Bombus occidentalis (Western Bumble Bee)

No Photo Available

Taxonomy

- **Class**: INSECTA
- **Order**: HYMENOPTERA
- **Family**: APIDAE
- **Genus**: Bombus
- **Scientific Name**: *Bombus occidentalis* Greene, 1858
- **Common Name**: Western Bumble Bee
- **Synonyms**:
- **Taxonomic Name Source**:

Agency Status

- **NMDGF**:
- **Federal Status**:
- **BLM Sensitive**:
- **USFS**:
- **IUCN Red List**: Vulnerable
- **Nature Serve Global**: G3
- **NHNM State**: S1
- **NM Endemic**:NO

Description

Bombus occidentalis is a medium to large bumblebee species with a distinctive color pattern. It has a black face, a yellow thorax (except for a black band between the wings), and black abdomen with white at the tip. The species exhibits notable size variation depending on caste, with queens being the largest, followed by workers, and males being the smallest. In New Mexico, *Bombus occidentalis* is less common, but it plays an important role in pollinating both native plants and crops when present (Ascher and Pickering 2023).

Habitat and Ecology

Bombus occidentalis is a versatile species that can occupy a variety of habitats, including forests, meadows, grasslands, and agricultural areas. In New Mexico, it is likely to be found in montane meadows and along riparian corridors, where wildflowers are abundant (iNaturalist 2024). The species forages on a wide range of plants, including clover (*Trifolium*), lupine (*Lupinus*), and other native wildflowers common to the region. It nests both above and below ground, often utilizing abandoned rodent burrows or grassy tussocks (Williams *et al.* 2014).

Bombus occidentalis often engages in nectar robbing due to its short tongue, using its toothed mandibles to cut holes in the base of flowers like *Penstemon* and *Aquilegia* to access nectar without pollinating them (Williams *et al.* 2014). Nectar is vital for colony survival, supporting both larval growth and temperature regulation. When nectar stores are low, colony energy decreases, altering behavior; high-energy colonies defend themselves loudly, while low-energy colonies remain still, making them more vulnerable to predators. Although temporary nectar shortages do not immediately harm larvae, they slow development and increase risk.

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 and Wilson 2023).

Geographic Range:

Historically, *Bombus occidentalis* ranged throughout western North America, from Alaska south to California, and eastward into the Rocky Mountains. However, its range has significantly contracted, particularly in the southern parts of its historical range (Carril and Wilson 2023). In New Mexico, there have been scattered reports of the species, primarily in the northern regions of the state, near higher elevation habitats. Recent data show sporadic observations in these areas, though they are infrequent compared to historical reports (iNaturalist 2024, Chesshire *et al.* 2023, GBIF.org 2024).

Conservation Considerations:

In 2015, the Western bumble bee was petitioned for listing under the Endangered Species Act (ESA). 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 2016).

Threats:

Threats to this species include habitat loss and degradation due to agricultural intensification, urban development, conifer encroachment as a result of fire suppression regimes, livestock grazing, logging, and climate change. Pathogen spillover from commercial bumble bee colonies has also been implicated in declines (Hatfield *et al.* 2014).

In addition, 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:

The population of *Bombus occidentalis* has undergone dramatic declines, especially in the southern portion of its range (Hatfield *et al.* 2014). In some parts of its range, including New Mexico, the species is now rare, with few sightings in recent years (iNaturalist 2024). Populations in higher elevations of the state may still persist, but comprehensive data on local populations is lacking. The decline has been attributed to various factors, including disease, habitat loss, and pesticide exposure (Hatfield *et al.* 2014).

References:

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More Information