



A preliminary checklist of the millipedes (Diplopoda) of the Great Smoky Mountains National Park, USA

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Abstract

Great Smoky Mountains National Park, the most visited National Park in the United States, is home to a wide diversity of millipede species. A preliminary list of these species is provided, based on literature records and new collections from the All-Taxa Biodiversity Inventory and the author's research. This report establishes that the Park's presently known fauna consists of 62 species (one of which contains two subspecies) in 21 families and all 10 orders known from eastern North America, and includes at least five new state records and 18 new Park records. In the near future several undescribed species will likely be added to the list, as well as described species that are currently known to occur near the Park, but have never been reported from within the Park's boundary.

Key words: Appalachian Mountains, ATBI, North Carolina, Tennessee, biodiversity, inventory, GSMNP

Introduction

Investigations on the millipedes of the Great Smoky Mountains National Park (GSMNP) began as part of a research project on non-native earthworm invasion into the Park. Earthworm invasion was found to detrimentally affect millipede diversity and density (Snyder 2008), and it became increasingly important to know which millipede species were present in the Park. Hoffman (1969) tallied 53 species in 33 genera and 17 families from the Smokies, but did not provide a list of these species. As no other summary of GSMNP millipedes had ever been compiled, and several apparently undescribed species were among the material collected from this research, it was desirable to create a checklist of GSMNP millipedes, which will have the benefit of providing a resource for Park management and will facilitate the description of new species.

GSMNP is located on the border of North Carolina and Tennessee, USA. The Park covers 210,875 ha of rugged terrain varying between 256 and 2024 m in elevation. Millipedes are an important resource in GSMNP; as detritivores, they provide valuable ecosystem services, and the colorful and frequently surface-active xystodesmids are a visible part of the soil fauna to visitors. Ecosystems in GSMNP are under pressure from invasive species (including the millipedes *Ophiulus pilosus* and *Oxidus gracilis*, though the extent of their impact is virtually unknown), air pollution, and human influence: GSMNP is the most visited National Park in the USA (over 9 million visits in 2006). However, it is unknown how these factors affect millipede populations.

Methods

An initial species checklist was assembled from the literature, including species reported from GSMNP, Gatlinburg, Tennessee (which is adjacent to GSMNP and predates the Park), or the five counties in Tennessee