

Speodesmus tunganbius (Carlsbad Millipede)



Ned Rose,

Taxonomy

- **Class:** DIPLOPODA
- **Order:** MYRIAPODA
- **Family:** POLYDESMIDAE
- **Genus:** Speodesmus
- **Scientific Name:** *Speodesmus tunganbius* (Chamberlin, 1952)
- **Common Name:** Carlsbad Millipede
- **Synonyms:** Speorthus tunganbius Chamberlin, 1952
Chamberlin, 1952
- **Taxonomic Name Source:** Hoffman, R. L. 1999. Checklist of the millipeds of North and Middle America. Special Publication No. 8., Virginia Museum of Natural History, Martinsville, Virginia. 584 pp.

Agency Status

- **NMDGF:**
- **Federal Status:**
- **BLM Sensitive:**
- **USFS:**
- **IUCN Red List:** [Not Evaluated](#)
- **Nature Serve Global:** [G2](#)
- **NHNM State:** S1
- **NM Endemic:** NO

Description

This small millipede (about 9mm) is pale and colorless throughout, though it is strongly sclerotized. The head is large, broader than the collum, and setose (covered in hairs). The segments of the antenna are strongly clavate, and segment six is the largest and has accessory setae. The collum is broadly oval, with approximately three rows of short, clavate hairs, and two marginal teeth on each side. The legs are relatively large and clavate, the prefemur is bulbous, the tarsi are arches and the tarsal claw is strong. The gonopod is typical of the genus. Females are more slender than males, have relatively larger heads, and the legs are both shorter and more slender (Shear 1974).

Habitat and Ecology

This millipede is found in dark, muddy areas of caves (Cokendolpher and Polyak 1996). There are records of the

species being found in gypsum caves within Carlsbad Caverns but it is primarily found in silt banks within Millipede Cave, at Carlsbad Caverns; one specimen was found under a rock in the twilight zone (Cokendolpher and Polyak 1996). The millipede is typically found on the undersides of wet and rotting wood (Barr and Reddell 1967) but in Hidden Cave it was occasionally found in guano and organic debris near the start and end of passages (Barr and Reddell 1967). Very little is known about the ecology of this millipede, though it is especially sensitive to desiccation, needing a wet and moist habitat (Cokendolpher and Polyak 1996). More research is needed on the ecology of this species.

Geographic Range:

The Carlsbad Millipede is a cave obligate millipede first collected in Carlsbad Caverns, New Mexico, in 1924 (Chamberlin 1952). It is found across gypsum cave formations in southeastern New Mexico and West Texas, in the United States. So far it has been recorded in about 28 caves across Lincoln, De Baca, Socorro, Chaves and Eddy Counties, in New Mexico, and 13 caves in Culberson County, Texas (Shear 1974, Shear and Reddell 2017). This species is fairly widespread for a cave obligate species, suggesting the surface-dwelling ancestor had a wide distribution in southeastern New Mexico and West Texas. In addition, there is a lack of variation across the range, likely indicating the extinction of the surface-dwelling ancestor was relatively recent. In some areas, such as the gypsum plains of southeastern New Mexico and far west Texas, it is likely genetic exchange is still taking place, through loose alluvium overlying the gypsum caves (Shear and Reddell 2017). Other populations, such as those in Lincoln and Socorro counties, are much more isolated.

Conservation Considerations:

There are no known conservation actions in place for this millipede. It was listed as a Species of Greatest Conservation Need list in 2005 (NMDGF 2006), though it has since been dropped from the list as the state does not have authority to manage most invertebrates species. It is found in at least one protected area, at Carlsbad Caverns National Park, though the Park does not manage habitat specifically for this species.

Threats:

The threats to this species are not well understood, as little is known about this millipede's ecology. However, threats to this species likely include climate change and tourism. The average temperature in caves is highly correlated with average surface temperature (Medina et al. 2023). With temperatures rising in the southwest due to climate change, cave temperatures will also rise causing less moist environments. This leaves the millipede vulnerable to desiccation and lack of access to wet and rotting wood (Barr and Reddell 1967, Cokendolpher and Polyak 1996). Droughts are projected to become more prolonged, severe, and common in the region under future climate change scenarios (USGCRP 2018), which may also put this species at greater risk of desiccation.

Much of the range of this species is within Carlsbad Caverns National Park, which may provide some protection from certain threats. However, the cave systems at the Park are heavily trafficked, so tourist-caused habitat disturbances are a concern. Caves are especially vulnerable to human impact because as closed ecosystems they are highly transmissive and prone to rapid pollutant transfer (Constantin et al. 2021). Caves open for tourism can cause direct and indirect effects on an ecosystem (Piano et al. 2024). Direct effects are trampling and trail maintenance. Maintaining hiking paths potentially removes wood that could be used by this millipede as a resource, which was noted as a concern by Barr and Reddell (1967). Indirect effects from tourism include chemical changes. Tourism may introduce higher levels of nitrogen and phosphorus, which could potentially change their concentrations in sediments and groundwater (Piano et al. 2024).

Population:

The population size and trend are not known for this species. Historically it was reported as "extremely abundant" (Barr and Reddell 1967) and later as "relatively abundant" (Cokendolpher and Polyak 1996) within Carlsbad Caverns National Park. The species has been collected many times at the type locality since its description in 1952 (Shear and Reddell 2017) and has been found in many additional cave systems. Determination of population size and monitoring of population trends may be necessary to ensure the population is stable.

References:

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More Information

