

Perdita austini (Austin's Fairy Bee)

No Photo Available

Taxonomy

- **Class:** INSECTA
- **Order:** HYMENOPTERA
- **Family:** ANDRENIDAE
- **Genus:** Perdita
- **Scientific Name:** *Perdita austini* Cockerell, 1895
- **Common Name:** Austin's Fairy 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:** [GNR](#)
- **NHNM State:** S2
- **NM Endemic:** NO

Description

Perdita austini females are similar to *P. semicrocea*, which is a small, shiny black mining bee, with an orange-yellow abdomen. *Perdita austini* can be distinguished by its thorax, which is entirely dark, instead of having white or pale yellow tubercles, as is seen in *P. semicrocea* (Timberlake 1968).

Habitat and Ecology

The habitats and ecology are not well understood for this species. It has mostly been recorded in the Chihuahuan Desert, though there are several records from the Arizona/ New Mexico Plateau farther north and the lowlands of the Madrean Sky Islands to the west. This suggests it may be found in a variety of habitats including arid grasslands and shrublands, though in the Sevilleta National Wildlife Refuge, it is found in Chihuahuan Desert shrublands (Kazenek *et al.* 2020).

Species of *Perdita* are almost all oligolectic (Michener 2007). As such, their emergence is usually timed to coincide with the floral bloom period of their host plants (Wilson and Carril 2016). This species has been collected in September and October from the flowers of snakeweed (*Gutierrezia microcephala*) and woolly desert marigold (*Baileya pleniradiata*), both of which are in the Asteraceae family (Timberlake 1968). *Perdita* typically nest in the soil within burrows with branches, each ending in a single cell, which is more or less horizontal (Michener 2007). A few species nest gregariously, with females nesting in close proximity to one another (Wilson and Carril 2016). Other species are communal nesters, with more than one female sharing a nest entrance (Michener 2007). Any yet others are more solitary. Instead of covering nest cells in a water proof coating, like other species in the family Andrenidae do, *Perdita* cover only the spherical ball of pollen provisioned for larvae in a coating (Wilson and Carril 2016). Many species are specific about the soil type they choose to nest in (Wilson and Carril 2016). Adult emergence seems to be dependent on humidity levels which indicate significant rain events above ground, at least for desert species (Wilson and Carril 2016).

Geographic Range:

Perdita austini has been recorded in the southern half of New Mexico and in the southeastern most tip of Arizona, in the United States (Timberlake 1968, Chesshire *et al.* 2023). In New Mexico it is known from Cibola, Doña Ana, Otero, Socorro, and Eddy counties, and in Arizona, from Cochise County. It has not been recorded outside of the Sevilleta National Wildlife Refuge in over 20 years (Chesshire *et al.* 2023).

Conservation Considerations:

There are no conservation measures in place for this species. It is known to occur in at least one protected area, the Sevilleta National Wildlife Refuge, though it is not removed from the main threat of severe drought in this refuge. Research is needed to better understand the current distribution, population size and trend, habitats and ecology, and threats to this species.

Threats:

The threats to this species are not well understood, though drought is likely the main threat. 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). In addition, declines observed in *Perdita* species at one site the Chihuahuan Desert have been attributed to small body size of these bees, and associated sensitivity to heat and desiccation (Kazanel *et al.* 2024).

Population:

The population size and trend are not known for this species. However, based on 16 years of abundance data from the Sevilleta National Wildlife Refuge and experimentally determined heat and desiccation tolerances, climate sensitivity models predict this species is likely to decline in the coming years (Kazanel *et al.* 2024). In the last 20 years, this species has only been collected at the Sevilleta, which has an extensive bee monitoring program. Surveys are generally limited throughout the range, so a lack of records likely does not indicate true absence. However, the species should be confirmed across its distribution.

References:

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More Information

