

FRIENDLY BEES

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Commercial beekeepers are in trouble. Honeybee diseases are increasing. Two kinds of mites have been destroying thousands of colonies of domestic honeybees. How does that affect backyard gardeners? European honeybees were brought to this continent by early colonists. They didn't stay in the colonists beehives. They swarmed and found new homes in the forests. They quickly became an important part of pollination in gardens and home orchards all across North America.

Serious pests and diseases of honeybees have spread from the hives of commercial beekeepers and amateur beekeepers to the wild colonies. Beekeepers are learning new ways to protect their bees from pests and diseases, but no one is taking care of the wild colonies and they are diminishing more rapidly each year. If the wild colonies are completely destroyed, how will the blossoms in small orchards and gardens be pollinated? Will backyard gardeners have to start keeping bees in order to be certain of a crop each year?

Fortunately, there were many native insect pollinators in North America before the European honeybee was ever introduced. Native plants were properly pollinated by insects that lived with them in their ecosystems and those native pollinators are still there today. As we clear the land and make room for houses and beautiful yards and gardens, we eliminate much of the habitat for our native bees. Is there any way we can increase the populations of our native bees as the wild population of honeybees decreases?

BUMBLEBEES

I have observed, as many of you have, that one of our best pollinators in Skagit Valley gardens and orchards is our native bumblebees. They are ambitious workers. European honeybees seem to run on banker's hours. They start late in the morning and quit early in the evening. The first drops of rain or cold wind send them scurrying for home. Our bumblebees are accustomed to our climate and start with the crack of dawn and work until dark. In fact, if a bumblebee worker is too far from home when a rainstorm or cold of darkness comes, she just curls up in a blossom or under a leaf and sleeps until it is warm enough to fly again.

Have you ever found a bumblebee nest? It is not at all like a honeybee nest. It will usually be in thick, dry grass at the base of a fence post or in an old mouse nest under a pile of boards or in a mole tunnel underground, but never out in the open where it would be exposed to all the creatures that like to eat honey and fat grubs. Bumblebees build a new nest each year, so they do not develop large swarms like the perennial honeybees.

A large fertile queen awakens in early spring after the long winter sleep and searches for a favorable site to build a new nest. When she finds a dry protected spot she pulls together some dry grass and plant fiber for a nest and then goes in search of food. When she finds some early spring blossoms she fills her stomach with nectar and hurries home to take a good long nap. You all know what happens to us when we overeat and sleep, the excess food turns to fat. The queen bumblebee, covered with a hard exoskeleton and no place to add fat, has to do something else with the excess food. She has special glands on the underside of her abdomen that are called wax glands. Scales of pure clear wax are formed that she pulls out with special equipment on her

spiny legs. She chews the wax with her large mandibles and forms it into the neatest little honeypots you ever saw, evenly sculptured with a rim to prevent spilling. On her next trip to the blossoms to fill her stomach with nectar, she doesn't have to sleep it off, she can deposit it in the honeypots for future use. With a good supply of food on hand she starts her family. Eggs are laid in the nest on a pad of wax with some pollen she collected. They hatch into small white grubs that she feeds with honey and pollen. It is difficult for her, even though she works diligently, to gather enough food for her brood since she has to do all the work by herself. The grubs complete their feeding and spin cocoons. She covers them with wax and broods them like a mother hen on her eggs. They emerge as adult female workers about half the size of the queen, because they did not have as plentiful a supply of food during development as she had. They take over the work of gathering nectar and pollen and the queen continues to lay eggs for more brood. A strong colony may have as many as 100 workers. However, the workers live only a few weeks and are replaced continuously from eggs laid by the queen. Late in the summer when the colony is at its best, the queen lays unfertilized eggs which develop into males called drones. Their only function is to mate with the last brood of large females. Only the young mated queens survive the winter by hiding in protected spots and they are the large queens that start new colonies all by themselves when they awaken in early spring.

Is there any way we can increase the number of bumblebees in our gardens? Some of the garden catalogs are selling bumblebee nest boxes, but I have heard nothing about their success. A patch of weeds or tall grass would probably be more to their liking. Early spring blossoms will help the queens find sufficient food. The winter blooming heathers in my garden that continue blooming through early spring are a favorite of the bumblebees and many other insects. Foxgloves are constantly visited by bumblebees and my blueberries seem to be pollinated almost entirely by bumblebees. Let me know what you learn about bumblebees in your garden and we will put our information together to see if we can find ways to encourage them and increase their numbers.

ORCHARD MASON BEES

Orchard mason bees are another important pollinator in our gardens. Some are native to our area and some are imported but their habits are very similar. They are also much better workers than honeybees and are especially good at pollinating fruit blossoms. Their populations are restricted by lack of good nesting sites and this is something we can help them with quite easily. They nest in small holes, but since they do not make nest holes, they must depend on whatever they can find that was made by other creatures. Nest blocks are easily made by drilling holes 5/16" diameter in blocks of wood and placing them near the orchard. Our cool spring weather is not the best for these bees so place the nesting blocks in the warmest place you can find. I place mine on the south wall of the house where the sun is on them as many hours as possible. I do not think they will ever get too warm there.

One thing I like about orchard mason bees is the small amount of my time and energy they require. I have kept honeybees and that is a lot of work and must be kept up throughout the year. Once I get a few nest blocks of orchard mason bees going I do not do much more than watch them work. They emerge from the nest blocks in early spring, complete their work and die by the end of fruit blossom time. The males emerge first and shortly after mating they die, leaving the females to raise the family undisturbed. She looks for a suitable nest site and if you have clean nest blocks near where she emerged, she will go to work immediately. She carries mud with her mandibles to build a cell or partition in the tube. Nectar and pollen are placed in each cell with an egg and as soon as one tube in the block is filled she will start on another one. I

am amazed at how fast she works when it is warm, even in the rain. The blocks should not be disturbed during the summer. If the legless larva is moved away from its food supply it may not be able to get back to it. these bees do have disease problems like all others, so it is best to give them clean new nest blocks each year or clean out the old ones after they have all emerged.

We have other native bees that are good pollinators, several in the same family megachilidae in which we find the orchard mason bees. The megachilid bees carry pollen in a brush on the underside of the abdomen instead of on the hind legs like bumblebees. Some of them line their nest tubes with leaves and are called leaf-cutter bees nesting nearby in a hollow stem or in a hole in the wall.

You will see other insects besides bees working in the blossoms, but most of them are not gathering pollen, so they are not likely to help very much in cross pollination. Watch the insects in your garden next spring and see how many pollinators you can recognize. If you have trouble identifying them, collect a specimen in alcohol and put it on my desk with the locality, the date and your name and I will help you determine what it is. Let's see how many kinds of pollinating insects we can find in Skagit County.