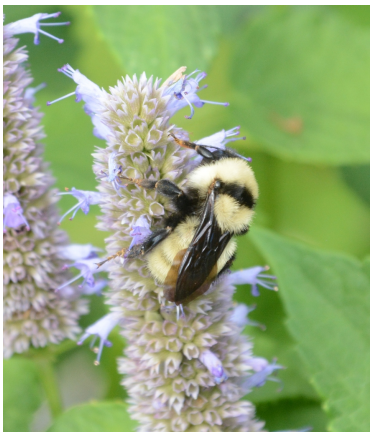
Bombus fervidus (Yellow Bumble Bee)



J. Macmetro,

Taxonomy

- **Class**: INSECTA
- **Order**: HYMENOPTERA
- **Family**: APIDAE
- **Genus**: Bombus
- **Scientific Name**: *Bombus fervidus* (Fabricius, 1798)
- **Common Name**: Yellow Bumble Bee
- **Synonyms**:
- **Taxonomic Name Source**:Williams, P.H., R.W. Thorp, L.L. Richardson, and S.R. Colla. 2014b. Bumble bees of North America: an Identification Guide. Princeton University Press. 208 pp.

Agency Status

- **NMDGF**:
- **Federal Status**:
- **BLM Sensitive**:
- **USFS**:
- **IUCN Red List**: Vulnerable
- **Nature Serve Global**: G3
- **NHNM State**: S3
- **NM Endemic**:NO

Description

Bombus fervidus is a medium to large-sized bumblebee species, easily recognized by its vibrant yellow and black body. The thorax is mostly yellow, while the abdomen features alternating yellow and black segments (Ascher and Pickering 2024, Williams *et al.* 2014). In New Mexico, it is often seen foraging on native flowering plants. Like other members of the *Bombus* genus, this species has a long tongue, suited to flowers with deep corollas, such as *Penstemon* and *Lupinus*.

Habitat and Ecology

Bombus fervidus is a long-tongued species that emerges later in the season (Williams *et al.* 2014). It inhabits open farmland, fields, urban parks, and gardens, typically nesting on the ground's surface among tall grass or in abandoned mouse nests, though it sometimes nests underground (Williams *et al.* 2014). Known for its relatively aggressive behavior, this trait likely evolved to defend its more exposed, above-ground nests (Williams *et al.* 2014). Males gather

outside nest entrances in search of mates, and the species feeds on a variety of plants, including *Astragalus, Cirsium, Helianthus, Lonicera, Lythrum, Monarda, Pedicularis, Penstemon, Trifolium,* and *Vicia* (Williams *et al.* 2014). *Bombus fervidus* also serves as a host to *Bombus insularis* and likely to *B. suckleyi* (Williams *et al.* 2014).

In New Mexico, *Bombus fervidus* thrives in open meadows, grasslands, and montane habitats, especially where diverse wildflower species are present. The species has been observed foraging on plants like sunflowers (*Helianthus*), goldenrods (*Solidago*), thistles (*Cirsium*), and various milkweed (*Asclepias*) species, all of which are native to New Mexico. There have been 65 'research grade' observations recorded in the state from 2016-2024, according to iNaturalist (2024). With observations concentrated around northern New Mexico near the Santa Fe and Carson National Forests, central New Mexico near the Sandia Wilderness, western New Mexico near the base of Mt. Sedgwick, two observations near Escondido Mountain, and two observations south in the Lincoln National Forest (iNaturalist 2024).

Bumblebees are eusocial insects that form colonies consisting of a queen, workers, and reproductives (males and new queens). Their colonies last one season, with only the new, mated queens surviving the winter. In early spring, these queens emerge from hibernation, begin foraging for pollen and nectar, and search for a nesting site. Nests are often found underground in abandoned rodent burrows or above ground in grass tufts, old bird nests, rock piles, or tree cavities. Initially, the queen alone handles foraging and caring for the colony until the first workers emerge to assist. Bumblebees gather both nectar and pollen from a variety of plants, though species in the same area can differ in plant preferences based on tongue length. They are also known for "buzz pollination," a highly effective technique in which they vibrate flowers to release pollen from the anthers (Michener 2000, Williams *et al.* 2014, Carril *et al.* 2023).

Geographic Range:

This species is widespread across much of the continent's mid-latitudes, ranging from the Canadian Maritimes and eastern United States in the Eastern Temperate Forest and Boreal Forest regions, through the central Great Plains of the United States and southern Canada, and extending to the Mountain West, Pacific Coast, and the Western Desert of California (Chesshire *et al.* 2023).

Although *Bombus fervidus* has a broad range across North America, its presence in New Mexico is more localized, particularly in higher elevation meadows, foothills, and grasslands, where wildflowers are abundant. New Mexican occurrences are specifically concentrated around Santa Fe, Taos, and Albuquerque adjacent mountain meadows, with a few occurrences in the southern parts of the state around the Lincoln National Forest. It can also be found in more rural agricultural regions of northern New Mexico (iNaturalist 2024).

Conservation Considerations:

Restoration with the goal of creating and preserving natural grassland habitats for Bombus fervidus is an essential first step towards the species conservation. Furthermore, restriction of harfmul pesticide use in or near occupied habitats will be essential for recovery as well as promoting farming practices that increase the abundance of legumes. Lastly, protection of this species from diseases introduced by non-native and managed bees is needed (Hatfield *et al.* 2015).

Threats:

This species, found across Canada, the United States, and parts of Mexico, faces a range of threats that likely

contribute to its decline, with no single threat fully explaining the trend. Disease, such as the high incidence of *Nosema bombi* found in declining populations in Massachusetts (Gillespie 2010), is likely significant, as *Nosema bombi* may spread from managed bumblebees (Colla *et al.* 2006). Habitat loss is another major concern. Suitable open grasslands and tallgrass prairie are scarce, and studies show these high-quality habitats support greater bumblebee diversity, including this species (Hines and Hendrix 2005).

Fire management practices also impact bumblebees. While natural and prescribed fires can benefit open-foraging habitats, fire suppression has led to habitat loss in some areas, whereas intense prescribed fires may reduce pollinator populations, particularly in low-abundance species (Swengel 2001).

Population:

The overall population trend of *Bombus fervidus* in North America is stable, but there has been some concern about population declines in parts of its range, including New Mexico (IUCN 2015). Habitat fragmentation, combined with climate change, may have led to reduced sightings in southern parts of its range. New Mexico populations, especially at higher elevations, may remain relatively healthy but require further monitoring to track local trends.

References:

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More Information