

THE AMERICAN BIOLOGY TEACHER



About Our Cover

The bumble bee featured on the cover is the Southern Plains bumble bee, *Bombus fraterculus* (Smith, 1854), and it can be seen gathering nectar and pollen from a zinnia. It is characterized by a large body, short hair, and a short tongue. The bee's primary habitat includes grasslands and gardens, and it is known to nest underground. In general, identifying bumble bees is difficult due to variations in size and color patterns, as well as look-alike organisms. Some helpful resources to aid in identification include the field guide: *Bumble Bees of North America: An Identification Guide* by Williams, Thorp, Richardson, & Colla (2014), the Xerces Society website: <https://www.xerces.org/bumble-bees/identification>, or consultation with a local entomologist.

Bumble bees are excellent pollinators and play important roles in the ecosystem. Bumble bees are "buzz pollinators." When on a flower, they can vibrate, which moves pollen from the anthers. This is especially helpful if the pollen clings to an anther. In addition, the hairs on a bumble bee's body are branched, which increases surface area, and facilitates the collection of pollen. Bumble bees are known to pollinate tomatoes, blueberries, strawberries, and many other crops.

Protecting bumble bee populations from threats is essential to maintain their numbers. Possible threats include habitat loss, pesticide exposure, climate change, the introduction of exotic and invasive species, and intentional or accidental deaths. Providing bumble bees with food and shelter is a way to address their essential needs. Including nectar- and pollen-rich plants in your garden with staggered bloom times will help ensure their needs are met across seasons. Good plant choices for bumble bees include clover, bee balm, blazing star, coneflowers, milkweed, sunflowers, asters, and goldenrod. Leaving nesting items such as long grass or hay supports bumble bees. Contributing your bee sightings by posting photos to citizen science websites such as Bumble Bee Watch (www.bumblebeewatch.org), iNaturalist (inaturalist.org), or BugGuide (bugguide.net) is also a beneficial practice. Utilizing organic plant cultivation and avoiding the disruption of bumble bee colonies are other ways to help bumble bees.

Ashley Campbell, Helen Piehl Professor of Education at West Texas A&M University, captured this image on July 14, 2024, with a Nikon Z8 camera and a Nikkor 180-600 mm lens, in her backyard pollinator garden, in Canyon, Texas. She can be reached at acampbell@wtamu.edu, and her Instagram handle @amcnaturephoto features more of her photography.

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FOR AP Biology

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