First record of *Ypsilonurus mutilatus* Mello-Leitão 1933 (Opiliones, Gonyleptidae), in urban forests in the state of Goiás, Brazil

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Abstract: The harvestman *Ypsilonurus mutilatus* Mello-Leitão, 1933 is recorded for the first time from urban dry forests, in Anápolis, state of Goiás, Brazil. Thus, the known distribution is extended to include the state of Goiás. Also, the male genitalia of *Y. mutilatus* are illustrated, and ecological comments and photographs of the recorded microhabitats are included.
Key words: Opiliones, Gonyleptidae, taxonomy, zoogeography, Neotropics, Brazil, Goiás.

Primer reporte de *Ypsilonurus mutilatus* Mello-Leitão 1933 (Opiliones, Gonyleptidae) en bosques urbanos del Estado de Goiás, Brasil
Resumen: Se reporta por primera vez *Ypsilonurus mutilatus* Mello-Leitão, 1933 en bosque seco urbano, en la ciudad de Anápolis, Estado de Goiás, Brasil. Por tanto, se amplía la distribución conocida para incluir el estado de Goiás. Además, se ilustra la genitalia del macho de *Y. mutilatus* y se incluyen comentarios ecológicos y fotografías de los microhábitats.
Palabras clave: Opiliones, Gonyleptidae, taxonomía, zoogeografia, Neotrópicos, Brasil, Goiás.

The fauna of Opiliones is represented by more than 6,000 species, and are considered mesodiverse orders, distributed in 50 families and 1,500 genera, divided into four suborders: Cyphophthalmi, Dyspnoi, Eupnoi and Laniatores (Adis & Harvey, 2000; Machado *et al*., 2007). They are strongly affected by the quality and number of habitats, and compared to other groups of arthropods, they are relatively uniform in several relevant biological aspects, such as nocturnal predation and dependence on microclimatic conditions, and many species have a distribution restricted and exhibit a high degree of endemism (Da Silva *et al*., 2015; Ferreira *et al*., 2019; Pinto-da-Rocha *et al*., 2005).

The Cerrado is one of the most diversified domains in the world and exhibits intricate biogeographical patterns, shaped by local configurations and regional restrictions, such as proximity or isolation of neighboring domains and areas with contiguous relay (Werneck, 2011). Its biodiversity is still little known and new species are described each year, indicating that significant biodiversity may still be discovered (Colli *et al*., 2020; Diniz-Filho *et al*., 2005). Therefore, in this contribution, the presence of *Ypsilonurus mutilatus* Mello-Leitão, 1933 in the state of Goias, central Brazilian Cerrado, is recorded for the first time in environments that are rarely reported in the harvestman's literature, such as urban forests.

The present study was conducted at two locations known as the "Trilha do Tucano" Unievangélica Experimental Unit, and the Ecological and Scientific Reserve-REC, State University of Goiás, Anápolis, Brazil. These correspond to dry forest zones, located in the city of Anapolis, in the state of Goias, Center-West region from Brazil, and which correspond to areas of the Cerrado biome. Which presents a tropical climate with dry season (Köppen Aw), with two distinct seasons: the dry season, which coincides with the period of lower temperatures, and the rainy season, which coincides with the summer, an annual average temperature ranging between 18 ºC to 28ºC, and an altitude between 1017 to 1200 meters above sea level, (IBGE, 2017).

A total of eight individuals identified as members of the suborder Laniatores and the family Gonyleptidae were collected, for identification to family and genus level the studies of Kury & Pinto-da-Rocha (2002); Kury (2003); De Azara & Ferreira (2018), and descriptions made by Mello-Leitão (1933) and Kury *et al*. (2022) were consulted. The specimens were temporarily mounted and studied with the help of a stereomicroscope Zeiss Axiostar (Carl Zeiss, Germany). The penis of the male was dissected for subsequent study. After, the specimens were transferred to 70% ethanol, and the dissected parts were stored in a microvial together with the original specimens. The identified specimens were deposited in the collection of the Laboratory of Behavioral Ecology of Arachnids (LECA) of the State University of Goias, Anapolis, Brazil.

Abbreviations used: Terminology based on Kury & Medrano (2016) and Kury et al. (2022): AL= abdominal scutum length, AW= abdominal scutum width, CL= carapace length, CW= carapace width, Pp= pedipalpus, Fe= femur, Ti= tibia, Ta= tarsus, Mt= metatarsus.

Systematics

Suborder Laniatores Thorell, 1876

Family Gonyleptidae Sundevall, 1833

Subfamily Cearininae Kury, Bernabe, de Azara, Araújo & Benedetti, 2022

Genus *Ypsilonurus* Mello-Leitão, 1933

***Ypsilonurus mutilatus* Mello-Leitão, 1933**
Figs. 1-3

MATERIAL EXAMINED. Brazil, Goiás, Anápolis: 1♂, Trilha do Tucano (16°17.5'S 48°56.2'W), 1021m asl, 31-X-2019, Ferreira, M. S. leg. (LECA; OP-22); 2♂, same coordinates as above, 28-X-2019, Ferreira, M. S. leg. (LECA; OP-23); 1♂, same coordinates as above, 9-XI-2019, Ferreira, M. S. leg. (LECA; OP-24); 2♂, same coordinates as above, 2-XII-2019, Ferreira, M. S. leg. (LECA; OP-25); 2♂, Reserva Ecológica e Cientifica-REC, Universidade Estadual de Goiás, Anápolis, (16°22.9'S 48°56.7'W), 1097m asl, 02-IX-2022, E. Bedoya-Roqueme, T. López, E. Tizo-Pedroso leg. (LECA, OP-12).

According to Kury *et al*. (2022) the collected individuals were identified as members of the species *Ypsilonurus mutilatus* (Fig. 1), by the present combination of characters such as dorso-prolateral-apical apophysis of male coxa IV very short, falciform, pointing backwards over trochanter IV (Fig. 1B); femur IV of male without predominating sub-basal dorsal apophysis; ocularium armed with two short acuminate spines (Fig. 1C); scutal areas III and IV independent (Fig. 1A); area III unarmed (Fig. 1A); area V unarmed (Fig. 1A).

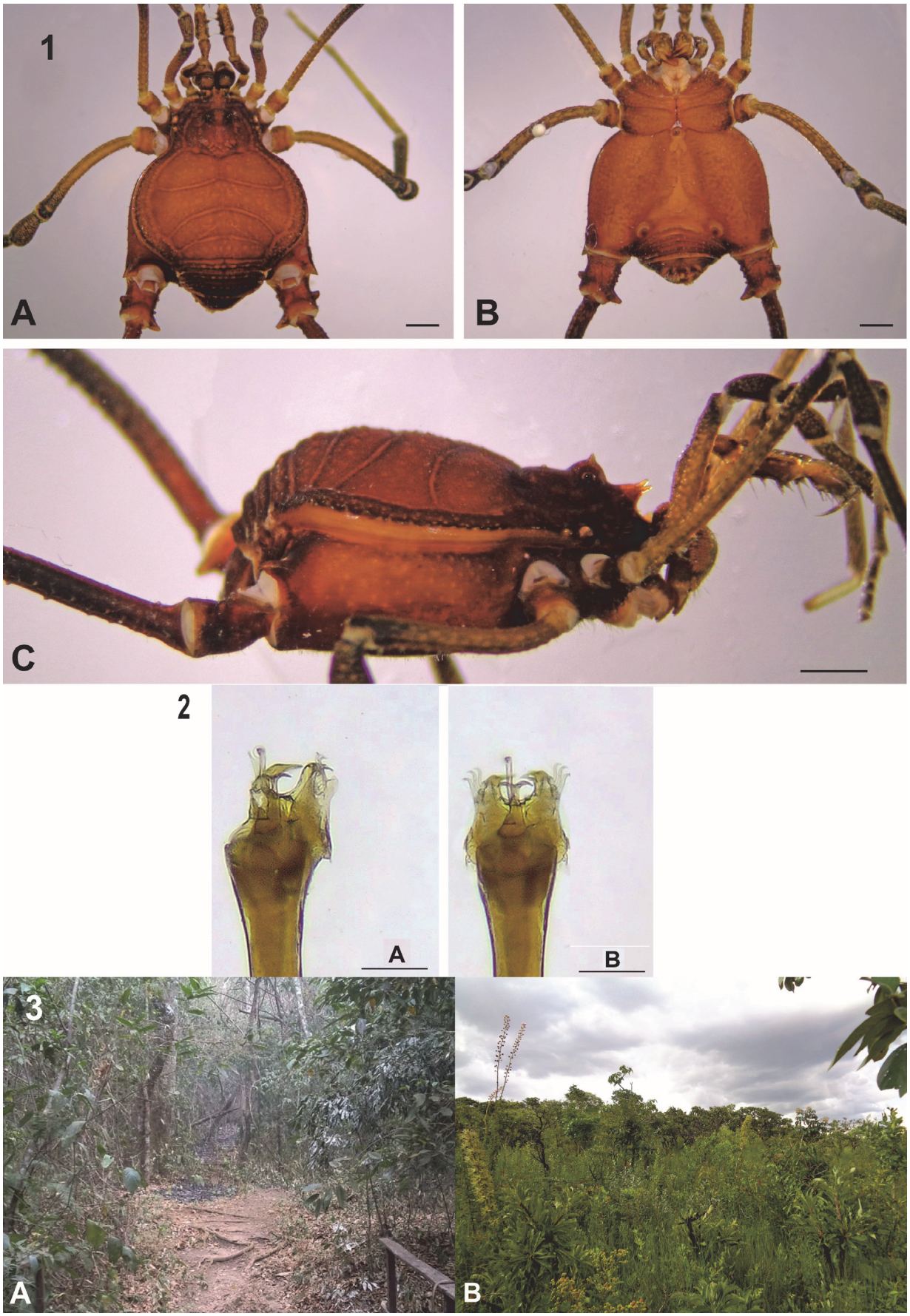


Fig. 1. Male of *Ypsilonurus mutilatus* Mello-Leitão, 1933 from Anápolis, Goiás, Brazil (LECA; Op-022): **A,** Dorsal view. **B,** Ventral view. **C,** Lateral view. **Fig. 2.** Male of *Ypsilonurus mutilatus* Mello-Leitão, 1933 from Anápolis, Goiás, Brazil. (LECA; Op-022). Distal part of penis: **A,** Dorsal view. **B,** left lateral view. Scale line= 1 um. **Fig. 3.** Microhabitats registered in this study, Urban Forest, Anápolis, Goiás, Brazil. **A**, Interior, dry forest, Trilha do Tucano (Unievangélica). **B**, Cerrado *Strictu sensu*, Ecological and Scientific Reserve Entrance, State University of Goias, Anápolis.

MALE GENITALIA: apical cleft of penis ventral plate parabolic (Fig. 2A); field of macrosetae of penis ventral plate extends to prepodium (Fig. 2B); flabellum quadrangular.

MEASUREMENTS: CL= 10.6-10.8, CW = 3.9-4.0, AL=7.1-7.3, AW= 7.8-8.1. Pp= 5.8-6.1. Legs, I: Fe= 4.0-4.2, Ti= 2.4-2.6, Mt= 3.8-4.0; II: Fe= 6.2-6.5, Ti= 4.4-4.6, Mt=6.0-6.3; III: Fe= 8.5-8.7; Ti= 3.4-3.6, Mt= 5.7-5.9; IV: Fe= 8.5-8.7, Ti= 5.2-5.4, Mt= 10.1-10.3.

The species *Y. mutilatus* is a harvestman from the Cerrado that was originally described from Ilha Do Bananal (Goyaz) (Mello-Leitão, 1933), fluvial island in the state of Tocantins. In addition to Ilha Do Bananal (Kury, 2003), it is currently known from the Federal district, both in epigeous environments (Kury *et al*., 2022) and in caves (De Ázara & Ferreira, 2018). Here, we expand the known distribution of *Y. mutilatus* to include the state of Goiás, through individuals collected in an urban dry forest and Cerrado, demonstrating that this species has great habitat plasticity, being present both in conservation areas, anthropized forests, and caves.

NATURAL HISTORY: The individuals were collected in the leaf litter in fragments of dry forests and Cerrado habitat located in the city of Anápolis, state of Goiás, being also seen under stones. In the forests where the animals were collected, there are trails with intense visitation; despite this, the individuals were close to this visitation area, suggesting that this species has resilience to anthropic pressures. We were unable to locate any females.

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