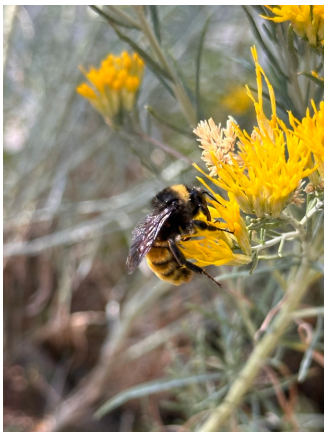
Bombus pensylvanicus (American Bumble Bee)



Angela T.,

Taxonomy

- **Class**: INSECTA
- **Order**: HYMENOPTERA
- **Family**: APIDAE
- **Genus**: Bombus
- **Scientific Name**: *Bombus pensylvanicus* (DeGeer, 1773)
- **Common Name**: American Bumble Bee
- **Synonyms**:
- **Taxonomic Name Source**:

Agency Status

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

Description

Bombus pensylvanicus is a large bumblebee with a distinctive coloration pattern. It has yellow hair on the thorax, black markings on the abdomen, and a black band between the wings. This species can be mistaken for *Bombus fervidus*, but *B. pensylvanicus* has a more extensive distribution of black hairs, especially on the thorax. This long-tongued bumblebee specializes in foraging on deep-tubed flowers, such as sunflowers (*Helianthus*) and other Asteraceae members(Ascher and Pickering 2023).

Habitat and Ecology

In New Mexico, *Bombus pensylvanicus* prefers open habitats like prairies, agricultural fields, and grasslands, where it forages on various flowers, especially members of the Asteraceae family, such as sunflowers and goldenrods. It nests above ground, often in tall grass or abandoned burrows. In New Mexico, the bee is important for the pollination of both wildflowers and certain crops, such as cotton and various fruits (Williams *et al.* 2014).

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:

Historically widespread across North America, *Bombus pensylvanicus* once ranged from Canada to northern Mexico. However, recent declines have restricted its range, and it is now more commonly found in parts of the Midwest and southern United States (GBIF.org 2024). In New Mexico, *B. pensylvanicus* is mainly observed in agricultural areas and grasslands where native plants and crops offer foraging resources. Observations confirm recent sightings in New Mexico, particularly in the southern part of the state, near the Texas border, and in agricultural zones (iNaturalist 2024).

Conservation Considerations:

In 2021, the American bumble bee was petitioned for listing under the Endangered Species Act (ESA) (Tyler 2021). The 90-day finding suggested the petition presented substantial scientific information indicating action may be warranted, so a comprehensive status assessment has been initiated to determine if listing is warranted (USFWS 2021).

Threats:

In one study, *Bombus pensylvanicus* in the U.S. had low genetic diversity and high parasitic loads compared to non-declining co-occurring species (Cameron *et al.* 2011). Reduced genetic diversity can be particularly concerning for members of the Order Hymenoptera, because of their unique method of sex-determination, haplodiploidy, and because genetic diversity tends to be inherently low in this group, due to the colonial life cycle; large numbers of bumblebees found locally may represent only one or a few queens (Goulson *et al.* 2010, Cameron et al. 2011).

In another study, declines of *Bombus pensylvanicus* were found throughout the state of Illinois and declines in diversity were linked to changes in agricultural practices in the mid 1900s (Grixti *et al.* 2009). Pesticides, and especially the most widely used class of pesticides, neonicotinoids, can have adverse effects on beneficial insects (Hopwood *et al.* 2012).

Since 2000, the Southwest US has seen the worst drought in 1200 years (Williams *et al.* 2022). Drought can reduce the abundance of flowering plants on a landscape scale, and also reduce pollen and nectar quality (Wilson Rankin *et al.* 2020). Drought conditions have been shown to reduce the diversity and abundance of native bees (Hung *et al.* 2021, Minckley *et al.* 2013).

Population:

Bombus pensylvanicus has suffered significant population declines across much of its historical range, particularly in the northeastern United States, where it was once abundant (IUCN 2015). While it is still found in parts of the Midwest and the southern U.S., including New Mexico, its numbers are declining (IUCN 2015, Grixti *et al.* 2009). New Mexico’s

populations appear to be less studied but are likely affected by these same issues.

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More Information