Bombus kirbiellus (Golden-belted Bumble Bee)

No Photo Available

Taxonomy

- **Class**: INSECTA
- **Order**: Hymenoptera
- **Family**: Apidae
- **Genus**: Bombus
- **Scientific Name**: Bombus kirbiellus (Curtis, 1835)
- **Common Name**: Golden-belted Bumble Bee
- **Synonyms**:
- **Taxonomic Name Source**:(Curtis, 1835) Synonyms: Bombus balteatus (Williams et al., 2014)

Agency Status

- **NMDGF**:
- **Federal Status**:
- **BLM Sensitive**:
- **USFS**:
- **IUCN Red List**: Data Deficient
- **Nature Serve Global**: G4
- **NHNM State**: S1
- **NM Endemic**:NO

Description

Bombus kirbiellus is a medium bodied species with long fairly even hairs. Alpinobombus species have been described as being variable within species while also showing close similarities among species (Williams et al. 2015). The oculo-malar area, often referred to as the ‘cheek’ is much longer than broad and hairs of the face are mostly black occasionally with a yellow tuft at the antennal base. Records in New Mexico display a similar color pattern with a mostly yellow thorax divided by a black stripe between the wings, and rather uniquely the abdomen is half yellow, ending in red, with a black band breaking up the two colors (Williams et al., 2014; iNaturalist 2026).

Habitat and Ecology

Bombus kirbiellus typically inhabits mountainous environments, especially alpine areas above the treeline. Documented forage plants in North America include Castilleja, Delphinium, Epilobium, Mertensia, and Penstemon (Williams et al. 2014), all genera with species occurring in New Mexico (“USDA Plants Database State Search” 2026). B. kirbiellus has a short seasonality with records occurring only between May and September (iNaturalist 2026). Locally observations span a much smaller phenological window, with all records occurring in July and August (“GBIF” 2025). B. kirbiellus in the southwest is mostly recorded in higher elevation habitat types each contributing distinct resources. Rocky Mountain Subalpine–High Montane Meadows provide mid- to late-season forage in high-elevation, open landscapes, where native flowering plants such as Bistorta, Erigeron, Geum, Castilleja, and Carex bloom in moist basins and snowmelt-fed swales. These meadows offer reliable nectar and pollen when lower-elevation habitats are drier. At slightly lower elevations, the Intermountain Juniper Woodland supports foraging in open piñon–juniper savannas, with native wildflowers and shrubs including Artemisia, Ericameria, Astragalus, Eriogonum, and Penstemon. Together, these habitats form an interconnected landscape that sustains Bombus kirbiellus across spatial and temporal gradients (“NMDGF SWAP” 2025).

Geographic Range:

Bombus kirbiellus is associated with high-elevation habitats of the Mountain West, including the Rocky Mountains of

northern New Mexico and Colorado and the Sierra Nevada and White Mountains of California. Its range extends northward through western North America to Alaska and into tundra and boreal regions as far as Ellesmere Island, northern Quebec, and Newfoundland (Williams et al., 2014). B. kirbiellus is sparsely recorded in New Mexico, having been located only in the mountains of the San De Cristos (“GBIF” 2025; “NMDGF SWAP” 2025).

Conservation Considerations:

In New Mexico, general practices are recommended due to the vulnerability of many bumblebees and the value of healthy wild bee populations. Key actions include conserving and restoring high-quality habitat that provides forage, nesting, and overwintering sites; limiting pesticide use near these areas, especially during bloom; promoting pollinator-friendly farming practices such as planting native legumes and other beneficial species along field margins; reducing disease transmission from managed bees; and avoiding the introduction of honey bees into high-quality native bee habitat. Broader research priorities for North American bumble bees are outlined in the literature (Cameron et al. 2011; Williams and Osborne 2009).

Threats:

Populations in the central Rocky Mountains show low but significant genetic differentiation, for Bombus balteatus (as a synonym of B. kirbiellus) indicating some population structure despite ongoing gene flow. Genetic analyses revealed evidence of inbreeding, likely linked to partial population isolation. Habitat modeling suggested that suitable habitat occurs mainly at high elevations with persistent snow and ice, and that connectivity is greatest along alpine ridgelines. The study results indicate that population differentiation in B. balteatus is likely driven more by the spatial arrangement of alpine habitat patches than by strong physical barriers to movement, which may have conservation implications given ongoing climate-driven habitat changes in alpine ecosystems (Whitley 2025). One study conducting a modern survey (2007) of Bombus balteatus (as a synonym of B. kirbiellus) for comparison against historic data (1974), near the Rocky Mountain Biological Laboratory (RMBL) in Colorado indicate that climate warming has contributed to shifts in distribution and abundance (Pyke et al. 2016). B. balteatus showed upward shifts in elevation, consistent with increasing temperatures. Over the same period, flowering times of plant communities advanced earlier in the season, while bumble bee activity timing changed little. This partial mismatch between bee activity and plant flowering may have reduced synchrony between pollinators and floral resources. Correspondingly, bumble bee abundance was lower in 2007 than in 1974, suggesting that climate-driven changes in temperature and plant phenology may contribute to declines and redistribution of alpine bumble bee populations such as B. balteatus. Although no single threat has been identified as uniquely affecting Bombus kirbiellus, the combination and intensity of broad-scale pressures make these threats particularly concerning in New Mexico, where bumblebee populations occur near the southern and lower-elevation limits of their ranges and rely on patchy, climate-sensitive habitats. Here in New Mexico, B. kirbiellus may be susceptible to broader pressures including habitat loss, fire, competition with non-native bees, and climate change (Fürst et al. 2014; Cameron et al. 2011).

Population:

Locally, B. kirbiellus has only 4 modern records spanning 2019-2025 (iNaturalist 2026). Sparse historic records occur for B. balteatus with the first state occurrence dating back to 1903, and the last in 1960 (“GBIF” 2025).

References:

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