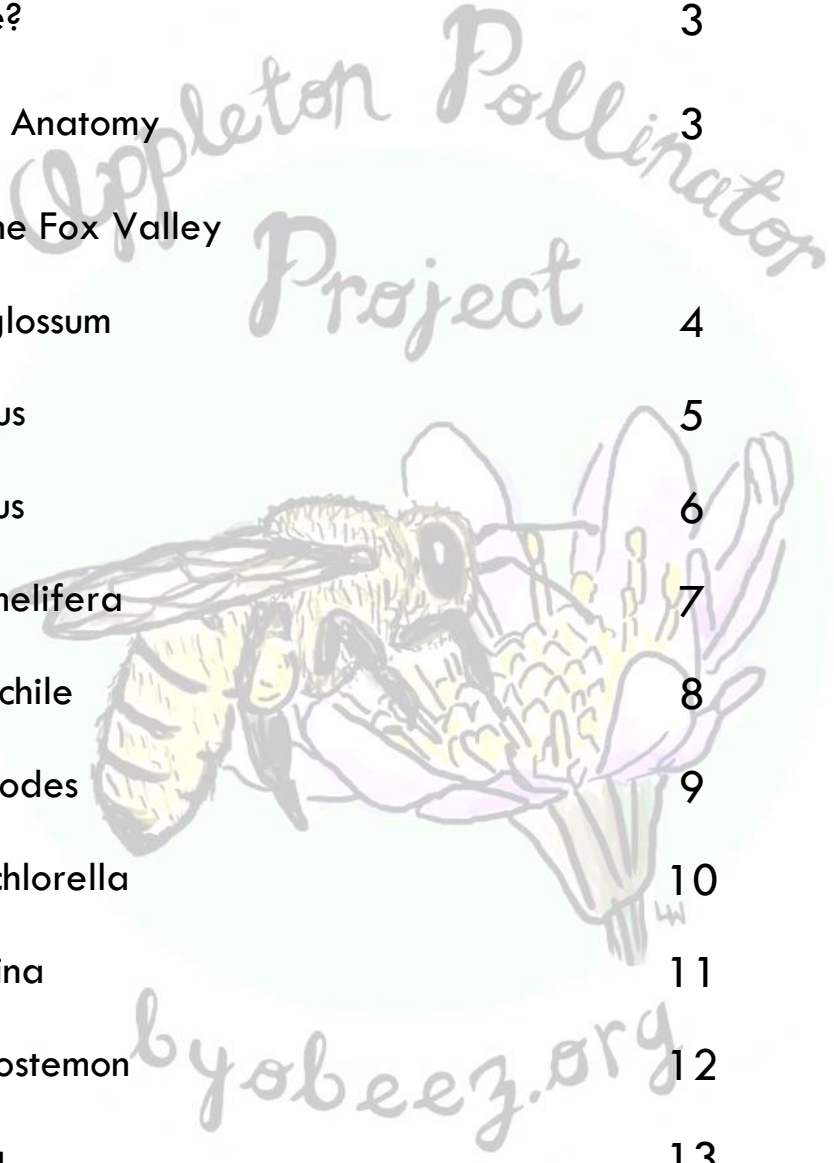
Thank you for your support of the Appleton Pollinator Project through your willingness to host a garden and collect data in collaboration with our team. Without you, we would not be able to get a strong assessment of the native bee diversity in our community and begin to understand the economic value of our native bees. This guide is intended to serve as a resource to help you identify and learn about the native species that likely *already* live in and around your yard. Perhaps you have noticed the great diversity of Wisconsin's nearly five hundred native bee species, or perhaps through this project you will be able to observe this diversity for the first time. Either way, we hope you find interacting with and observing your backyard neighbors to be fulfilling and exciting.

While identification is a major part of assessing diversity, the most important part of being an ecologist and a citizen scientist are your interactions with the world around you. Do not be discouraged by the challenges of naming and identifying each bee that comes through your yard- even those who have worked on bees for many years still consult and collaborate to identify these beautiful creatures. It is our hope that this guide will give you enough information to identify a few major groups of native pollinators, chosen for their high abundance in data collected by the BYOBEEZ team in Summer of 2017. The bees are listed from highest abundance to lowest abundance, and while this guide is by no means all encompassing, it includes 9 native groups of bee and the familiar European Honey Bee. Again, thank you for all that you do and we hope that you enjoy learning about our native bee community.

-THE BYOBEEZ TEAM

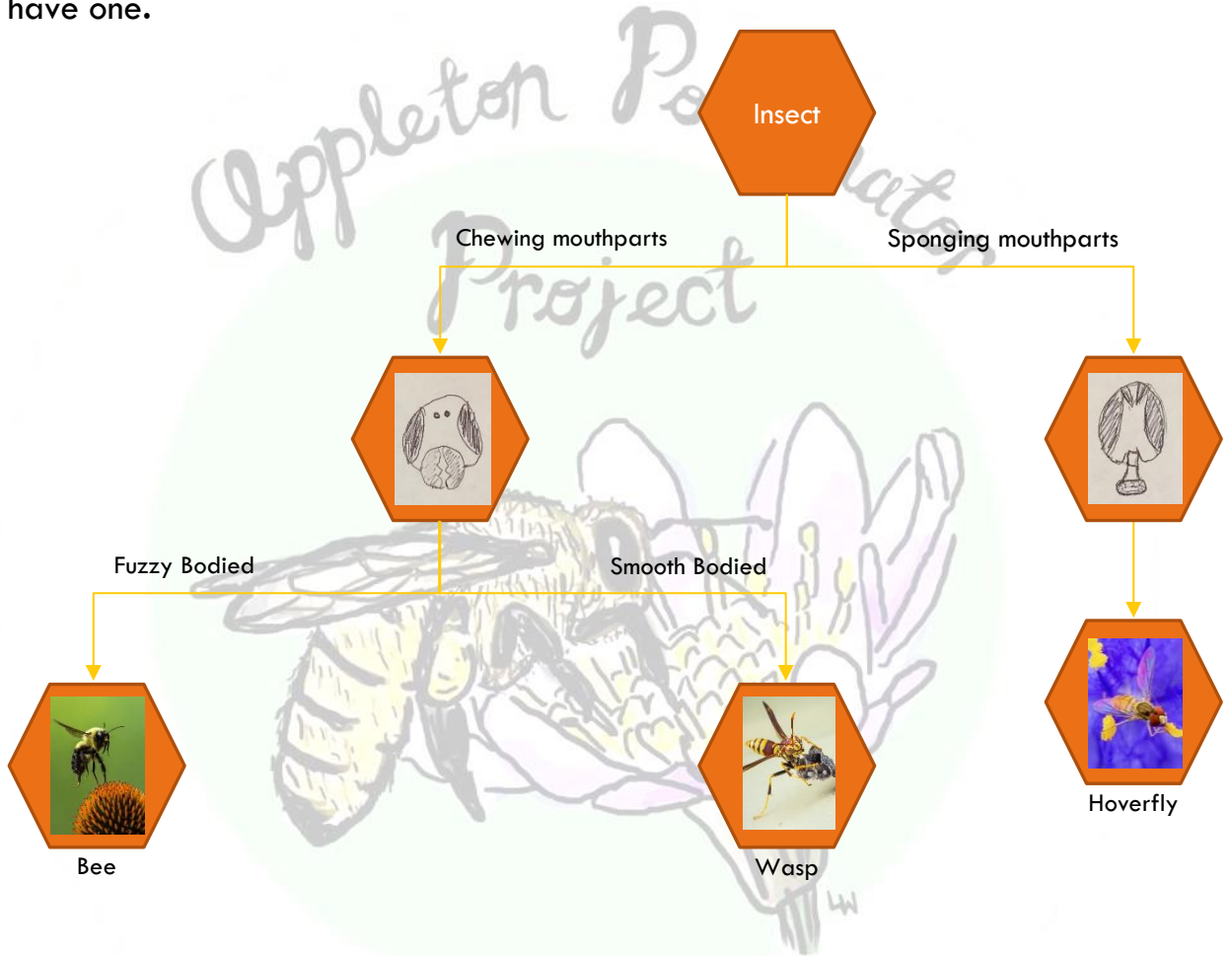
TABLE OF CONTENTS

	Page
Is it a Bee?	3
Basic Bee Anatomy	3
Bees of the Fox Valley	
<i>Lasioglossum</i>	4
<i>Halictus</i>	5
<i>Bombus</i>	6
<i>Apis mellifera</i>	7
<i>Megachile</i>	8
<i>Melissodes</i>	9
<i>Augochlorella</i>	10
<i>Ceratina</i>	11
<i>Agapostemon</i>	12
<i>Osmia</i>	13
Further Reading	14
References	15



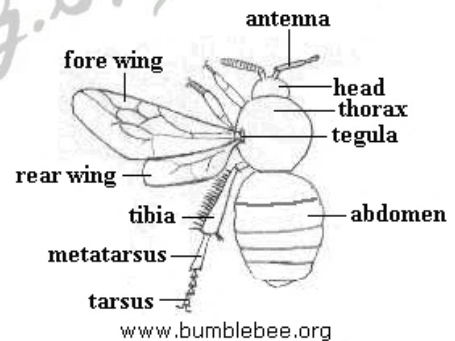
IS IT A BEE?

It can be difficult to tell the difference between the many flying insects that might be in your backyard. A quick visual key to help you determine the difference between bees, flies and wasps is below. In addition to the mouthparts, bees and wasps will have two sets of wings while flies will only have one.



BASIC BEE ANATOMY

This diagram shows the major parts of a bee. Differences in these parts are the main way that bees are grouped together. Being able to identify these parts will make it easier for you to identify your bees.



LASIOGLOSSUM SPP.



PRONUNCIATION: laz-e-o-GLOSS-um

COMMON NAME: Sweat Bee

DISTINGUISHING FEATURES: These bees are typically small in size and show dark coloration. They look very similar to bees in the genus *Halictus* but the light bands of hair on their abdomen go *under* the dark abdominal segments (called basal bands) instead of over the dark segments as in *Halictus* (called apical bands).

YOU CAN FIND ME: These bees nest in the ground and are most common during Spring and early Summer.

OTHER INFORMATION: Bees in the genus *Lasioglossum* are by far the most abundant that were collected in the Fox Valley. There are an estimated 1,700 species of these bees worldwide with 280 of these residing in North America.

HALICTUS SPP.



PRONUNCIATION: hah-LICK-tuss

COMMON NAME: Sweat Bee

DISTINGUISHING FEATURES: Like the closely related genus *Lasioglossum*, bees in the genus *Halictus* are small and dark-colored. The light bands on their abdomen go over the dark abdominal segments (called apical bands) instead of *under* the dark segments as in *Lasioglossum* (called basal bands).

YOU CAN FIND ME: These bees nest in the ground in areas with little vegetation. Typically, these bees first emerge in the early summer.

OTHER INFORMATION: Many species in the genus *Halictus* are social, though the size of these groups varies immensely. Some live in groups of 2-4 bees while others live in groups of over 200. In addition, some species of *Halictus* show differences in social behavior based on climate; bees that live in cooler areas tend to be solitary while bees in warmer areas are social!

BOMBUS SPP.



PRONUNCIATION: BOM-bus

COMMON NAME: Bumblebee

DISTINGUISHING FEATURES: These bees are among the most recognizable groups of bees, especially with their large size and fuzzy bodies. They can be as large as 1.5 inches.

YOU CAN FIND ME: Bees in the genus *Bombus* prefer to nest in the ground—often in old rodent holes. They are among the first bees to emerge in the springtime and are active throughout the summer.

OTHER INFORMATION: These bees are social; they form small hives of 50-400 individuals. In addition, *Bombus terrestris*, a common species of bumblebee, has been shown to exhibit social learning behavior. In 2017, *Bombus affinis*, or the rusty-patched bumblebee, was the first continental US bee species ever to be put on the endangered species list.

APIS MELLIFERA



PRONUNCIATION: a-PIS mel-IF-er-uh

COMMON NAME: European Honey Bee

DISTINGUISHING FEATURES: These bees tend to have a golden-colored abdomen with black stripes that get thicker towards their stinger.

YOU CAN FIND ME: As a non-native domestic animal, honeybees are only found where humans put them, with the exception of feral populations. They are one of the only species of bee that overwinters as a colony. In most other bee species only the queen overwinters.

OTHER INFORMATION: These bees live in huge colonies of up to 80,000 individuals. To communicate with each other, the bees participate in a dance called the “waggle dance”. Through this, they can tell other bees the exact location and the quality of found food sources. Up to 90% of bees in a hive are the female offspring of the queen.

MEGACHILE SPP.



Photo: Stanislav Krejčík

PRONUNCIATION: meg-uh-KILE-e

COMMON NAME: Leafcutter bee

DISTINGUISHING FEATURES: These bees are typically about 0.75-1 inch in size and feature large chewing mouthparts. The area underneath their abdomen is especially hairy as this is where they carry their pollen.

YOU CAN FIND ME: Bees in the genus *Megachile* nest either in hollow twigs or cavities in wood. As their common name suggests, they cut pieces of leaves or grass with their mouths to stuff into these holes to protect their eggs. They tend to emerge in early spring.

OTHER INFORMATION: This genus contains the largest known bee species, *Megachile pluto*, which measures 1.5 inches. Some species of these bee are used as pollinators on commercial farms, especially of alfalfa.

MELISSODES SPP.



Photo: John Baker

PRONUNCIATION: mel-ih-SO-deez

COMMON NAME: Long Horned Bee

DISTINGUISHING FEATURES: The distinguishing characteristic of males in this genus is the long antenna that they possess. Both males and females in this genus have very hairy back legs. Typically, they are about 0.75 to 1 inch in size.

YOU CAN FIND ME: These bees nest in the ground, typically under the brush. This is unlike the ground nests of *Halictus*, which nest in areas without vegetation. *Melissodes* typically emerge in mid to late summer.

OTHER INFORMATION: Bees in the genus *Melissodes* are one of the most important pollinators of sunflowers. They also pollinate watermelon and help with the cross-pollination of cotton.

AUGOCHLORELLA SPP.



PRONUNCIATION: awe-go-klor-EL-uh

COMMON NAME: Green Metallic Sweat Bee

DISTINGUISHING FEATURES: Bees in the genus *Augochlorella* are metallic green in color and very small, often less than one third of an inch. They are completely green unlike the similar-looking *Agapostemon* which have a metallic green head and thorax with a black abdomen.

YOU CAN FIND ME: These bees are ground nesters and prefer semi-vegetated areas.

OTHER INFORMATION: *Augochlorella* species are generalist pollinators and pollinate tomatoes, watermelon, apples, and most wildflowers. These bees also are flexibly social. Sometimes they exhibit social behavior, sometimes they do not, and sometimes they exhibit a mix of these behaviors.

CERATINA SPP.



Photo: Gideon Pisanty

PRONUNCIATION: sera-TIE-na

COMMON NAME: Small Carpenter Bee

DISTINGUISHING FEATURES: These bees are typically very small in size and show a metallic blue coloration. Because they are similar in size to many sweat bees they are often confused for one another. However, *Ceratina spp.* have sparse hair, which is unlike the dense hair of the sweat bees.

YOU CAN FIND ME: These bees nest in rotting wood and inside of dead stems. The females overwinter in these sites and then convert these spaces to their nests. They emerge in mid-spring.

OTHER INFORMATION: Bees in the genus *Ceratina* are not social bees but tend to nest near other bees of the same species. They are generalist pollinators.

AGAPOSTEMON SPP.



PRONUNCIATION: ag-uh-PAHST-eh-mon

COMMON NAME: Green Metallic Sweat Bee

DISTINGUISHING FEATURES: About 0.5 inches long, these bees have a bright metallic green head and thorax with a dark abdomen. Males typically have a brightly striped yellow and black abdomen.

YOU CAN FIND ME: Bees in the genus *Agapostemon* are ground-nesting. They typically emerge in mid-summer.

OTHER INFORMATION: These bees are very effective pollinators, especially the females. Females have hairy back legs that can transport pollen extremely well.

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OSMIA SPP.



Photo: Orangeaurochs

PRONUNCIATION: OZ-me-yuh

COMMON NAME: Mason Bee

DISTINGUISHING FEATURES: Bees in the genus *Osmia* are generally about 0.5 inches but can be smaller or larger depending on the species. They are typically very fuzzy and are very broad bees.

YOU CAN FIND ME: These bees are cavity nesters, and will nest in anything from brick to wood to plant stems. They are called mason bees because they fill these spaces with mud to construct their nests. Males emerge in the Spring just before the females and stay close to the nesting site so they can mate.

OTHER INFORMATION: In recent years, *Osmia spp.* have become an important commercial alternative to the honeybee. You can even buy egg cases to put in your yard to help with pollination. These bees are well adapted to cold weather and most require below-freezing temperatures to mature.

FURTHER READING

BOOKS:

The Bees of the World by Charles D. Michener

The Bees in Your Backyard: A Guide to North America's Bees by Joseph Wilson and Olivia Messinger Carril

Bumble Bees of North America: An Identification Guide (Princeton Field Guides) by Paul H. Williams and Robbin Thorp

Attracting Native Pollinators: Protecting North America's Bees and Butterflies by The Xerces Society and Dr. Marla Spivak

National Wildlife Federation Field Guide to Insects and Spiders & Related Species of North America by Arthur V. Evans and Craig Tufts

A Field Guide to Insects: America North of Mexico by Donald J. Borror and Richard E. White

WEBSITES:

Wisconsin Bee Identification Guide:

<https://fyi.uwex.edu/hort/files/2016/08/WI-BEE-IDENTIFICATION-GUIDE.pdf>

Wisconsin Bee Identification: energy.wisc.edu/bee-guide/

General Insect Identification: www.bugguide.net

Bee Identification: www.buzzaboutbees.net

Leading Organization on Pollinator Research: www.xerces.org

Bee Identification:

http://www.discoverlife.org/mp/20q?guide=Bee_genera

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17. <https://www.sharpeatmanguides.com/long-horned-bees-new-york>
18. <https://www.sharpeatmanguides.com/sweat-bees>
19. <http://www.greatsunflower.org/Agapostemon>
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