

# Megachile fortis (Robust Sunflower leafcutter bee)

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No Photo Available

## Taxonomy

- **Class:** INSECTA
- **Order:** Hymenoptera
- **Family:** Megachilidae
- **Genus:** Megachile
- **Scientific Name:** Megachile fortis Cresson, 1872
- **Common Name:** Robust Sunflower leafcutter 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:** [G2](#)
- **NHNM State:**
- **NM Endemic:** NO

## Description

## Habitat and Ecology

The bee's habitat includes grasslands in the central and montane meadows in the southwestern United States (Neff and Simpson 1991, NatureServe 2026). The species is a nectarivore and is a specialist on members of the genus Helianthus (sunflowers) (Neff and Simpson 1991, NatureServe 2026). The full flight of this species isn't known, but records range from March to October, with a peak in June and July (Neff and Simpson 1991). Maximum flight period lasted an average of 55 days and females live for an average of 56 days, males emerge 1-2 days before females, while females are active 1-12 days after male observations (Neff and Simpson 1991). This species is continuously foraging for pollen throughout the day with an average trip duration of 11-14 minutes but in the around noon will depend up to 40 minutes outside of the hive collecting pollen (Neff and Simpson 1991). This species is ground nesting but does not aggregate around Helianthus, nest entrances were hidden at the bases of clumps of grass and on deeply shaded paths in oak-juniper woodland (Neff and Simpson 1991). They excavate their own nests, and nests are initiated on slanting surfaces in hard-packed soil (Neff and Simpson 1991). Observations indicate that females require at least 60 minutes to excavate a 56 mm main burrow (Neff and Simpson 1991).

## Geographic Range:

In the past 20 years the species has only been recorded in the central United States from southern South Dakota to Texas, with populations in Indiana and Illinois, and with montane populations in the southwest in New Mexico and Arizona (GBIF.org 2026, NatureServe 2026). Historically, this bee has been known to occupy the Great Plains, with the northernmost part of the range including the border of Alberta, Manitoba, and Saskatchewan in Canada and the United States (Sheffield et al. 2014, NatureServe 2026), but there are no public records in the last 20 years in the northern part of the range. The historic range then continued south through the central United States, with the range going as far south as Louisiana, the eastern part of the range stretched to Indiana, and the pieces occupy montane meadows in Arizona and New Mexico, United States (Neff and Simpson 1991, NatureServe 2026). More research is needed to

understand the decline of the species range.

## Conservation Considerations:

There are no known range wide conservation actions in place for this bee but the bee was assessed as G2 Imperilled globally in a 2019 assessment by NatureServe. More research is needed on the range and conservation needs of this species.

## Threats:

This bee has likely been in slow decline, due to land use changes in the region, since the arrival of European settlers (Swengel et al. 2011). North American prairies have declined by an estimated 99% in the last few centuries, primarily due to conversion for agriculture (Samson and Knopf 1994). Intensive grazing has been shown to adversely impact other prairie insects, likely due to loss of nectar sources, changes in vegetative structure, and trampling of larvae and eggs (Dana 1991). Invasive species such as Smooth Brome (*Bromus inermis*), Kentucky Bluegrass (*Poa pratensis*), Leafy Spurge (*Euphorbia esula*), and woodland invasion by both native and non-native plants also threatens prairie remnant habitats. Pesticide use is also problematic, as many prairie remnants are surrounded by rangeland and cropland (Selby 2005). Management with prescribed burns can also negatively impact prairie butterfly populations if carried out late in the spring or in the fall, over too large an area, or too frequently (Dana 1991). Being a grassland specialist, the bee will face the same threats as grasslands such as grazing. Though some argue grazing has no impact on different species and may even be beneficial due to decreased fire potential (fuel loads), there is some evidence over grazing may be harmful. For some insects, including the Sacramento Mountains Checkerspot Butterfly, grazing also directly degrades the habitat by reducing the health and abundance of host plants (by as much as 60% in some studies) (McIntyre 2010), and promotes the spread of invasive species, which outcompete host plants and change the composition of vegetation communities (Souther et al. 2019). Grazing not only limits plant availability and degrades habitat but causes direct mortality of caterpillars and eggs as well. For example, mortality of post-diapause larvae may be higher due to trampling; this has been observed in the Sacramento Mountains (Pittenger and Yori 2003). Part of this bee's range includes the Southwestern United States which 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) and droughts are projected to become more prolonged, severe, and common in the region under future climate change scenarios (USGCRP 2018). Drought conditions over the last few years have severely limited food and nectar resources (Hughes 2020) and environmental stochasticity, especially variation in host quantity, quality, and phenology (Ehrlich and Murphy 1987). This can further stress these species already living in these hot and dry environments, other insect species, even very common ones, have been experiencing widespread declines due to a series of threats that may be affecting this species as well (Forister et al. 2021). Land use and water use change have been shown to affect many other western United States species (Forister et al. 2010). Part of this species range includes the Western United States, which is getting hotter and drier as climate change takes its toll and is expected to continue to do so (Cook et al. 2009, Cook et al. 2015, Williams et al. 2022). Many insects respond to climate change by moving to higher elevations or latitudes however, this is not an option for this taxa where there are no higher elevation habitats to shift to and as a result just a small amount of warming could push this taxa into thin air driving it to extinction (Forister et al. 2010, Holland 2010, Rödder et al. 2021, Forister et al. 2023). Another threat facing grassland insects is catastrophic fire or lack of fire. The impacts of fire on this species may depend on the intensity and size of the fire, as well as seasonal timing (USFWS et al. 2004). The impacts of land use on fire intensity and spread may also be consequential. For example, grazing may temper a fire, as grazed meadows carry less fuel load, but the presence of some invasive grasses which are more abundant in grazed areas, such as Cheatgrass (*Bromus tectorum*), may cause more frequent fires due to invasive grasses adding novel and continuous fuels (USFWS et al. 2004, Fusco et al. 2019). A NatureServe report in 2016 examined the conservation status of Leafcutter bees. They found Megachile bees to be the most at-risk group of all North American insect groups that have been comprehensively assessed (NatureServe 2026). The exact cause of declines is unknown, but as this species is a member of Megachile, more research is needed into

the threats to this species.

## Population:

The population size and trend are not known for this species. Determination of population size and monitoring of population trends is necessary to ensure the population is stable.

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## More Information

