

## TARDIGRADES: A NEW RECORD FOR BAJA CALIFORNIA, MEXICO

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Studies on tardigrades in Mexico are scarce, even more so for the northwest region. Of the investigations of registered species, only the states of Sonora (with *Haplomacrobotus hermosillensis* May 1948) and Sinaloa (with *Conechiniscus lobatus*) are found, but until now, there were no published records of tardigrades in Baja California. In this research, we present a study on tardigrades from Northwest Mexico, reporting findings for the first time for the state of Baja California. The Astrobiology Laboratory (ASBIO) of the Institute of Astronomy, UNAM at Ensenada, Mexico, has begun a search for tardigrades in some extreme areas of Mexico, as part of its research line of Extremophilic studies.

The Sierra de San Pedro Mártir (SSPM) is the highest region of a mountainous system that runs through the entire Baja California peninsula, with an approximate area of 73,000 ha and a maximum elevation of 3,100 masl. The vegetation of the SSPM is represented mainly by coniferous forest (*Abies concolor*, *Pinus quadrifolia*, *P. monophylla*, *P. contorta* var. *murrayana* and *P. jeffreyi*, the dominant species; Delgadillo 2004). This high region of the SSPM has been recognized as having low humidity, ideal for astronomical observations (Carrasco et al. 2017). However, their proximity to the Western Pacific Ocean and the Gulf of California and their environmental conditions contribute to the formation of fogs, mainly on the slopes of the mountains, which favors large plant formations.

Thus, the lichens associated with coniferous forests (*Pinus jeffreyi*) undoubtedly form the ideal microenvironment for the fauna of these microinvertebrates. Currently, the number of tardigrade species in Mexico is small. Before this study, there were 82 records of tardigrades, 64 limnoterrestrial, 2 freshwater and 16 marine (León-Espinosa et al. 2019; Moreno-Talamantes et al. 2020; Pérez-Pech et



Fig. 1. Optical microscope image of a *Ramazzottius* sp. specimen.

al. 2020). In this work, we report samples of lichen and mosses collected and examined from the bark of *Pinus jeffreyi* pines during the exploration of the SSPM in Baja California, Mexico. A total of 66 specimens of 4 tardigrade taxa were found in these samples. Thus, for the first time for the state of Baja California, we report the species *Echiniscus blumi* (Figure 1), *E. becki*, *Ramazzottius* sp. and *Milnesium* sp. from the SSPM, increasing Mexico's known tardigrade diversity to 84.

The detailed investigation has been published recently (Núñez et al. 2021).

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