Bombus lapponicus sylvicola (Forest Bumble Bee)

No Photo Available

Taxonomy

- **Class**: INSECTA
- **Order**: Hymenoptera
- **Family**: Apidae
- **Genus**: Bombus
- **Scientific Name**: Bombus lapponicus sylvicola
- **Common Name**: Forest Bumble Bee
- **Synonyms**:
- **Taxonomic Name Source**:(Kirby, 1837)

Agency Status

- **NMDGF**:
- **Federal Status**:
- **BLM Sensitive**:
- **USFS**:
- **IUCN Red List**: Least Concern
- **Nature Serve Global**: G5
- **NHNM State**: S1
- **NM Endemic**:NO

Description

Bombus sylvicola is an average sized and medium-tongued species whose range covers most of the western United States, up into Canada. The oculo-malar area, often commonly referred to as the ‘cheek’ as long as broad and shaggy hairs on the thorax between the wings form a black band with no notch towards the abdomen. This thoracic coloration is distinct from B. bifarius who shares a similar pattern to B. sylvicola but has a notch point towards and continuing down the abdomen. B. sylvicola can present in a light or dark variety depending on region. Most commonly in the west and New Mexico, the abdominal hairs are anteriorly and posteriorly yellow, with an orange band in between (Williams et al., 2014). Genetic, chemical and morphological evidence indicate that the northern Alaskan/Yukon lineage historically called Bombus sylvicola is best treated as conspecific with Bombus lapponicus, representing an allopatric subspecies rather than a separate species: mitochondrial COI shows only slight divergence, while the nuclear marker PEPCK shows no differentiation, CLGS chemical profiles are statistically identical, genitalia and other key morphological structures are indistinguishable (face colour being the only readily visible difference) (Martinet et al. 2019). A few caveats to consider are that the study's geographic sampling is focused on northern, mostly Holarctic populations, so the conclusions apply more specifically to those regions. While, southern populations weren't comprehensively sampled. They also reference earlier studies that included a single B. sylvicola specimen from New Mexico that showed some genetic differences (S. A. Cameron et al. 2007; Hines et al. 2006), and unusual color patterns (T2-T3 mostly black). This could be representative of a divergent southern form. Without a full taxonomic revision covering more southern samples it's tough to rule out that northern and southern populations represent distinct lineages.

Habitat and Ecology

Across its range in New Mexico and the surrounding Southwest, Bombus sylvicola depends on a mosaic of open habitats that collectively provide the resources needed to complete its life cycle. Together, grasslands, shrublands, and woodlands offer abundant and seasonally continuous floral resources, suitable underground nesting and overwintering sites, and open, sunlit conditions that support efficient foraging. Periodic disturbance from fire or grazing helps maintain plant diversity and prevents canopy closure, sustaining the nectar- and pollen-rich forbs that B. sylvicola rely on. This habitat diversity allows the species to track flowering phenology across elevations and landscapes, supporting colonies from early spring through late summer. Within this broader framework, each habitat type contributes 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. Shallow, rocky soils and protected microsites provide nesting opportunities, while periodic fire historically maintained open, flower-rich understories. Farther downslope Chihuahuan Semi-Desert Grasslands are especially important during the monsoon season, when grasses and forbs from families such as Fabaceae, Asteraceae, Boraginaceae, and Asparagaceae provide abundant forage in open, low elevation landscapes. Together, these habitats form an interconnected landscape that sustains Bombus sylvicola across spatial and temporal gradients (“NMDGF SWAP WebApp,” 2025).

Geographic Range:

Bombus sylvicola has a general seasonal phenology spanning from May to October (iNaturalist 2026). Locally observations span a shorter phenological window, confined mostly to June through August, with one record in September of 1998 (“GBIF” 2025). B. sylvicola is a boreal–alpine species associated with open grasslands, mountain meadows, and forest edges, and forages on a wide range of flowering plants, including Arenaria, Chrysothamnus, Chamerion, Haplopappus, Lupinus, Monardella, and Senecio (Williams et al. 2014), all genera with species occurring in New Mexico (“USDA Plants Database State Search” 2026). Males of this species tend to patrol in circuits (Williams et al. 2014). One study, including B. sylvicola, demonstrated geographical differences in tolerance of temperature extremes in bumblebees (Oyen et al. 2016). B. sylvicola was in the category of high altitude species that had colder air temperature tolerances possibly making them susceptible to global warming by forcing them to maintain populations in a shrinking cooler range. Overall suggesting that thermal tolerances may play an important role in climate driven range shifts. Another study used genetic markers to estimate nest densities, foraging ranges, and pollination effectiveness of four alpine Bombus species, including Bombus sylvicola, in the Colorado Rockies, finding relatively high colony densities, surprisingly short foraging distances (25–110 m), and strong links between bumble bee abundance and plant reproductive success{Updating}. For B. sylvicola the results reinforce its reliance on dense, locally distributed nesting populations and short foraging ranges, implying strong sensitivity to fine-scale habitat structure in alpine landscapes. The tight coupling between nest abundance, forager numbers, and plant reproduction highlights B. sylvicola’s role as an effective pollinator of alpine flora and suggests that conservation assessments should focus on maintaining suitable nesting habitat, not just floral resources or worker counts. Across its range in New Mexico and the surrounding Southwest, Bombus sylvicola depends on a mosaic of open habitats that collectively provide the resources needed to complete its life cycle. Together, grasslands, shrublands, and woodlands offer abundant and seasonally continuous floral resources, suitable underground nesting and overwintering sites, and open, sunlit conditions that support efficient foraging. Periodic disturbance from fire or grazing helps maintain plant diversity and prevents canopy closure, sustaining the nectar- and pollen-rich forbs that B. sylvicola rely on. This habitat diversity allows the species to track flowering phenology across elevations and landscapes, supporting colonies from early spring through late summer. Within this broader framework, each habitat type contributes 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. Shallow, rocky soils and protected microsites provide nesting opportunities, while periodic fire historically maintained open, flower-rich understories. Farther downslope Chihuahuan Semi-Desert Grasslands are especially important during the monsoon season, when grasses and forbs from families such as Fabaceae, Asteraceae, Boraginaceae, and Asparagaceae provide abundant forage in open, low elevation landscapes. Together, these habitats form an interconnected landscape that sustains Bombus sylvicola across spatial and temporal gradients (“NMDGF SWAP WebApp,” 2025). 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).

Conservation Considerations:

In New Mexico and across the United States, no species-specific research or conservation needs have been identified, but 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 (Sydney A. Cameron et al. 2011; Williams and Osborne 2009). Furthermore, survey work should be implemented to better understand the extent of their range across the state of New Mexico(Chesshire et al. 2023).

Threats:

Studies in the southwest region indicate that Bombus sylvicola, despite being widespread and not currently considered highly threatened, already shows genetically structured and partially isolated populations across western North America (Sakulich et al. 2025). This demonstrates that climate-driven loss of habitat connectivity may further limit dispersal and gene flow, potentially increasing long-term vulnerability even if short-term population declines are not yet severe. Although no single threat has been identified as uniquely affecting B. sylvicola, 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, B. sylvicola may be susceptible to broader pressures including habitat loss, fire, competition with non-native bees, and climate change (Fürst et al. 2014; Sydney A. Cameron et al. 2011). Above ground nesting bees, like bumblebees, are especially vulnerable to agricultural intensification because their nesting substrates like grasses, forbs, shrub stems, and deadwood are often removed, while tilling can kill and disrupt nests on soil surfaces. Social bees are particularly sensitive to pesticides because they bioaccumulate toxins through long foraging seasons, shared food within nests, long-lived queens, and repeated exposure when colonies exploit mass-flowering crops (Williams et al. 2010). Diverse native bee communities, that include bumblebees, provide more efficient crop pollination that could fully replace managed honeybee services when natural habitats are conserved near farms, however this free service is lost as landscapes are degraded (Kremen et al. 2002), implying that a threat to bumblebees is also a threat to agricultural security via pollination services. Climate change poses an acute risk in New Mexico, where warming temperatures, prolonged drought, and increasingly variable precipitation are affecting floral availability and phenology (Hallmark et al. 2024). Many New Mexico bumblebee populations depend on montane and riparian habitats that provide cooler conditions and sustained flowering through the summer. Drought and reduced snowpack can shorten bloom periods, reduce mid-season floral abundance, and disrupt synchrony between queen emergence and flower availability (Iler et al. 2021; Vázquez et al. 2023). Earlier or irregular spring warming followed by frost events may further reduce foraging success or kill early blooms. These shifts can intensify disease pressure, reduce floral and nesting resources, and disrupt synchrony between bees and flowering plants. Nesting habitat availability could also decline due to changes in rodent abundance or distribution. Changes in emergence timing may expose queens to mismatched resource availability (Inouye 2008; Forrest et al. 2010; Thomson 2016; Memmott et al. 2007; Kudo and Ida 2013). Reduced mid-season floral abundance in warming regions, such as the Rocky Mountains, further jeopardizes the availability of resources critical to bumblebee colony success (Aldridge et al. 2011). Competition and disease associated with

managed honeybees may be especially problematic in New Mexico due to the concentration of apiaries near riparian corridors, agricultural fields, and montane meadows, areas that also function as critical foraging hubs for native bumblebees. In dry landscapes with limited floral resources, high honeybee densities intensify competition for nectar and pollen, often displacing native bees from flowers and reducing the availability of resources needed for foraging and reproduction. Even though honey bees are pollinators, they are frequently less effective than native bees, and their dominance can indirectly lower plant reproductive success by excluding more efficient pollinators such as bumblebees (Page and Williams 2023). In addition to resource competition, honey bees act as reservoirs for emerging infectious diseases, with strong evidence that pathogens into wild bumblebee populations, contributing to declines (Fürst et al. 2014; Sydney A. Cameron et al. 2011). Field and landscape-scale studies further indicate that such as deformed wing virus and Nosema spp. spill over from managed honey beesincreased honey bee abundance is associated with reduced native bee fitness, including higher offspring mortality, skewed sex ratios, and lower reproductive output, as well as declines in certain sensitive wild bee groups (Prendergast et al. 2025). Widespread honey bee introductions and high-density apiaries can erode native pollinator populations through competition, disease transmission, and disruption of long-standing plant–pollinator relationships, underscoring the need for careful management of honey bees to protect vulnerable bumblebees. Fire and fire management practices further compound these pressures. New Mexico's ecosystems evolved with frequent, low- to mixed-severity fires, but decades of fire suppression have altered vegetation structure, reducing open meadow and savanna habitats that support bumblebee foraging. Conversely, increasingly intense wildfires or poorly timed prescribed burns can directly destroy above-ground nests and eliminate nesting materials, particularly in areas where bumblebee populations are already small or isolated (Swengel 2001). Taken together, these threats are of heightened concern in New Mexico because bumblebee populations are constrained by aridity, elevation, and fragmented habitats, leaving little margin for recovery. The interaction of climate stress, limited resources, competition with managed pollinators, and altered fire regimes makes local populations especially vulnerable, even in the absence of species-specific threats.

Population:

Locally, B. sylvicola has ~ 12 records that span 1956-2024 (IDigBio Specim. Portal 2025; iNaturalist 2026). There have been only 3 'research grade' observations reported on iNaturalist, those combined with curated specimens totaling 10+ state records across multiple sources (IDigBio Specim. Portal 2025; "GBIF" 2025). Verified records in the state are sparse with just a couple recorded in most decades, 3 records at the most southern end of B. sylvicola's range date back to 1998 and 1982, possibly indicative of an extirpated population from the Sandia mountains ("GBIF" 2025).

References:

- Martinet, Baptiste, Thomas Lecocq, Nicolas Brasero, et al.. 2019. Integrative Taxonomy of an Arctic Bumblebee Species Complex Highlights a New Cryptic Species (Apidae: Bombus).. https://doi.org/10.1093/zoolinnean/zlz041
- Hatfield et al. 2014.. 2014. IUCN Red List of Threatened Species: Bombus Sylvicola. https://www.iucnredlist.org/en
- Williams et al. 2014. Bumble Bees of North America. https://press.princeton.edu/books/paperback/9780691152226/bumble-bees-of-north-america
- Cameron, Sydney A., Jeffrey D. Lozier, James P. Strange, et al.. 2011. Patterns of Widespread Decline in North American Bumble Bees. https://doi.org/10.1073/pnas.1014743108
- NMDGF SWAP. 2025. NM SWAP. https://univofnm.maps.arcgis.com/apps/webappviewer/index.html?id=13f7df568b15489a948e1bf1efb6524c
- Chesshire, Paige R., Erica E. Fischer, Nicolas J. Dowdy, et al.. 2023. Completeness Analysis for over 3000 United States Bee Species Identifies Persistent Data Gap.. https://doi.org/10.1111/ecog.06584
- Sakulich, Elizabeth M., Jonathan B. Uhuad Koch, and James P. Strange.. 2025. Population Structure Varies among 4 Western North American Bumble Bee Species. https://doi.org/10.1093/isd/ixaf003

More Information