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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 (*Rhynchospora 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 in glycerin 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-

del, 1965), represents the nearest record for the genus. *Miktoniscus spinosus*, from the eastern United States, is distinguished from *M. medcofi* by radically dissimilar pleopods and peraeopod seven (Schultz, 1976). *Miktoniscus barri*, *Miktoniscus mammothensis*, and *Miktoniscus morganensis*, are morphologically more similar to *M. medcofi*. In the Texas specimens, however, the exopod of pleopod one has a rounded apex as illustrated for *M. medcofi* (Schultz, 1976) rather than a pointed apex as illustrated for *M. barri* (Vendel, 1965), *M. morganensis* (Vendel, 1965), and *M. 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 *M. medcofi* (Schultz, 1976) and is distinct from that illustrated for *M. barri* and *M. morganensis* (Vendel, 1965). Finally, the merus of peraeopod seven is without the prominent patch of scales that is present on *M. 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 *M. 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 *M. medcofi* (Schultz, 1976) and *Miktoniscus ohioensis* (Muchmore, 1964), which also was synonymized with *M. medcofi* (Schultz, 1976). Furthermore, the lateral margin of the propodus of male peraeopod 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 *M. medcofi* (Schultz, 1976). Otherwise, the morphology of the male peraeopod seven and pleopods one and two firmly places the Real County population within the species *M. medcofi*, especially considering variation among the multiple species that have been synonymized with *M. 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 *M. medcofi* likely occur in central and eastern Texas in favorable habitats including spring and seep margins and in floodplains. However, the presence of *M. 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

Jass, J., and B. Klausmeier. 2000. Endemics and immigrants: North American terrestrial isopods (Isopoda, Oniscidea) north of Mexico. Crustaceana 73:771–799.

Jass, J., and B. Klausmeier. 2004. Terrestrial isopod (Crustacea: Isopoda) atlas for Mexico. Milwaukee Public Museum Contributions in Biology and Geology 100:1–77.

Muchmore, W. B. 1964. New terrestrial isopods of the genus *Miktoniscus* from eastern United States (Crustacea: Isopoda: Oniscoidea). Ohio Journal of Science 64:51–57.

Mulaik, S. 1960. Contribucion al concocimeinto de los isopods terrestres de Mexico (Isopodo, Oniscoidea). Revista de la Sociedad Mexicana de Historia Natural 21:79–292.

Mulaik, S., and D. Mulaik. 1942. New species and records of American terrestrial isopods. Bulletin of the University of Utah Biological Series 6:1–23.

Schultz, G. A. 1976. *Miktoniscus halophilus* Blake, *M. medcofi* (Van Name) and *M. morganensis* n. comb., reconsidered with notes on New World species of the genus (Crustacea, Isopoda, Trichoniscidae). American Midland Naturalist 95:28–41.

Vendel, A. 1965. Les Trichoniscidae cavernicoles (Isopoda terrestria; Crustacea) de l'Amérique du Nord. Annales de Spéléologie 20:347–389

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CRITICAL THERMAL MAXIMA AND BODY SIZE POSITIVELY CORRELATE IN RED IMPORTED FIRE ANTS, *SOLENOPSIS INVICTA*

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Abstract—Insects possess several physiological and morphological adaptations to high temperatures; in particular, critical thermal maxima may be of increasing importance as climates warm. We sought to determine the relationship between critical thermal maxima and body size in red imported fire ants, *Solenopsis invicta*.