



## REVISION OF TORRENT MITES (PARASITENGONA, TORRENTICOLIDAE, TORRENTICOLA) OF THE UNITED STATES AND CANADA: 90 DESCRIPTIONS, MOLECULAR PHYLOGENETICS, AND A KEY TO SPECIES

BY

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*Torrenticola anoplopalpa* Fisher & Dowling, sp. n.

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The descriptive biology of torrent mites (Parasitengona: Torrenticolidae: *Torrenticola*) of North America (north of Mexico) is investigated using integrative methods. Material examined includes approximately 2,300 specimens from nearly 500 localities across the United States and Canada, and a few collections in Mexico and Central America. Species hypotheses are derived from a phylogenetic analysis of the barcoding region of cytochrome c oxidase subunit 1 (COI) for 476 specimens and supported by morphology and biogeography. Relationships between species are examined with a combined analysis of COI and two expansion regions (D2–3) of the large ribosomal subunit (28S rDNA) for 57 specimens. All previously described species from the US and Canada are examined. Findings indicate that total diversity of *Torrenticola* in the United States and Canada comprises 90 species, 57 known from the east and 33 from the west. These species are organized here into four species complexes that include 13 identification groups, however 13 of the species do not fit within any of these groups. The southern Appalachians are suspected to contain the highest concentration of remaining undescribed diversity. A key to all known species in the US and Canada is provided.

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