MIKTONISCUS MEDCOFI (ISOPODA, TRICHONISCIDAE) IN TEXAS: A RANGE EXTENSION FOR THE GENUS AND SPECIES

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ABSTRACT—We report the occurrence of the terrestrial isopod Miktoniscus medcofi from a fen in Real County, Texas, representing a new state record for the species as well as a western range extension for the genus. Morphologic characteristics closely conform to the species description and distinguish the Texas population from congeners. Miktoniscus medcofi ranges from New York to Texas and south to Veracruz, Mexico, but may represent multiple cryptic species or a species complex.

RESUMEN—Reportamos la presencia del isópodo terrestre Miktoniscus medcofi en un pantano en el condado Real, Texas, Estados Unidos, que representa un nuevo registro estatal para la especie, así como una extensión occidental de la distribución para el género. Las características morfológicas se ajustan estrictamente a la descripción de la especie y distinguen a la población texana de sus congéneres. Miktoniscus medcofi se distribuye desde Nueva York hasta Texas y se extiende hacia el sur hasta Veracruz, México, pero podría representar múltiples especies crípticas o un complejo de especies.

The terrestrial trichoniscid isopod genus Miktoniscus is widespread in Europe and the eastern United States. In the United States, the genus is represented by seven species, of which Miktoniscus medcofi is the most westerly occurring and the most widespread, being reported from Alabama, Florida, Illinois, Indiana, Louisiana, New York, North Carolina, Ohio, West Virginia, and Wisconsin (Jass and Klausmeier, 2000 and references therein). Researchers have also reported the species from Veracruz, Mexico (Mulaik, 1960; Schultz, 1976; Jass and Klausmeier, 2004).

Like other epigean members of the genus, the species apparently is restricted to damp conditions and has been collected from leaf litter and rotten logs (Mulaik and Mulaik, 1942; Schultz, 1976). On 7 August 2015, we collected by hand three males and one female north of Leakey, Real County, Texas (29°51'6.12"N, 99°39'56.53"W; WGS84; uncertainty: 30 m), representing a new state record for the species and a western range extension for the genus (although Schultz [1976] suggests that the monospecific genus Oregoniscus, described from Portland, Oregon, might also be within the genus Miktoniscus). We collected specimens within a water-saturated log in a fen. The 130-mlong, 30–m-wide fen is fed by numerous small springs that emerge from a limestone cliff along the Frio River. The springs coalesce to form the fen where shallow, saturated soil has accumulated between the cliff and the river. The fen was well shaded by sycamore (Platanus occidentalis), Arizona walnut (Juglans major), bald cypress (Taxodium distichum), and spicebush (Lindera benzoin). The understory was dominated by sedges and grasses, including bushy bluestem (Andropogon glomeratus), Lindheimer’s muhly (Muhlenbergia lindheimeri), beaked spikerush (Eleocharis rostellata), black bogrush (Schoenus nigricans), Canada spikesedge (Eleocharis geniculata), showy whitetop (Rhychospora nivea), western umbrella-sedge (Fuirena simplex), sawgrass (Cladium mariscus), knotted spikerush (Eleocharis interstincta), and fragrant sage (Cyperus odoratus).

We preserved specimens in 95% ethanol. We slide-mounted antenna, male pleopods one and two, and male peraeopod seven for microscopic examination. We based species identification on the shape of male pleopods one and two, and male peraeopod seven, and descriptions and figures provided in Schultz (1976). Specimens are curated in the Biodiversity Collections at the Department of Integrative Biology, University of Texas, Austin, Texas (accession number 00105431).

The presence of pigment and ocelli distinguishes the Texas specimens from the cave-obligate species Miktoniscus racovitzai and Miktoniscus oklahomensis, the latter of which, recorded from Murray County, Oklahoma (Ven-
Miktoniscus spinosus, from the eastern United States, is distinguished from Miktoniscus medcofi by radically dissimilar pleopods and pereopod seven (Schultz, 1976). Miktoniscus barri, Miktoniscus mammothensis, and Miktoniscus morganensis, are morphologically more similar to Miktoniscus medcofi. In the Texas specimens, however, the exopod of pereopod one has a rounded apex as illustrated for Miktoniscus medcofi (Schultz, 1976) rather than a pointed apex as illustrated for Miktoniscus barri (Vendel, 1965), Miktoniscus morganensis (Vendel, 1965), and Miktoniscus mammothensis (Muchmore, 1964). Similarly, the shape of the exopod of pleopod two, particularly the presence and proportion of an elongate distal process, closely matches that of Miktoniscus medcofi (Schultz, 1976) and is distinct from that illustrated for Miktoniscus morganensis (Vendel, 1965). Finally, the merus of pereopod seven is without the prominent patch of scales that is present on Miktoniscus mammothensis (Muchmore, 1964).

Specimens do not exhibit the narrow exopod illustrated by Mulaik and Mulaik (1942) for Trichoniscus humus described from Eunice, Louisiana, which was synonymized with Miktoniscus medcofi (Schultz, 1976), and so represents the closest record for the species. The base of the exopod of pleopod two is intermediate in appearance between the illustrations for Miktoniscus medcofi (Schultz, 1976) and Miktoniscus ohioensis (Muchmore, 1964), which also was synonymized with Miktoniscus medcofi (Schultz, 1976). Furthermore, the lateral margin of the propod of male pereopod seven has more numerous and longer setae than illustrated by Schultz (1976), similar to that shown for Miktoniscus veracruzensis (Mulaik, 1960), which also was synonymized with Miktoniscus medcofi (Schultz, 1976). Otherwise, the morphology of the male pereopod seven and pleopods one and two firmly places the Real County population within the species Miktoniscus medcofi, especially considering variation among the multiple species that have been synonymized with Miktoniscus medcofi by Schultz (1976). Given the presence of small-range endemics within the genus, this population may represent a cryptic species or a population within a wide-ranging species complex, but those hypotheses are best tested using molecular techniques.

Additional populations of Miktoniscus medcofi likely occur in central and eastern Texas in favorable habitats including spring and seep margins and in floodplains. However, the presence of Miktoniscus medcofi in a fen in Real County suggests that these rare and sensitive habitats may serve as refugia for additional, predominantly eastern, invertebrates.

**LITERATURE CITED**


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