

Introduction to Alaska Insect Pollinators

Alaska's primary pollinators are native bumble bees, sweat bees, Andrenid bees, wasps and moths. Imported European honey bees also play an important role in pollinating Alaska crops. This guide will help you recognize the characteristics of Alaska's pollinators and their requirements for food and shelter.

Native Pollinators

Since most native bees do not fit the stereotypical image of a bee - the European Honey Bee, with black and brownish stripes, living in a hive with thousands of others, and apt to sting - native bees are easily overlooked. The diversity of native bees is astonishing. About 4,000 species have been identified and catalogued in North America, ranging in length from less than one eighth of an inch to more than one inch. Native bees vary in color from dark brown or black to metallic green and blue and may have stripes of red, white, orange, or yellow.

Many common names reflect nest-building habits: Plasterer Bees, Leafcutter Bees, Mason Bees, Carder Bees, Digger Bees, and Carpenter Bees. Others are named after particular traits, such as Cuckoo bees that lay eggs in the nests of other bee species (like the Cuckoo Bird), Sweat Bees that like to drink salty perspiration, or Bumble Bees, which got their name from the loud humming noise they make while flying.



Native Bumble Bees

There are 49 species of Bumble Bees in the United States and approximately 19 species (*Bombus sp* and four *Psithyrus ssup* (parasitic bumble bees)) found in Alaska.



Bumble Bees (*Bombus frigidus*, *Bombus lucorum*, *Bombus occidentalis*) are excellent pollinators, especially of Alaska berry species. While Bumble Bees are generalist

foragers, visiting a diversity of flowers, a few groups of flowers, such as lupines, are particularly important to them.

Bumble Bees practice what is called "buzz pollination" where they grab onto the anthers of certain flowers and buzz their flight muscles to release the pollen. This behavior is especially important in pollinating some of Alaska's native berry species.

Bumble Bees are social insects and build their nests in the ground, often in abandoned mouse burrows, empty bird nests, and even in other insulating materials such as discarded mattresses, manure piles and the walls of old buildings. The mated queen over-winters in the soil while the rest of the colony dies at the onset of cold weather. In the early spring, she establishes a new nest and rears the first worker brood. These workers are small sterile females that enlarge the nest, forage and tend to the next generation of workers which, due to conditions within the nest such as increased temperature, cell size, and food availability, are also larger. In late summer, males, called drones, and fertile females, next year's queens, are produced. The sole function of the drones is to fertilize the queens before dying in the fall.



Sweat Bee

- **Sweat Bee** is the common name of the family of bees in the family Halictidae, and are named so for their attraction to the salts in human perspiration. Most Sweat Bees are small to medium-sized, 3 to 10 mm (0.12 to 0.40 in) long. They are generally black or metallic colored, and some are brilliant green or brassy yellow.

- Sweat Bees are among the most common bees wherever bees are found, except in Australia where they are relatively uncommon. There are about 1,000 species in the United States, Canada, and Central America.

- All species nest in the ground. Halictids have a range of nesting habits, from dispersed solitary nests to densely situated ones with individual bees sharing common entrance ways to primitive social arrangements. Halictid Bees are common insects and good general pollinators.



Andrenid Bees

- **Andrenid Bees** (*Andrena spp.*), commonly called **Mining** or **Digger Bees**, are another common pollinator in Alaska. Andrenid bees resemble the typical Honey Bee in shape and size. Bodies are colored dark with fine light brown or yellow hairs.

- Andrenid Bees have chewing-lapping mouthparts used to manipulate and collect flower products such as nectar and pollen. The protruding 'lapping' mouthpart is shorter in Mining Bees than Honey Bees giving them the common name of short-tongued bees. Mining Bees are solitary and do not form large, socially organized nests. As their name suggests, Mining Bees dig single nests in the soil. They are important pollinators of wild blueberry both in number and pollination effectiveness.

Wasps

Yellowjackets and hornets

belong to the insect order Hymenoptera. While these species are beneficial to humans as pollinators of flowering plants, including fruits and vegetables, thousands of species of small wasps are parasites of other insect pests, particularly aphids and caterpillars in Alaska. Without parasitic wasps, pests would overtake most crops.

Yellowjackets can be both beneficial and problematic wasps. They are important predators and scavengers, helping to control pests and recycle organic materials, but can also be a threat to humans due to their ability to sting repeatedly. Yellowjackets are relatively short and

stout with and hold their legs close to their body compared with other wasps. **Paper Wasps**, for example, are more slender and have long dangling legs. All Yellowjackets are striped either black and white or black and yellow.



They are rapid fliers, and are more aggressive than other types of wasps. Their nests are always enclosed with a papery envelope and can be found in the ground, hanging from eaves or tree branches, and occasionally in wall voids.

The **Bald** or **White-Faced ‘Hornet’**, (*Dolichovespula maculata*) is scientifically not considered to be a hornet but a large wasp. Its range is widespread, having been found in 46 states, Alaska and Canada. Its coloration is black and white. Their nests are found in trees or shrubs and they become very large by summer’s end. The size of the nest, number of individuals in a wasp colony and the length of time activity continues after the summer depends on the species considered.



Non-Native Pollinators

European Honey Bee

More than nine million European Honey Bees are imported into Alaska each year for honey production. These bees play a significant role in pollinating Alaska’s crops and wild lands. Most European Honey Bees cannot survive through Alaska’s cold winters. Some industrious Alaska beekeepers are attempting to over-winter bees by providing a climate controlled hive areas and food sources through the winter.

There are many races of the European Honey Bee. The ones most popular in modern beekeeping are the **Italian** (*Apis mellifera*), **Carniolan** (*Apis mellifera carnica*), and **Caucasian** (*Apis mellifera caucasica*).



Other Pollinators

Syrphid Flies

Syrphid Flies, also known as **Hover Flies** for their ability to hover in flight, are common predators of aphids and other soft bodied insects. Because Syrphid Flies feed on pollen, nectar and aphid honeydew, they can also act as pollinators in Alaska. Syrphid Flies mimic the appearance of bees as a protective strategy. There are multiple species of Syrphid Flies in Alaska.



Butterflies

Butterflies can serve as pollinators. There are 75-80 species of butterflies in Alaska that are found at sea level, on mountaintops, and everywhere in between. Some range throughout North America or even other continents while others (*e.g. Phoebeus Parnassian*) are unique to cooler climates. In warmer climates, most butterflies go through their life cycle in a few weeks. Alaskan butterflies can live more than a year.



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