



Audubon

ADVENTURES®



THE BUZZ ABOUT NATIVE BEES



When you think of bees, you probably picture honey bees—the kind that live in a hive, make honey, and, when their hive is threatened, sting! But most of our bees in North American aren't honey bees. In fact, honey bees didn't even live here until settlers brought them from Europe. That doesn't mean that North America is naturally bee-less. Scientists estimate that there are more than 4,000 species of native bees here—bees that evolved in North America along with the other plants and animals that share their ecosystem.

Bees are a very important part of our ecosystem. By carrying pollen from flower to flower, these insects make it possible for plants to produce seeds and fruits. Seeds and fruits grow into new plants. Flowers evolved eye-catching shapes and colors, attractive fragrances, and sweet nectar to attract pollinators like bees to do the job of spreading pollen for them. Plants, in turn, provide bees *(continued on page 2)*

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with food and nesting material. Native bees pollinate the native plants that feed the native animals: healthy ecosystems depend on this interdependence. And it doesn't stop there.

Since people need plants, we also need bees. On average, one out of every four mouthfuls you eat and drink comes from bee-pollinated plants—think cucumbers, strawberry jam, watermelons, and apples, to name a few. Cotton and other clothing fibers come from plants, too.

Most of our native North American bee species are solitary—they don't live in groups the way honey bees do. (One native bee species that isn't solitary is the bumblebee.) And solitary bees make egg chambers underground or in plant stems or wood, and lay one egg per chamber. Solitary bees don't make honey—which is

a honey bee colony's food supply. Since solitary native bees don't have a food supply to protect, most aren't likely to attack intruders and sting, the way honey bees do.

The next time you see a bee buzzing around a flower, take a closer look. Chances are, it's one of our native bees busy doing its job of pollinating plants. That means there will be more flowers, plants, and trees, more fruits and seeds, more wood and fibers, and more native bees to keep our planet and all its creatures thriving.



Leafcutter bee



Bumblebee



Alkali bee



Springtime for the Digger Bee

It's a sunny spring morning in southern Arizona's Sonoran Desert. What's that soft humming noise from all around? Bees! Winter rains have brought a splash of flowers to the normally bare desert, and suddenly it is alive with color and the sound of bees. Most are native bees that hatched from eggs laid in "brood chambers"—nests built by female bees underground, in plant stems, or in wood.

Take a closer look at a female digger bee. This fuzzy gray bee hatched from an egg in an underground chamber. Still underground, she ate food left there by her mother and grew into an adult. The warmer spring temperatures were her cue to start digging upward. When she emerged, she mated with a male digger bee. He flew off to find other mates. She set out to find food.

Now she sips nectar from a cluster of paloverde flowers. She also actively collects pollen, which clings to her fuzzy body. Then she flies to the ground, where she uses her hind

legs and jaws to dig a tunnel several inches deep. At the end she makes a space about an inch long. This is the first of many brood chambers (also called brood pots) for her eggs. She fills the space with a sticky mixture of nectar and pollen, lays a single egg atop the food, and seals the chamber. A worm-like larva will hatch from the

egg. It will eat the food left by its mother, and grow into an adult that will dig its way out of the ground the following spring—11 months or so after its mother laid the egg.



BEE-lieve It or Not!

Bees, which are vegetarians, evolved from wasps, which are carnivores. Bees began to appear about 100 million years ago, when the first flowering plants evolved on Earth.



Bees have five eyes. Three simple eyes, called ocelli, detect light, and two large compound eyes see the image, color, and movement.



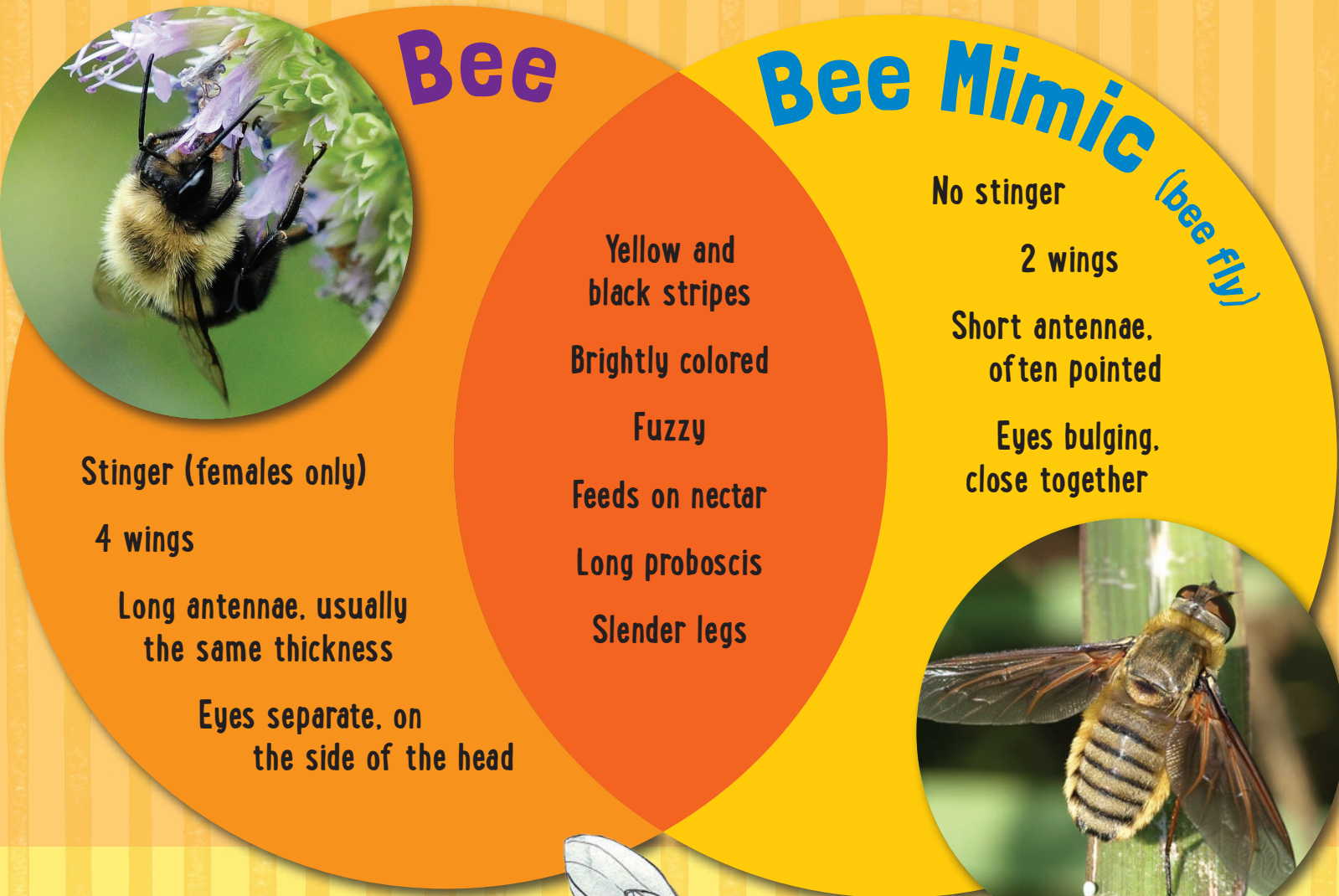
A single southeastern blueberry bee can pollinate 50,000 blueberry flowers in her lifetime—enough to produce 6,000 blueberries.



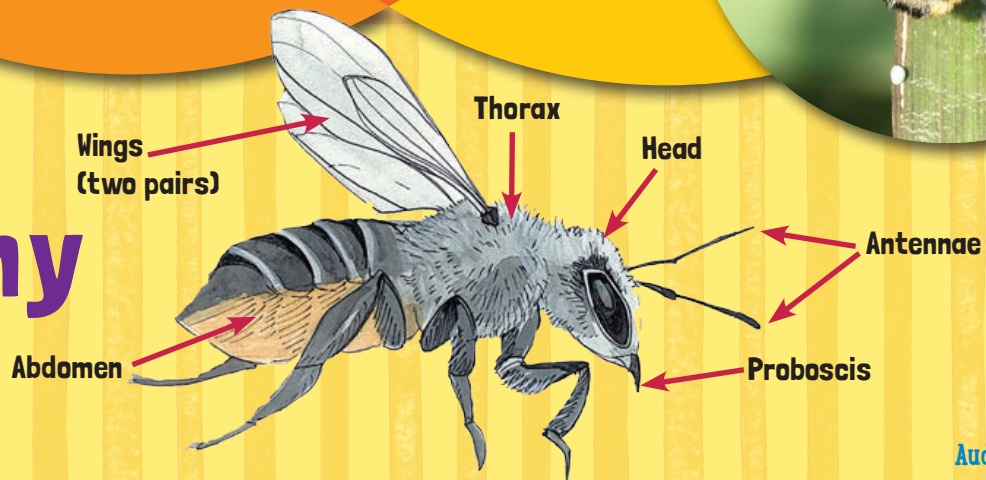
A NATIVE BEE or NOT A BEE AT ALL?

A lot of people think any yellow, buzzing, flying insect is a bee. But that flying insect you see may not be a bee! Some flying insects are bee mimics—they look a lot like bees. One example of a bee mimic is the bee fly. This Venn diagram shows

how a bee and a bee fly are similar and how they're different. Characteristics of a bee are on the left. Characteristics of a bee fly are on the right. The characteristics they have in common are shown in the middle, where the two circles overlap.



Bee Anatomy



Helping Pollinators

Bee-Friendly

Native bees have a champion in the Xerces Society, an organization devoted to protecting invertebrates—insects, spiders, snails, crabs, and other animals without backbones. Alarmed at how quickly native bee species were disappearing, in 1997 the Xerces Society began studying how golf courses could provide bee habitat. From that grew their Pollinator Conservation Program, which teaches land managers of parks, wild spaces, golf courses, farms, and gardens how to recognize and nurture native bees. Visit www.xerces.org for handouts on creating and conserving bee habitat, plants for bees, and more.



Bee a Native Gardener

Planting native plants is a simple way to improve habitat for native bees. At Niwot Elementary School in Colorado, students created a “life zone” garden in their schoolyard with species from every ecological zone from plains grassland to alpine meadow.

Even a small garden helps bees. Plant species that provide nectar and pollen, flower at different times, and are native to your area. (Avoid using seed mixes: most contain nonnative species.) Keeping “spent” winter perennials up during winter (instead of clearing them) will help native bees. Dry woody stems, especially those broken by winter wind, make perfect homes. Download regional lists of bee-friendly plants at <http://www.xerces.org/providing-wildflowers-for-pollinators/>.



Bee Organic

Pesticides kill bees. Buying organic food and clothing and using bee-friendly alternatives to pesticides at home support healthy bee populations and a healthier environment for all of us.



Honey Bees in Trouble



Honey bees have been pollinating crops and giving Americans delicious honey for centuries. But beginning in the mid-2000s, something started to go wrong. Beekeepers discovered that the bees in their beehives were disappearing or dying. Scientists called it colony collapse disorder, or CCD, and it was happening in many parts of the world.

It's always worrisome when any kind of animal begins to die in large numbers. But because so many farmers depend on honey bees to pollinate their crops, this die-off could be an economic disaster. There seem to be a number of causes for the problem, including lack of flowers, disease, and the use of pesticides. Scientists, farmers, and concerned people are taking steps to solve these problems so that honey bees can continue to do their very important job.



How to Avoid a Sting

Most native bee species are easy to get along

with, but some bees do sting, including bumblebees and honey bees. So...

- Stay away from swarms and hives. Stinging bees are most aggressive near their nests.
- When bee-watching, be calm and respectful. Give these insects their space!
- If bees attack, run away. Get inside the nearest car, house, or building.



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We're correlated! For correlations to the Common Core Standards for English Language Arts and the Next Generation Science Standards, go to:
education.audubon.org/state-standards-alignments

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