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Anatoborus gen. nov.: a new genus of Uloboridae (Arachnida: Araneae) from Lord Howe Island, Australia

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Abstract

A new monotypic Australian genus in the spider family Uloboridae Thorell, 1869 is described, *Anatoborus* gen. nov., with *A. grayi* sp.nov. from Lord Howe Island (New South Wales) as the type species. This genus posesses relatively simplified genitalic characters for the Uloboridae, similar to two other uloborid genera, *Lehtineniana* Sherwood, 2022 and *Waitkera* Opell, 1979.

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Introduction

The spider family Uloboridae is relatively small, containing 19 genera and 278 recognised species worldwide (World Spider Catalog 2025), with greatest diversity in the tropical and subtropical zones (Opell 1979). Uloboridae are characterized by the lack of venom glands, a rare feature in spiders. They are cribellate and several genera are known to spin orb webs made from cribellate silk. The most recent review of the family is that of Opell (1979), which focused on the tropical American fauna.

Lord Howe Island is an oceanic island of volcanic origin, situated in the Pacific Ocean, 570 km east of Australia. It is believed to be at least 7 million years old and is the eroded remnant of a much larger landmass. Its biota is diverse and exhibits high levels of endemism (Cassis et al. 2003).

Several collecting expeditions to Lord Howe Island by the Australian Museum have resulted in a diverse array of spider species, many of which appear to be endemic to the island (Cassis et al. 2003). One of these, belonging to the family Uloboridae, is described here.

Methods

All material examined is deposited in the Australian Museum, Sydney, Australia (AM). Measurements in the species description are in millimetres and were taken using an Olympus SZX16 stereo microscope with graticule. Images were taken using a Leica M205 A stereo microscope with Leica DFC 500 camera and Leica Application Suite image stacking software. Images were edited using Adobe Photoshop Elements 2023. Female internal genitalia were cleared in lactic acid prior to imaging. Abbreviations used: ALE - Anterior lateral eyes; AME – anterior median eyes; CD - copulatory duct; CY - cymbium; E - embolus; EL - epigynal lobe; MS - macrose-

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tae; S - spermathecum; PLE – posterior lateral eyes; PME – posterior median eyes.

Taxonomy

Family ULOBORIDAE Thorell, 1869

Type genus ***Uloborus*** Latreille, 1806.

Diagnosis

Members of the family Uloboridae are distinguished from almost all other spiders by the lack of venom glands. They are the only cribellate spiders which spin an orb-web, have a row of trichobothria on femora II through IV, and have a prominent ventral row of macrosetae beginning on the distal half to third of metatarsus IV and extending nearly the full length of tarsus IV (Opell, 1979).

Anatoborus gen. nov.

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Type species: *Anatoborus grayi* sp. nov.

Diagnosis

Male pedipalp (Figs 1a-c) simple compared to all other Uloboridae except *Lehtineniana* and *Waitkera*, lacking all tegular apophyses apart from the embolus. Similar to that of *Lehtineniana,* with elongate, only partially flattened embolus, cymbium with elongate distal extension in contrast to short extension in *Lehtineniana* and *Waitkera*. Male lacking distal crook on tibia I (Fig. 1b) and stridulatory apparatus on endites (Fig. 1d) as found in *Lehtineniana*. ALE reduced but present in both sexes (Figs 1a,c,f) in contrast to their absence in *Lehtineniana*, AME of male on only small tubercules (Fig. 1c) compared to pronounced tubercules in male *Lehtineniana*. Female genitalia externally (Fig. 2d) similar to *Lehtineniana*, being weakly sclerotised with simple lobe over genital openings, in contrast to all other Uloboridae. Posessing a single spermatheca at the end of copulatory duct (Fig. 2e) in contrast to the paired spermathacae found in most *Lehtineniana*.

Description

See species description.

Etymology

The genus name is derived from the Greek anatos, meaning harmless and boros meaning bite. Contrasting with *Uloborus* which means deadly bite (Merriam-Webster 2024).

Remarks

The studies of Opell (1979) and Coddington (1990) conclude that *Waitkera* Opell, 1979 and *Lehtineniana* Sherwood, 2022 likely retain several plesiomorphic genitalic characters. *Waitkera* includes a single species from New Zealand described by Opell (1979) and *Lehtineniana* (previously *Tangaroa* Lehtinen, 1967) includes five species from various Pacific Islands, described by Berland (1924 & 1934), Opell (1983) and Salvatierra et al. (2015). Coddington (1990) concluded that the male palp of *Waitkera* was more likely to be closer to the primitive uloborid palp and that *Lehtineniana* was derived as it lacked all tegular apophyses other than the embolus. The genus described here is most similar to *Lehtineniana* regarding genitalic characters and is therefore also likely to be closely related, although it generic affinities remain untested in the absence of a phylogenetic analysis of the family.

Anatoborus grayi sp. nov.

Figures 1-2

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Holotype

Australia: Lord Howe Island: ♂, Mount Gower Track, 31°34′53″S 159°05′07″E, 1 – 14 Apr 2006, 560m, N. Velez, beating, AM KS.123390.

Other material examined.

1♀, Erskine Valley, 31°33′S 159°05′E, Feb 1971, M.R. Gray, KS.122170. 1♂, Mt Gower Track, base of Scaly Bark Ridge. 31° 34' 47" S 159° 04' 40" E, 25 Nov 2000, beating, M.G. Elliott, N. Plunkett-Cole, KS.75752. 1♀, Mount Gower Track, 31°34′52″S 159°05′08″E, 4 – 18 Apr 2005, 530m, N. Velez, beating, KS.121949. 1♀, Mount Gower Track, 31°34′43″S 159°05′04″E, 4 – 18 Apr 2005, 290m, N. Velez, beating, KS.121966. 1♀, Mount Gower Track, 31°31′45″S 159°05′07″E, 29 Oct – 12 Dec 2005, 390m, N. Velez, beating, KS.122048. 1♀, Mount Gower Track, 31°34′47″S 159°05′09″E, 1 – 14 Apr 2006, 430m, N. Velez, beating, KS.123227. 1♀, same data as holotype, KS.123429. 1♂, Mount Lidgbird Track, 31°33′44″S 159°05′38″E, 4 – 18 Apr 2005, 390m, N. Velez, beating, KS.122104. 1♀, Mount Lidgbird Track, 31°33′33″S 159°05′25″E, 1 – 14 Apr 2006, 260m, N. Velez, beating, KS.123318. 1♀, same data except 20 Nov – 6 Dec 2004, KS.123550. 1♀, Mount Lidgbird Track, 31°33′39″S 159°05′27″E, 20 Nov – 6 Dec 2004, 360m, N. Velez, beating, KS.123515. 1♂, south face of Mount Lidgbird, base of summit, 31°34′37″S 159°05′04″E, 28 Nov 2000, P. Flemons & J. Tarnawski, beating, KS.75666. 1♂, Stn. 40, near top of Goat House Track, 31°33′48″S 159°05′12″E, 10 Feb 1971, 466m, M.R. Gray, banyan roots, KS.122165. 1♀, same data except orb web, KS.122166. 1♀, same data except orb web in fern near rock wall, KS.122172. 1♀, Stn. 41, Goat House Cave, 31°33′54″S 159°05′18″E, 10 Feb 1971, M.R. Gray, on shrub near cliff, KS.122167. 1♂ 1♀, same data except no habitat details, KS.122169. 1♀, Stn. 45, NE area of Mount Gower summit, 31°35′12″S 159°04′42″E, 15 Feb 1971, M.R. Gray, horizontal orb, KS. 122168. 1♀, same data except in fish fern, KS.122171. 1♀, same data except orb web, KS.122173.

Diagnosis

As for genus.

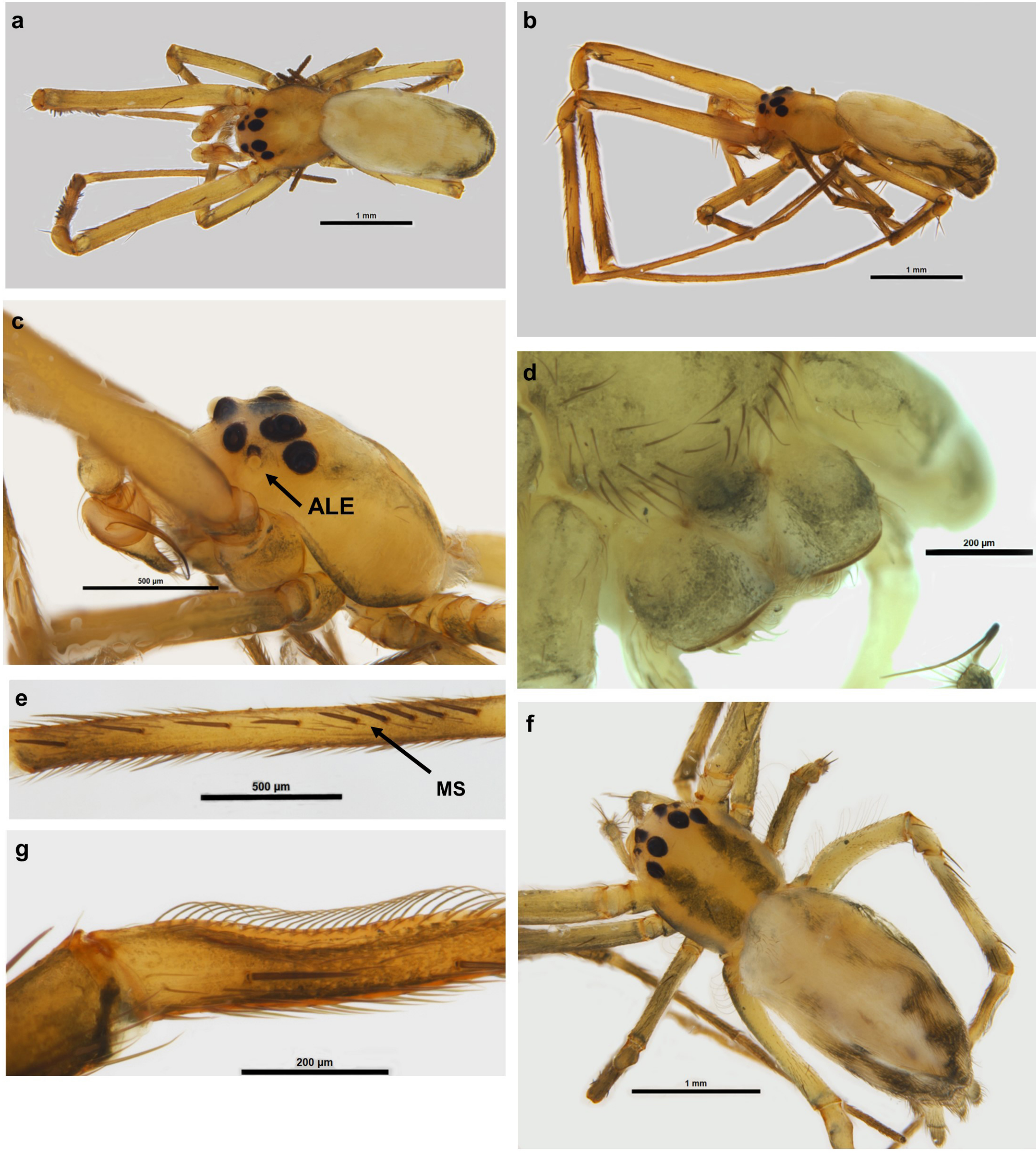

Figure 1. *Anitiborus grayi* n. sp., **a)** male (KS.122104), dorsal habitus, **b)** male (KS.122104), lateral habitus, **c)** male (KS.122104), eyes, anterio-lateral, **d)** male (KS.122165), maxillae, ventral, **e)** male (KS.122104), fore tibia, anterio-lateral row of macrosetae, **f)** female (KS.123227), dorsal habitus, **g)** female (KS.123515), calamistrum.

Description - male holotype AM KS.123390 (Figs 1a–e, 2a–c)

Body colour pale yellowish with weak darker markings on carapace, abdomen and legs. Carapace pale with 2 longitudinal darker bands, without prominent setae in eye region, with shallow fovea. Length – 1.00, width – 0.80. Eyes (Fig. 1c): Both eye rows gently recurved. All eyes surrounded by dark pigment, AME slightly elevated, ALE reduced but present. Distance between eyes; AME-AME – 0.13, ALE-ALE – 0.28, AME-ALE – 0.04, PME-PME – 0.13, PLE-PLE – 0.34, PME-PLE – 0.05. Maxillae (Fig. 1d) with serrula but lacking stridulatory file. Leg formula 1423. Leg I tibia with anterio-lateral row of 5–6 macrosetae (Fig. 1e), tibia without distal ventral notch; leg segment lengths; leg I, Femur – 1.90, patella – 0.50, tibia – 2.04, metatarsus – 2.40, tarsus – 0.90; II, 1.14, 0.38, 0.97, 0.97, 0.54; III, 0.79, 0.24, 0.56, 0.68, 0.48; IV, 1.00, 0.19, 0.60, 0.91, 0.40. Abdomen longer than wide, pale dorsally with darker lateral margins forming a foliate pattern, ventrally pale with genital area and spinnerets darker; length – 1.80, width – 1.00. Pedipalp (Figs 2a–c) with embolus elongate, flattened and broad basal-

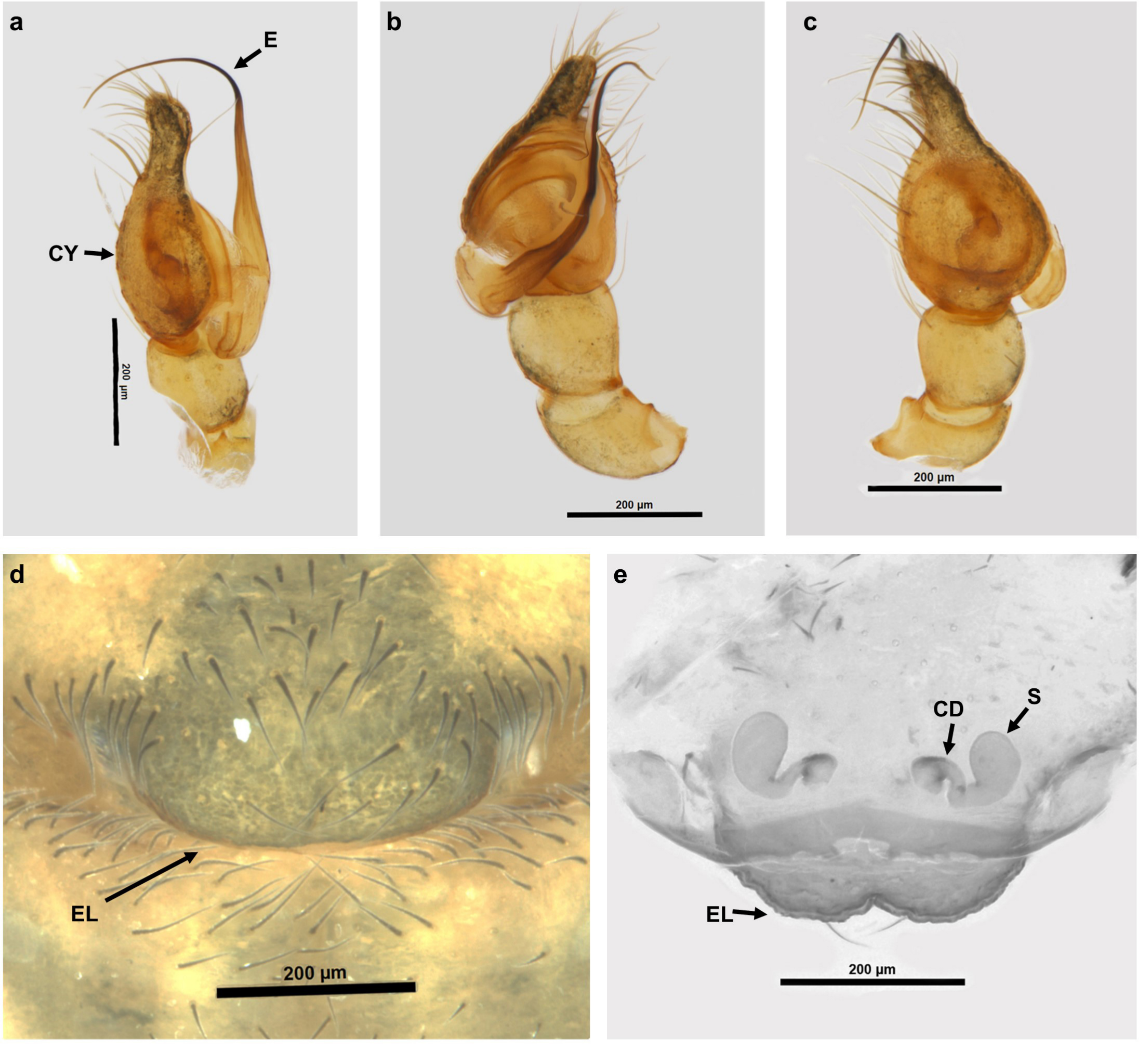

Figure 2. *Anitiborus grayi* n. sp., **a)** male (KS.122104), pedipalp, retro-lateral, **b)** same, ventral, **c)** same, dorsal, **d)** female epigynum (KS.123515), ventral, **e)** same (KS.123227), dorsal.

ly, becoming narrow and sinuous distally. Cymbium with distal extension which is broader at the tip.

Description - female AM KS.123227 (Figs 1f–g, 2d–e)

Body colour pattern and form like that of male. Carapace length – 1.13, width – 0.96. Distance between eyes; AME-AME – 0.19, ALE-ALE – 0.50, AME-ALE – 0.06, PME-PME – 0.18, PLE-PLE – 0.55, PME-PLE – 0.15. Maxillae with serrula. Leg formula 1423; leg segment lengths; leg I, femur – 1.80, patella – 0.46, tibia – 2.30, metatarsus – 2.66, tarsus – 1.06; II, 1.28, 0.40, 1.10, 1.24, 0.62; III, 0.90, 0.28, 0.68, 0.83, 0.57; IV, 2.45, 0.60, 2.20, 2.70, 1.00. Abdomen length – 1.80, width – 1.00. Epigynum (Figs 2d–e) unsclerotised externally with prominent broad lobe covering a pair of genital openings. Spermathecae consist of a single lobe at the end of a short copulatory duct.

Remarks

Little is known of the biology of this species but the collection data suggest they are mostly found on foliage and spin an orb web. Specimen collection depended on trip timing. Most trips were of short duration from late Spring to early Autumn and adults were collected over this entire period. Whether adults can be found during the cooler months is unknown. All specimens were collected from the southern half of Lord Howe Island, many from higher altitudes. It may be that this species prefers the higher rainfall and cooler temperatures found at these localities (DECC, 2007).

The terrestrial invertebrate fauna of the Lord Howe Island Group is characterised by relatively high species richness and high endemism with up to 60% of some groups comprising endemic species. More than 1600 terrestrial invertebrate species have been recorded, including 157 land and freshwater snails, 464 beetles, 27 ants, 183 spiders, 21 earthworms, 137 butterflies and moths and 71 springtails (DECC, 2007). The rate of discovery of new species remains high, indicating that numerous endemic species are yet to be discovered (DECC, 2007).

Etymology

The species is named for the late Dr Michael R. Gray (1941-2023) for his pioneering collecting of spiders on Lord Howe Island.

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