

Bombus cockerelli (Cockerell's Bumble Bee)

No Photo Available

Taxonomy

- **Class:** INSECTA
- **Order:** HYMENOPTERA
- **Family:** APIDAE
- **Genus:** Bombus
- **Scientific Name:** *Bombus cockerelli* Franklin, 1913
- **Common Name:** Cockerell's Bumble Bee
- **Synonyms:**
- **Taxonomic Name Source:** Integrated Taxonomic Information System (ITIS). 2008. World Bee Checklist Project (version 03-Oct-2008). Integrated Taxonomic Information System: Biological Names. Online. Available: <http://www.itis.gov>.

Agency Status

- **NMDGF:**
- **Federal Status:**
- **BLM Sensitive:**
- **USFS:**
- **IUCN Red List:** [Not Evaluated](#)
- **Nature Serve Global:** [G1](#)
- **NHNM State:** S1
- **NM Endemic:** YES

Description

Cockerell's bumble bee is mostly yellow, with one black stripe between the wings on the thorax, and a thick black region across segments four and five on the abdomen.

Habitat and Ecology

The habitats and ecology of this species are not well understood. The dates the species has been collected range from May 21st to August 30th. Zero males and very few workers of this species have been observed, with all records of workers taken from late June through mid-July. This suggests that this species likely has a very short, late, active season, which likely corresponds to small colony sizes. It is also possible, however, that foraging workers and males may be found in the forested areas, rather than open grassy meadows where montane bumble bees are typically collected. At one collecting event in late August of 2011, several collectors found three queens visiting a large stand of invasive musk thistle (*Carduus nutans*) (Asteraceae) along the shoulder of Highway 70. On subsequent visits to the same habitat patch over the next two days, no other specimens were found, nor were any found the following year in the same areas on August 5th. Two of five workers collected on June 30th, 1993, were taken on sweet clover (*Melilotus* sp.) (Fabaceae). At another collecting event, queen and three workers were taken on bee balm (*Monarda stricta*) (Lamiaceae), on July 25th. The range of this species overlaps with that of the federally threatened Sacramento Mountains thistle (*Cirsium vinaceum*). It is likely the queens will pollinate this thistle, as they have been found visiting invasive thistles (Yanega 2013).

Geographic Range:

Cockerell's Bumblebee (*Bombus cockerelli*) is the the most range restricted of any bee globally. It is found only above 1,980 metres in the Sacramento Mountains and Sierra Blanca of southeastern, New Mexico, in the United States. Any records outside of these mountains, including a series from Utah, are not confirmed (Yanega 2013) and likely represent

misidentifications or mislabeling. All known records are within an 800 km² area at the transition zone between the Sierra Blanca and Sacramento Mountains (Yanega 2013).

Conservation Considerations:

There are no conservation measures in place for this species and it is unlikely it is found in any protected areas. Research is badly needed to better understand the distribution, population size and trend, habitats and ecology, and threats.

Threats:

The threats to this species are not well understood, though many invertebrate populations in the Sacramento Mountains and Sierra Blanca are declining due to the threats of climate change, overgrazing by cattle and feral horses, broad scale pesticide use, and altered fire suppression regimes. It is inferred that these threats are degrading habitat for Cockerell's Bumblebee as well.

Historical fire suppression regimes have altered plant community structure and have created forests more prone to catastrophic wildfire (Kaufmann *et al.* 1998). The entire range of this species is at high risk for catastrophic wildfire. For example, in 2024, three separate fires in the Sierra Blanca burned over 33,000 acres (KOB 2024, Village of Ruidoso 2024). While it is unclear how much of the area experienced stand replacing fire, the incidence of stand replacing fires has increased in the western US, due to climate warming to some extent (Turco *et al.* 2023) but primarily due to the legacy of forest management practices, which have changed forest structure. In the southeastern US, Hanula *et al.* (2015) found low bee diversity in forests where fire suppression resulted in dense tree stands with high understory shrub cover. Open canopies, with little to no mid-story trees and shrubs and a plant diverse understory are optimal for most bee species.

Overgrazing by livestock grazing is also problematic because it promotes the spread of invasive species and limits nectar plant availability (McIntyre 2010, Souther *et al.* 2019). There are also several examples of large scale, broad spectrum pesticide use. For example, in 1983 and 1984 during peak flight of many insect species, including this one, carbaryl pesticides were sprayed using aerial application over 240,900 acres in the Sacramento Mountains, at elevations between 6,000 and 11,000 feet, to control an outbreak of Western Spruce Budworm (Bennett and Linnea 1985). Lastly, drought due to climate change is likely an increasing threat to this species. The southwestern U.S. saw its driest 22-year period from 2000 to 2021, since at least 800 CE (the time period used in previous climatic reconstructions) (Williams *et al.* 2022). Droughts are projected to become more prolonged, severe, and common in the region under future climate change scenarios (USGCRP 2018). Drought may negatively impact bee species by reducing floral resource availability (Phillips *et al.* 2017).

Population:

The population size and trend are not known for this species. It is also possible this species has small colony sizes, as few workers and males have been detected in a short window from late June to mid-July (Yanega 2013).

References:

- [KOB. 2024. Deadly Ruidoso fires progressing toward full containment: 25,508 total acres burned. KOB-TV, Albuquerque, NM. https://www.kob.com/new-mexico/latest-south-fork-fire-salt-fire-and-wildfires-near-ruidoso/](https://www.kob.com/new-mexico/latest-south-fork-fire-salt-fire-and-wildfires-near-ruidoso/)
- [Village of Ruidoso. 2024. Blue 2 Fire Information Hub. Village of Ruidoso, NM2024. https://www.ruidoso-nm.gov](https://www.ruidoso-nm.gov)

[v/blue-2-fire#:~:text=Introduction:%20The%20Blue%20%20Fire.evacuation%20orders%20have%20been%20lifted.](#)

- [ITIS. 2024. Integrated Taxonomic Information System \(ITIS\). 2024. https://www.itis.gov/](https://www.itis.gov/)
- Yanega, D.. 2013. The Status of Cockerell's Bumblebee, *Bombus (Pyrobombus) cockerelli* Franklin, 1913 (Hymenoptera: Apidae). *Southwestern Entomologist* 38: (517-522).
- Bennett, D.D. and Linnane, J.P.. 1984. Western Spruce Budworm Suppression Project- 1984. Forest Pest Management Report. USDA Forest Service, Albuquerque, NM .
- Hanula, J.L., Horn, S. and O'Brien, J.J.. 2015. Have changing forests conditions contributed to pollinator decline in the southeastern United States?. *Forest Ecology and Management* 348: (142-152).
- Kaufmann, M.R., Huckaby, L.S., Regan, C.M. and Popp, J.. 1998. Forest reference conditions for ecosystem management in the Sacramento Mountains, New Mexico. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fort Collins, CO .
- McIntyre, J.. 2010. Habitat variables, mammal interactions, and recovery approaches important to a rare, New Mexican butterfly, *Euphydryas anicia cloudcrofti* (Lepidoptera: Nymphalidae). Biology, University of New Mexico.
- Phillips, B.B., Shaw, R.F., Holland, M.J., Fry, E.L., Bardgett, R.D., Bullock, J.M. and Osborne, J.L.. 2017. Drought reduces floral resources for pollinators. *Global Change Biology* 24: (3226-3235).
- Souther, S., Loeser, M., Crews, T.E. and Sisk, T.. 2019. Drought exacerbates negative consequences of high-intensity cattle grazing in a semiarid grassland. *Ecological Applications* 30: (e02048).
- USGCRP. 2018. Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II. In: Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds). *U.S. Global Change Research Program* , Washington D.C. .
- Williams, A.P., Cook, B.I. and Smerdon, J.E.. 2022. Rapid intensification of the emerging southwestern North American megadrought in 2020–2021. *Nature Climate Change* 12: (232-234).

More Information

