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# Cave millipeds of the United States. VIII. New genera and species of polydesmidan millipeds from caves in the southwestern United States (Diplopoda, Polydesmida, Macrosternodesmidae)

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## Abstract

Four new species of presumed troglobitic polydesmidan millipeds in two new genera are described from caves in the states of Arizona, Nevada and California. *Pratherodesmus*, **n. gen.**, is comprised of the type species, *P. voylesi* **, n. sp.,** *P. ecclesia***, n. sp.,** and *P. despaini***, n. sp**. The genus is found in Arizona and California. *Nevadesmus ophimontis*, **n. gen., n. sp.**, is from White Pine Co., Nevada; the new genus also includes *N. hubbsi* (Chamberlin) 1943, **new combination**. All four species were collected in or near United States National Parks, Bureau of Land Management lands, and in a private preserve. All new taxa are authored by W. A. Shear only.

**Key words:**

## Introduction

Cave habitats in the western United States are of exceptional interest, because even more than the caves of extensive karst regions of the eastern part of the country, they represent “islands” which preserve relictual fauna, dating back to the most recent glacial advance and retreat, or even older. While caves in the east are likely to be surrounded by forested habitats in which the litter and soil are amenable to the continued existence of source populations for troglobitic and troglophilic arthropods, western caves are most often located in desert or semi-desert regions, or at high altitudes. In the former case, the surrounding environments are inimical to soil-dwelling arthropods, and in the latter, conditions approximating those that obtained at lower altitudes during glacial maxima or the early stages of glacial retreat still exist.

Millipeds, animals generally adapted to cool, moist conditions, are rare in deserts (there are some exceptions) and above timberline (Golovatch 2009). During the so-called pluvial periods at glacial maxima in North America, however, grasslands, savannah, and even forest occurred where today desert and semidesert are seen. Conversely, during interglacials the climate may have been warmer and drier than at present, so that the severe climates at high altitudes would have been considerably ameliorated, probably with less winter snow and longer, warmer summers than exist today (Webb & Bartlein 1992). As these conditions changed with the advance or retreat of the continental ice sheets, caves in both climatic regimes could provide refuges for millipeds. During the dry, warm interglacials (such as our present time) millipeds that had colonized the wetter, cooler environments at low altitudes could find themselves isolated in caves now surrounded by dry grasslands, woodlands, or desert (Peck 1973, 1981, 1982). Conversely, as glaciers advanced, creating harsh climates at high altitudes, the generally milder conditions in caves could provide a haven for millipeds that

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