



Conference Abstract

Unraveling the eastern North American *Hesperochnes* (Pseudoscorpiones, Chernetidae) species complex

Charles D.R. Stephen[‡], Matthew L. Niemiller[§], Jason E. Bond[|]

[‡] Auburn University, Auburn, United States of America

[§] The University of Alabama in Huntsville, Huntsville, United States of America

[|] University of California, Davis, Davis, United States of America

Corresponding author: Charles D.R. Stephen (czs0021@auburn.edu)

Received: 06 Sep 2018 | Published: 11 Sep 2018

Citation: Stephen C, Niemiller M, Bond J (2018) Unraveling the eastern North American *Hesperochnes* (Pseudoscorpiones, Chernetidae) species complex. ARPHA Conference Abstracts 1: e29582.

<https://doi.org/10.3897/aca.1.e29582>

Abstract

The pseudoscorpion genus *Hesperochnes* presently includes 19 species, 17 of which are endemic to North America. On this continent, most species in the genus have been found in association with bats or rodents, and six species are known exclusively from subterranean habitats. Three species are distributed south of the Great Lakes in the eastern part of the mainland continent: *H. holsingeri*, *H. mirabilis*, and *H. occidentalis*. All three have only been collected from karst caves. *Hesperochnes holsingeri* is presumed to be endemic to one cave in southern Indiana in the Interior Low Plateau karst region. Specimens attributed to *H. mirabilis* are widely distributed across all karst regions east of the Mississippi River, excluding the Florida Lime Sink. Specimens identified as *H. occidentalis* are restricted to west of the Mississippi River, where they are broadly distributed in the Ozarks karst region. These three species were defined from morphological characters that have since been speculated to suffer from a high degree of variation among populations. This ambiguity has effectively rendered unreliable any species-level determinations of *Hesperochnes* from caves in eastern North America. Additionally, previous authors have noted that there exists high potential for undescribed diversity within this geographic distribution of the genus. The present study seeks to

disentangle relationships within *Hesperochnes* from subterranean populations in eastern North America. Within this region, we collected 95 samples of *Hesperochnes* and nine samples of outgroup pseudoscorpions from 53 caves located in the Appalachians, Ozarks, and Interior Low Plateau karst regions. The 3RAD restriction-associated digest (RADseq) method was used to sample thousands of loci from across the whole genome. Population genetics, species delimitation, phylogeographic, and morphological analyses are presented that will inform a taxonomic revision of this remarkably successful, exclusively hypogean species complex of pseudoscorpions.

Keywords

Pseudoscorpiones, RADseq, subterranean

Presenting author

Charles D.R. Stephen

Presented at

24th International Conference on Subterranean Biology, 20-24 August 2018

Hosting institution

University of Aveiro, Aveiro, Portugal