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Checklist of Inland Aquatic Amphipoda (Crustacea: Malacostraca) of California

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Abstract

We present the first comprehensive checklist of Amphipoda in Californian inland waters. Amphipod distribution records were based upon a thorough literature review and unpublished data of colleagues, as well as the collections of the authors. We report 62 species in 24 genera and 14 families, including 7 new taxa awaiting formal description. Sixteen species are exotic and at least 20 species are subterranean obligates. Endemicity is high: 40% of the native fauna are limited to a single locale, typically a spring or cave stream, and another 3 species are known from just 2 locales each. Conservation status rank revisions are offered in order to update the California Natural Diversity Database and IUCN Red List. Threats from invasive species are briefly discussed, as well as the use of amphipods as bioindicators.

Key words: Amphipoda, biodiversity, California, conservation, endemic, estuarine, invasive species, stygobiont

Introduction

Amphipods, commonly known as sideswimmers or scuds, are important components of freshwater biodiversity (Vainola *et al*. 2008). They function as vital links in aquatic foodwebs by processing detritus and serving as an important dietary component of fishes (Rogers *et al*. 2010). Recently, we found it necessary to summarize the known California inland aquatic fauna while attempting to distinguish some rare and novel amphipod taxa, and found no comprehensive checklist of Californian freshwater amphipods other than that of Rogers (2005), which is limited to genera. Although the marine fauna is not considered here, California hosts a diverse marine assemblage of at least 350 amphipod species (Chapman 2007). Estuarine habitats are complex and diverse ecotones, and euryhaline and eurokous taxa complicated the formulation of this checklist, which we attempted to limit to non-marine and inland niches. Furthermore, freshwater species may be washed into estuarine or marine habitats during stormflows, creating anomalous records, and during high flows, wedges of marine water will move upstream under the freshwater layer and temporarily introduce marine taxa (Bousfield 1973; Chapman 2007; Rogers et al. 2010). Terrestrial amphipods, such as the littoral beachhoppers (Orchestoidea), and exotic “lawn shrimp” (Talitridae) that have become established widely in California's temperate regions, are not considered here (Bousfield and Carlton 1967; Chapman 2007).

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