

RESEARCH PAPER

The second Malagasy species of *Anacanthiocnemis* (Hemiptera: Heteroptera: Reduviidae) with an updated key to the species of the genus

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Abstract. Based on the material collected from Toamasina, east Madagascar, we describe *Anacanthiocnemis lihui* sp. nov. as the second Malagasy representative of the genus *Anacanthiocnemis* Reuter, 1882 (Hemiptera: Heteroptera: Reduviidae: Stenopodainae). The new species presents relatively long postocular region of head, widely separated mandibular plates, and different armatures on the profemur, that allow it to be readily distinguished from its congeners. Illustrations and *COI* barcode of the new species as well as an updated key to the species of *Anacanthiocnemis* are provided. The known distribution records of *Anacanthiocnemis* are summarized, showing that the species of the genus occur mainly in tropical rainforests or savannas.

Key words. Hemiptera, Heteroptera, Reduviidae, Stenopodainae, assassin bug, new species, Madagascar, Afrotropical Region

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Introduction

The Stenopodainae is a diverse group of cryptically colored assassin bugs, currently containing about 110 genera and 770 species, ranking as the fifth largest subfamily of the Reduviidae (SCHUH & WEIRAUCH 2020, CHEN et al. 2023a). The Stenopodainae has a cosmopolitan distribution with the majority of its diversity occurring in the tropics (WEIRAUCH et al. 2014). During the past five years, exciting progress has been made in the systematics of the Stenopodainae, not only revisiting some historical issues and proposing new taxonomic changes (OKUDA 2021; CHEN et al. 2022a, 2023a, 2025; OKUDA & CHEN 2023), but also describing new taxa from the Neotropical, Oriental, and Palearctic Regions (CHEN et al. 2020a, b, 2022a, 2023b; OKUDA 2022; GIL-SANTANA et al. 2023; OKUDA et al. 2024). However, no papers on the Afrotropical Stenopodainae have been published in the last five years. The Stenopodainae fauna in Madagascar, the world's fourth largest island, has been well summarized by VILLIERS (1968a) as well as other authors (MALDONADO CAPRILES

1990, CHLOND 2010, 2011, 2016), who highlighted the astonishing richness and endemism of Stenopodainae on the island, with 19 out of the 26 genera and almost all the species recorded in Madagascar being endemic. Such faunal composition indicates that the Malagasy Stenopodainae may have complex and interesting evolutionary backgrounds.

The stenopodaine genus *Anacanthiocnemis* Reuter, 1882 was originally described as monotypic to accommodate *A. punctumnigrum* Reuter, 1882 from Dahomey (now southern Benin) (REUTER 1882). Additional species were assigned to this genus by VILLIERS (1959, 1960a, 1961, 1969, 1972) and SCHOUTEDEN (1951, 1960). SCHOUTEDEN (1960) discussed the diagnostic characters of *Anacanthiocnemis* and its differences from *Padasastra* Villiers, 1948, and transferred two species of *Padasastra* described by MILLER (1950, 1955) to the genus. Further revision of *Anacanthiocnemis* was conducted by VILLIERS (1961), who redescribed the genus, documented all species known at that time (including two described as new), and compiled an identification key to the species. To date, the genus includes 13 species, all distribu-



ted in mainland Africa, with the exception of the *A. callani* Villiers, 1960 from Madagascar.

In the present study, a new species of *Anacanthiocnemis* from Madagascar is described and illustrated as the second Malagasy representative of the genus, the identification key to the species of *Anacanthiocnemis* is updated, and the distribution of the genus is briefly discussed.

Material and methods

Material depository. Type material of the new species examined as well as of additional species used for comparison and construction of the key to the species is preserved in the following collections:

BMNH Natural History Museum, London, United Kingdom;
CAU Entomological Museum, China Agricultural University, Beijing, China;
MNHN Muséum National d'Histoire Naturelle, Paris, France;
MRAC Musée Royal de l'Afrique Centrale, Tervuren.

Morphological study. External morphological characters of the specimens were examined under a Nikon SMZ745 stereoscopic microscope. Male genitalia were soaked in hot 20% lactic acid solution for approximately ten minutes to remove soft tissue, rinsed in distilled water, and dissected under a stereoscopic microscope. Dissected genitalia were placed in a plastic vial containing glycerol and, after examination, pinned under the corresponding specimen.

Photographs were taken using a Canon 7D Mark II digital camera with a Canon EF 100mm f/2.8L IS USM macro lens for habitus, and an Olympus BX51 microscope for dissected body parts. Original images were stacked using Helicon Focus 5.3; figure plates were assembled using Adobe Photoshop CC 2020; distribution map was modified from a map downloaded from the online version of SimpleMapper (SHORTHOUSE 2010).

Measurements were obtained using a calibrated micrometer. Morphological terminology mainly follows WEIRAUCH (2008); anteroventral and posteroventral series of profemur refer to the dorsal (or inner) and ventral (or outer) row of spiniferous processes, respectively.

DNA extraction and sequencing. The holotype of *A. lihui* sp. nov. was used for DNA extraction. Total genomic DNA was extracted from thoracic muscle tissues using DNeasy Blood and Tissue Kit (Qiagen). DNA barcode sequence of a 658 bp *COI* fragment was amplified by polymerase chain reaction (PCR) with primers C1F (5'- TTYTCWACAAAYCAYAAAGAYATTGG-3' forward) and C1R (5'-AWACTTCWGGGTGWCCAAARAATCA-3' reverse) and obtained by Sanger sequencing. PCRs were conducted following the protocols in CHEN et al. (2022b). Amplification results were visualized via gel electrophoresis with GenRed gel staining and UV illuminator. The sequence was submitted to GenBank (accession number PP866784).

Nomenclature. This paper and the nomenclatural act it contains have been registered in Zoobank (www.zoobank.org), the official register of the International Commission on Zoological Nomenclature. The LSID (Life Science Identifier) number of the publication is: urn:lsid:zoobank.org:pub:D49DA093-87C8-4738-B50F-D7940B292C4E.

Results

Anacanthiocnemis Reuter, 1882

Anacanthiocnemis Reuter, 1882: 35 (original description). Type species: *Anacanthiocnemis punctumnigrum* Reuter, 1882, by monotypy.

Anacanthiocnemis: VILLIERS (1948): 365, 370 (in key, redescription, distribution, Afrotropical); SCHOUTEDEN (1960): 355 (diagnosis, discussion); VILLIERS (1961): 1212, 1214 (redescription, key, generic revision); VILLIERS (1968a): 107, 117 (in key, redescription, distribution, fauna of Madagascar); MALDONADO CAPRILES (1990): 492 (catalogue).

Diagnosis. Recognized within the Stenopodainae by the following combination of character states: head subcylindrical, with one row of setigerous processes ventrolaterally; antocular region distinctly longer than postocular; eye rounded in lateral view; visible labial segment I distinctly longer than remaining segments combined, lacking setigerous tubercles on ventral surface; profemur moderately thickened, armed ventrally with two rows of long, slender, spiniferous processes; pro- and mesotibiae lacking fossula spongiosa; tarsal formula 3-3-3; hemelytron with hexagonal cubital cell. Only the macropterous form is known.

Diversity and distribution. This genus previously contained twelve species from mainland Africa, and a single species occurring in Madagascar (Fig. 4). Another Madagascan species is added herein.

Anacanthiocnemis lihui sp. nov.

(Figs 1–3)

ZooBank LSID: urn:lsid:zoobank.org:act:60F67E08-FE91-474E-B-269-5AD9F12E76B7

Type material. HOLOTYPE: ♂, Madagascar, Toamasina, Andasibe-Mantadia National Park, 31.xii.2016, leg. Hu Li (CAU).

Diagnosis. Recognized within the genus by the following combination of character states: generally yellowish brown (Fig. 1); postocular region of head longer than eye length in lateral view (Fig. 2B); mandibular plates separated, slightly curved inwards (Fig. 2A); antennal scape 1.15 times as long as antocular region; anterior pronotal lobe 1.5 times as long as posterior lobe (Fig. 2A); posteroventral series of profemur composed of five spiniferous processes, shorter than maximum width of segment, with apical-most process shorter than others (Fig. 2D); cubital cell of hemelytron relatively broad, 1.8 times as long as its maximum width (Fig. 1A). Body length 10 mm.

DNA barcode. *COI*, GenBank accession number PP866784.

Description. Male (macropterous). **Coloration.** Generally yellowish brown (Fig. 1). Head (except for ventral surface) brown, with lateral surfaces, apical halves of mandibular plates and apices of ventrolateral processes dark brown to blackish (Figs 2A, B). Labium brown, with dorsal and ventral surfaces of visible segment I as well as apical two-thirds of visible segment III dark brown (Fig. 2B). Pronotum slightly tinged with brown on humeral angles and posterior margin (Figs 2A, B). Propleuron dark brown in dorsal half, with irregular dark brown suffusions on episternum (Fig. 2B). Prosternum with blackish midportion and brown anterolateral processes (Figs 2B, C). Scutellum dark brown medially in basal two-thirds (Fig. 2A).

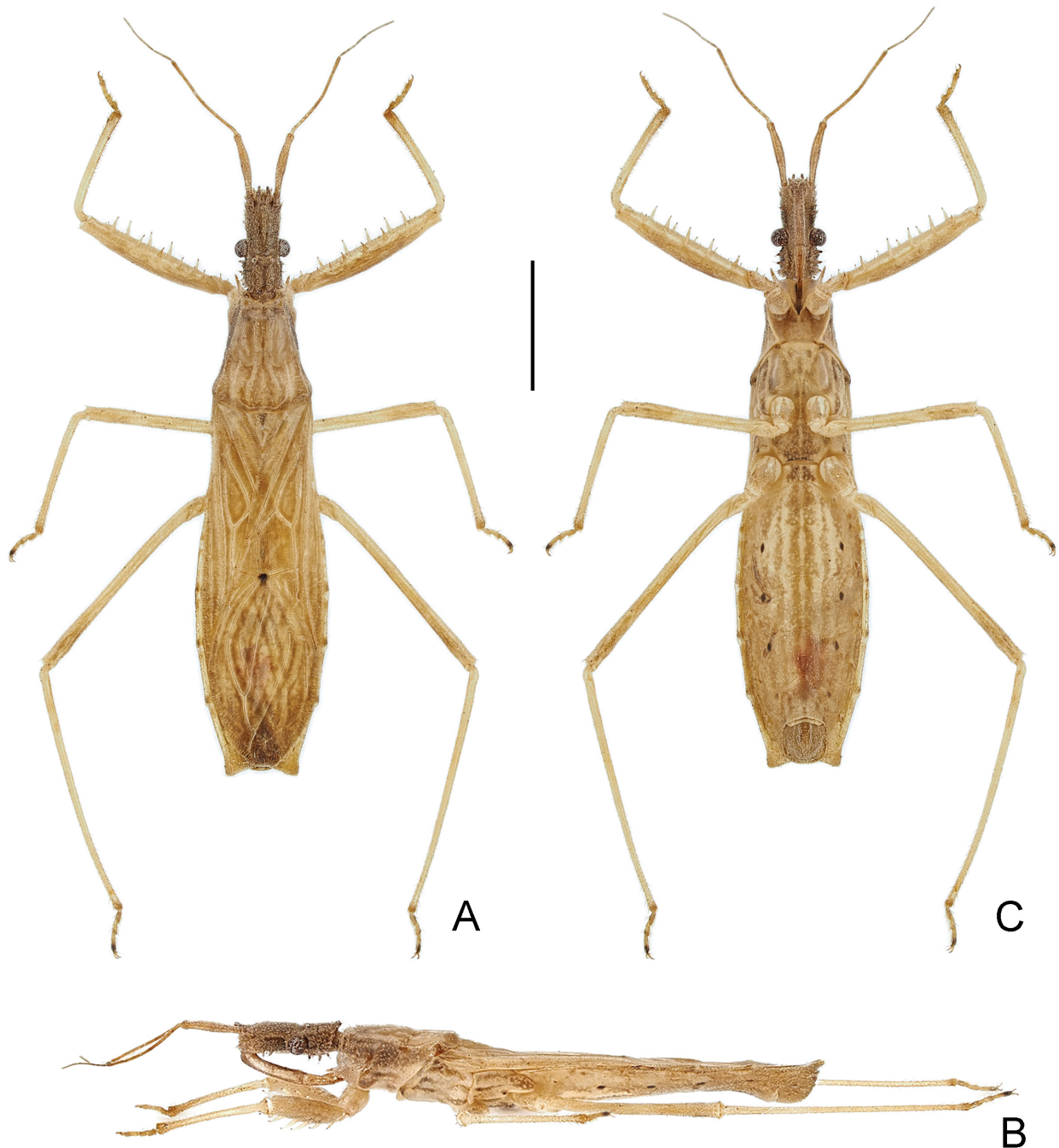


Fig. 1. *Anacanthiocnemis lihui* sp. nov., male, holotype, habitus. A – dorsal view; B – lateral view; C – ventral view. Scale bar: 2.5 mm.

Meso- and metapleura and sterna with irregular dark brown markings. Legs nearly unicolored; apices of tibiae, tarsi and claws slightly darkened; meso- and metatarsomeres III blackish in apical third. Hemelytron tinged with vague, irregular, brownish suffusions especially on membrane, with one small blackish spot at border of cubital and apical internal cells (Fig. 1A). Abdomen pale yellow to yellowish brown, with six indistinct, interrupted, brownish stripes on ventral surface (Fig. 1C); laterotergites II–VI with dark brown posterior angles (Figs 1A, C); sternites IV–VII each with one pair of small, rounded, blackish spots anteriorly (Fig. 1C).

Vestiture. Body surface dull, densely covered with decumbent, tiny, scale-like setae on head, antennal scape

and basal two-fifths of pedicel, labium, thorax, legs, coriaceous portion of hemelytron and abdomen. Head with decumbent whitish velvet on ventral surface and collum, and some erect, short setae arising from tubercles and processes anteriorly and ventrolaterally (Figs 2A–C). Apical three-fifths of antennal pedicel and flagellomeres with dense, decumbent to suberect, short pubescence. Labium with some sparsely located, erect, short setae on ventral surface. Pronotum with several bare areas as shown in Fig. 2A; disc of posterior lobe finely wrinkled. Procoxa with one erect, relatively long seta arising from distinct tubercle on dorsal surface; trochanter and femur with many erect, short setae mostly arising from tiny tubercles on ventral

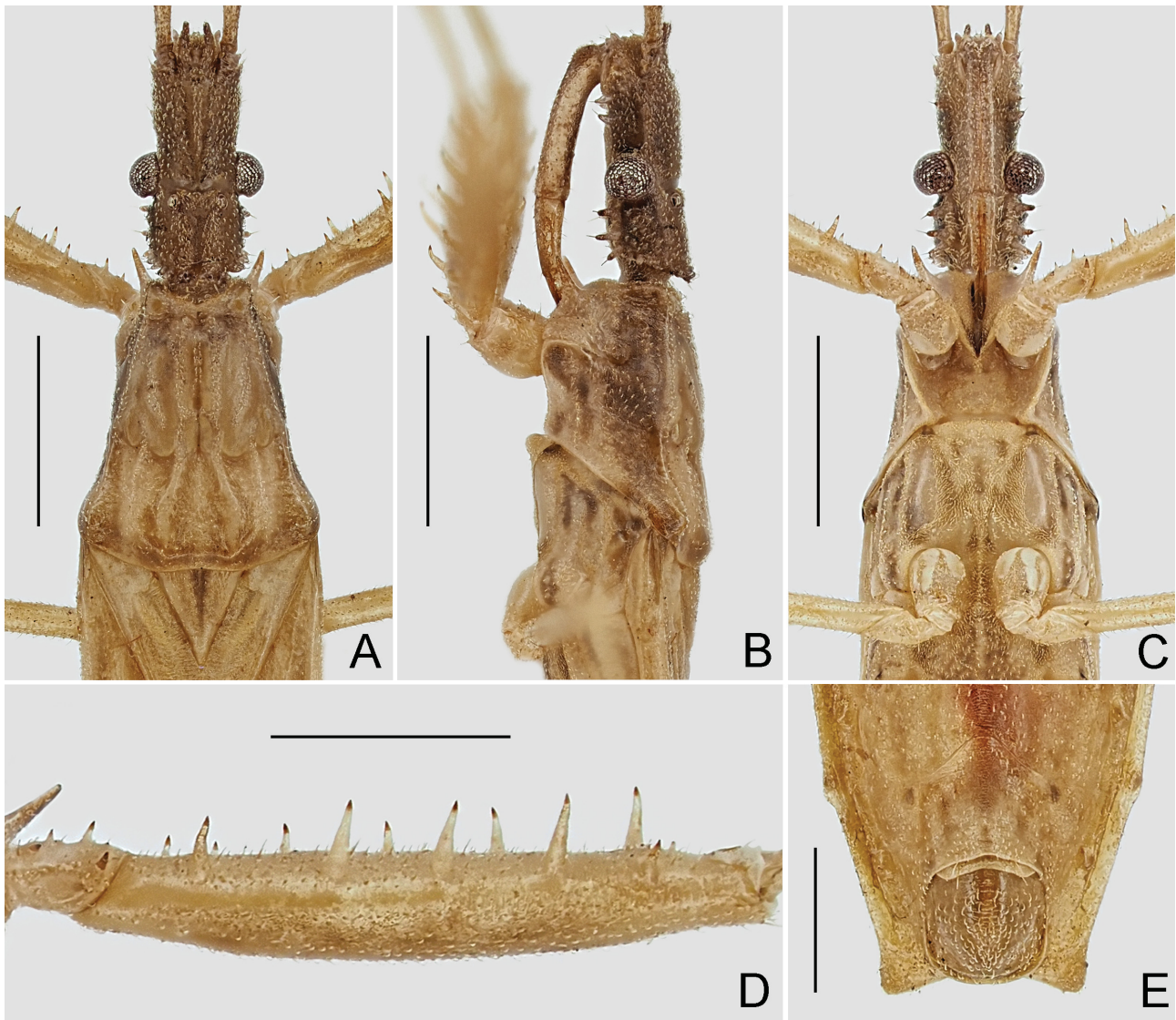


Fig. 2. *Anacanthiocnemis lihui* sp. nov., male, holotype. A–C – anterior part of body; D – profemur; E – apex of abdomen. A – dorsal view; B, D – lateral view; C, E – ventral view. Scale bar: A–C = 1.5 mm; D, E = 1.0 mm.

surface (Fig. 2D); tibia with irregular rows of erect, long setae on ventral surface, and some sparsely located, suberect to erect, long setae on apical third of dorsal surface; tarsus with dense, suberect to erect, thin setae on ventral surface. Meso- and metatibiae with suberect to erect, long setae apically; meso- and metatarsi with dense, suberect to erect, thin setae on ventral surface.

Structure. Head (Figs 2A–C) 2.1 times as long as width across eyes; anteocular region 1.75 times as long as postocular, with one or two large setigerous processes ventrolaterally, and four to five smaller ones laterally in anterior half (Fig. 2B); postocular region longer than eye length in lateral view, with three large setigerous processes ventrolaterally, and some smaller ones along posterior margin (Fig. 2B); mandibular plates finger-like, separated, slightly curved inwards, distinctly surpassing apex of head, with blunt apices (Fig. 2A). Eye (Figs 2A–C) moderate-sized, protruding laterally, slightly surpassing ventral margin of head in lateral view; width across eyes 1.9 times as broad as interocular space. Ocelli (Figs 2A, B) widely separated,

closer to eye than to each other. Antennal scape stout, slightly curved, 1.15 times as long as anteocular region, narrowed basally and apically; pedicel slender, slightly curved, 1.5 times as long as scape; distiflagellomere about two times as long as basiflagellomere.

Pronotum (Figs 2A, B) 1.1 times as long as width across eyes, 1.05 times as long as head; anterior lobe 1.5 times as long as posterior lobe, with shallow, median, longitudinal sulcus in posterior half; posterior lobe with four indistinct, submedian carinae in anterior half, humeral angles rounded and slightly elevated, posterior margin finely concave at midpoint. Prosternum with one pair of long, anteriorly diverging, spine-like processes anterolaterally (Figs 2A–C). Scutellum (Fig. 2A) triangular, 1.15 times as long as basal width, with shallow, median, longitudinal sulcus in basal two-thirds.

Fore leg robust; coxa with one distinct setigerous tubercle on dorsal surface; trochanter (Fig. 2D) with one large and two small spiniferous processes on ventral surface; femur (Fig. 2D) moderately thickened, about six times as long as

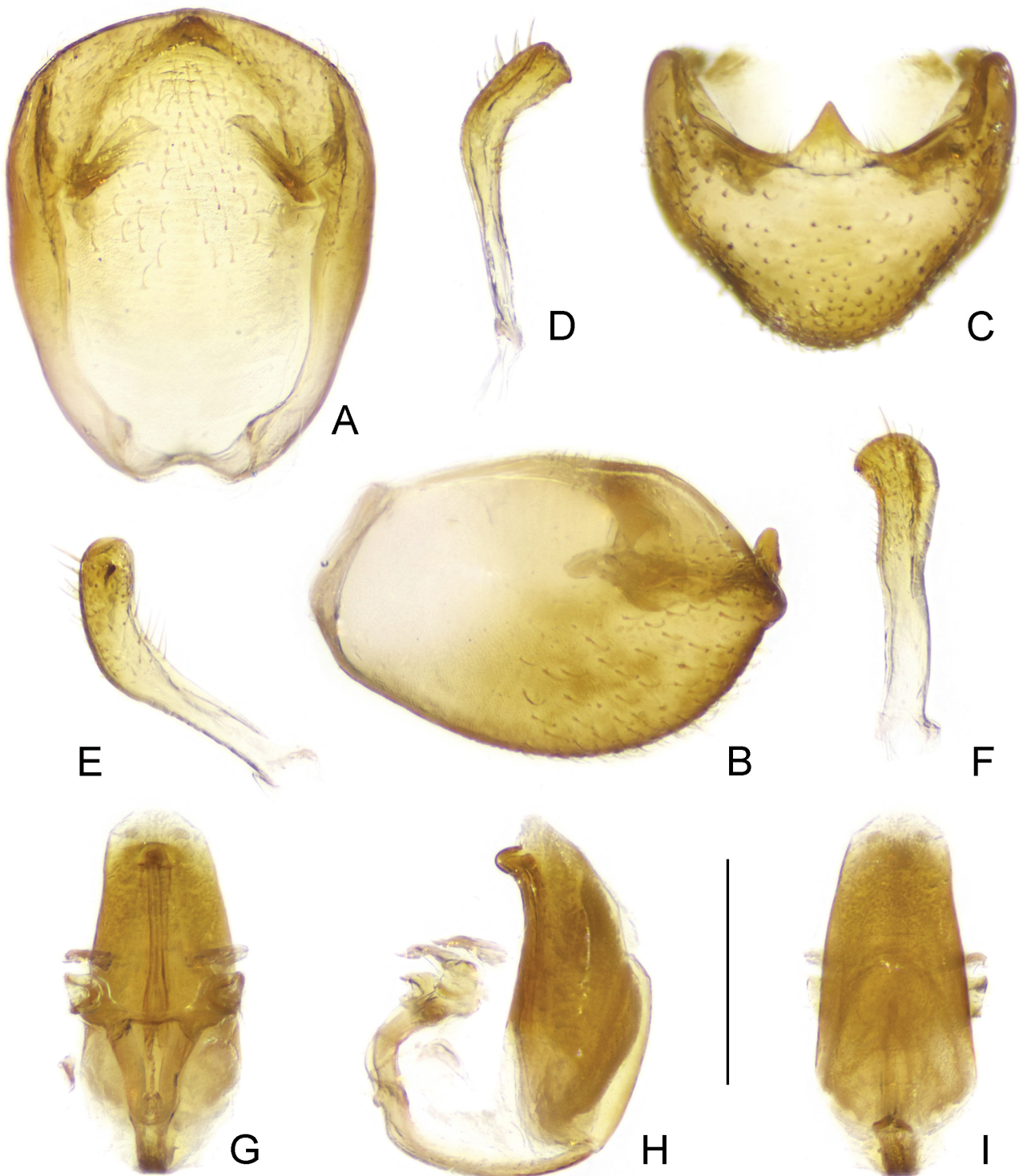


Fig. 3. *Anacanthiocnemis lihui* sp. nov., male, holotype, genitalia. A–C – pygophore; D–F – paramere; G–I – phallus. A, G – dorsal view; B, H – lateral view; C – caudal view; I – ventral view. Scale bar: 1.0 mm.

its maximum width, armed ventrally with two rows of short to long, curved, spiniferous processes; length of processes shorter than maximum width of profemur; anteroventral series composed of two short and four long processes; posteroventral series composed of four long and one short processes; tibia nearly straight, 0.75 times as long as femur; tarsomere III nearly as long as remaining segments combined. Middle leg slender, relatively short, with tibia slightly shorter than femur. Hind leg slender, with tibia 1.2

times as long as femur. Hemelytron (Fig. 1A) reaching apex of abdomen, with rounded apex; cubital cell 1.8 times as long as its maximum width (Fig. 1A).

Abdomen 2.2 times as long as its maximum width, with simple lateral margins. Anterior margins of sternites III–VII moderately to strongly curved anteriorly at mid-portion (Fig. 1C). Posterolateral angles of segment VII broad triangular, slightly protruding posterolaterally, with blunt apices (Fig. 2E). Segment VIII narrowly exposed in

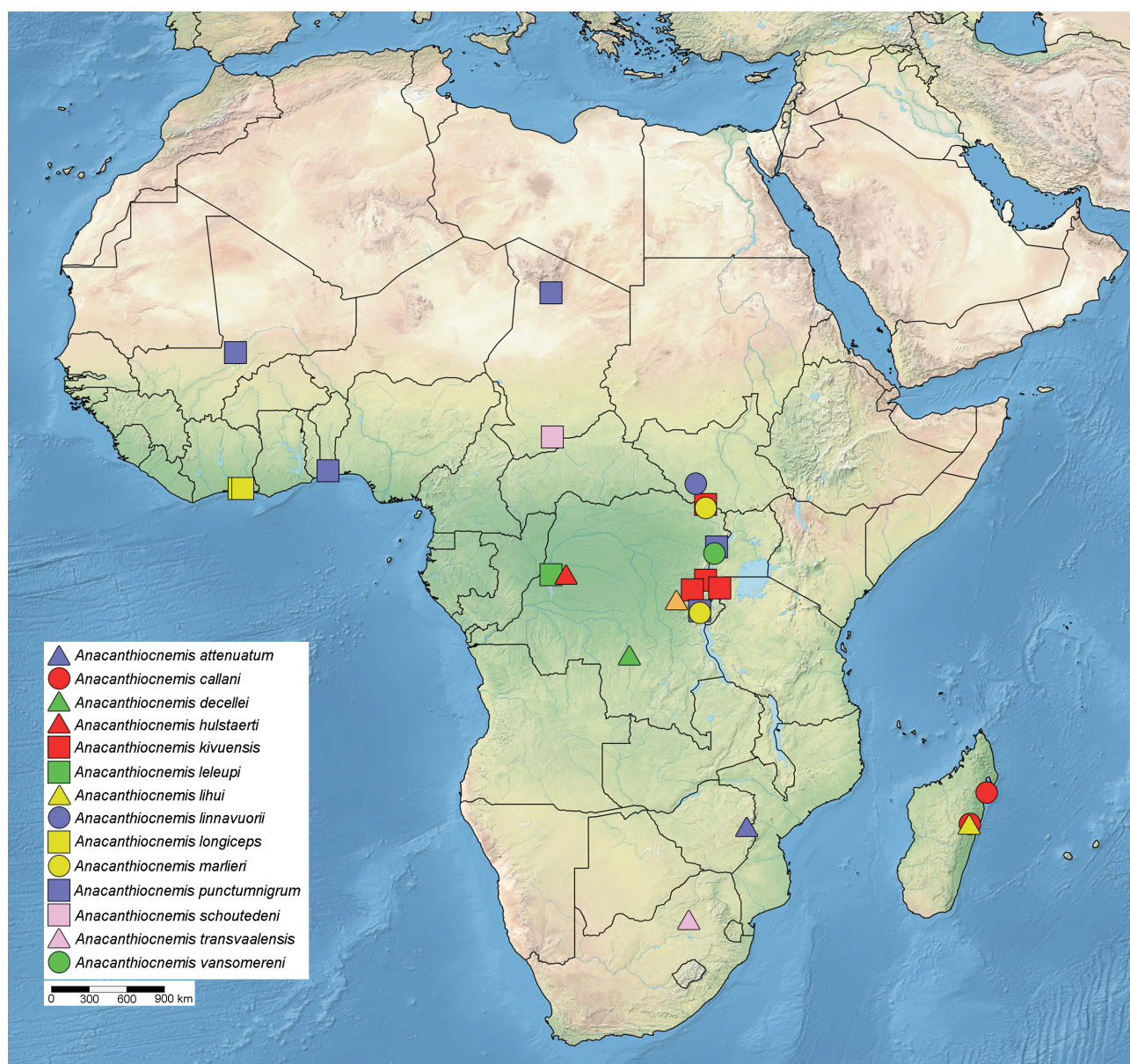


Fig. 4. Known distribution of *Anacanthiocnemis* species.

lateral and ventral views, with posterior margin weakly concave (Fig. 2E).

Male genitalia. Pygophore (Figs 3A–C) oval, with broadly rounded posterior margin; ventral surface moderately inflated, weakly emarginated subapically in lateral view (Fig. 3B); median process triangular, erect, with blunt apex (Figs 3B, C). Paramere (Figs 3D–F) paddle-like, curved at midpoint, slightly widened in apical half, with short, subacute process subapically on inner surface. Phallus as shown in Figs 3G–I; articulatory apparatus moderately sclerotized, with separate and diverging basal plate arms, short and narrow ponticulus basilaris, and elongate basal foramen (Fig. 3G); basal plate extension longer than basal plate arms (Fig. 3H); dorsal phallothecal sclerite well sclerotized, nearly tongue-shaped, curved upwards at apex (Figs 3G, H); struts straight, fused to each other, reaching apex of dorsal phallothecal sclerite (Fig. 3G); endosoma

largely membranous, with ventral sclerite in basal half (Figs 3H, I).

Measurements (♂ (n = 1), in mm). Length of body (to apex of abdomen) 10.00; length of head 2.00; length of anteocular region 1.05; length of postocular region 0.60; width across eyes 0.95; interocular space 0.50; interocellar space 0.30; length of antennal segments I–IV = 1.20, 1.80, 0.40, 0.85; length of visible labial segments I–III = 1.20, 0.60, 0.40; length of pronotum 2.10; length of anterior pronotal lobe 1.25; length of posterior pronotal lobe 0.85; width of anterior pronotal lobe 1.40; width of posterior pronotal lobe 1.95; median length of scutellum 0.75; basal width of scutellum 0.65; length of fore femur, tibia, tarsus = 2.85, 2.10, 0.65; length of mid femur, tibia, tarsus = 2.45, 2.40, 0.60; length of hind femur, tibia, tarsus = 4.10, 4.85, 0.70; length of hemelytron 7.00; length of abdomen 5.70; maximum width of abdomen 2.60.

Female. Unknown.

Etymology. The specific epithet is dedicated to our colleague Hu Li (CAU) who collected the holotype of this new species.

Distribution. Madagascar: Toamasina (Fig. 4).

Discussion

Comparative notes. The new species can be easily distinguished from its only known Malagasy congener *A. callani* by the following character states: postocular region of head distinctly longer than eye length in lateral view (*versus* subequal in length in *A. callani*); antennal scape distinctly longer than anteocular region (*versus* shorter than anteocular in *A. callani*); spiniferous processes of profemur shorter than maximum width of segment (*versus* longer in *A. callani*); posteroventral series of profemur composed of five processes (*versus* with four processes in *A. callani*). The posterolateral angles of the abdominal segment VII are also different in shape between the males of these two species.

The new species superficially resembles *A. decellei* Schouteden, 1960 from the Democratic Republic of the Congo, but can be separated from the latter by anteriorly pointed and widely separated mandibular plates (*versus* anteriorly converged and fused at apices in *A. decellei*); anterolaterally produced processes of prosternum (*versus* produced anteriorly in *A. decellei*); spiniferous processes of profemur shorter than maximum width of the segment (*versus* distinctly longer than maximum width of profemur in *A. decellei*); and relatively broad cubital cell of hemelytron about 1.8 times as long as its maximum width (*versus* elongate, about 2.1 times in *A. decellei*).

The new species will run to *A. transvaalensis* Villiers, 1961 according to the key provided in VILLIERS (1961). The new species differs from the latter in the following character states: postocular region of head longer than eye length in lateral view (*versus* subequal in length in *A. transvaalensis*); ocellus small, narrower than distance between it and eye (*versus* large, wider than the distance in *A. transvaalensis*); anterior pronotal lobe distinctly longer than posterior lobe (*versus* subequal in length in *A. transvaalensis*); cubital cell of hemelytron broader, about 1.8 times as long as its maximum width (*versus* elongate, about 2.2 times in *A. transvaalensis*); abdomen with four pairs of blackish spots beneath (*versus* lacking such spots in *A. transvaalensis*). The shape of the posterolateral angles of the abdominal segment VII is different between the two species.

The species of *Anacanthiocnemis* can be identified by the following key. Since the armature of the posteroventral series is different between the left (has five spiniferous processes) and right (has four spiniferous processes) profemora in the holotype of *A. marlieri* Schouteden, 1960 (♀ in MRAC, examined), this species is placed in two different couplets in the key. No specimen of *A. linnavuorii* Villiers, 1969 was available for this study, and its character states are derived from the original description (VILLIERS 1969).

Key to species of *Anacanthiocnemis*.

Modified from VILLIERS (1961).

- 1 Mandibular plates short, separated, nearly parallel or divergent. 2
 - Mandibular plates long, converging anteriorly, touching at apices. 9
- 2 Posteroventral series of profemur composed of four spiniferous processes. 3
 - Posteroventral series of profemur composed of five to six spiniferous processes. 4
- 3 Trochanter armed ventrally with two spiniferous processes apically. *A. callani* Villiers, 1960
 - Trochanter armed ventrally with one spiniferous process apically. *A. schoutedeni* Villiers, 1961
- 4 Spiniferous processes of posteroventral series longer than maximum width of profemur. 5
 - Spiniferous processes of posteroventral series shorter than maximum width of profemur. 8
- 5 Postocular region of head longer than eye length in lateral view. *A. vansomereni* (Miller, 1955)
 - Postocular region of head not longer than eye length in lateral view. 6
- 6 Anterior lobe of pronotum nearly as long as posterior lobe. *A. attenuatum* (Miller, 1950)
 - Anterior lobe of pronotum distinctly longer than posterior lobe. 7
- 7 Generally yellowish brown to pale brown; pro- and mesotibiae each with two narrow brownish annuli subbasally and submedially.
 - *A. punctumnigrum* Reuter, 1882
 - Generally dark brown; pro- and mesotibiae unicolorous, lacking annulus. *A. leleupi* Villiers, 1972
- 8 Postocular region of head longer than eye length in lateral view; anterior lobe of pronotum distinctly longer than posterior lobe; abdomen with four pairs of small blackish spots ventrally. *A. lihui* sp. nov.
 - Postocular region of head nearly as long as eye length in lateral view; anterior and posterior lobes of pronotum subequal in length; abdomen lacking blackish spots ventrally. ... *A. transvaalensis* Villiers, 1961
- 9 Posteroventral series of profemur composed of four spiniferous processes. 10
 - Posteroventral series of fore femur composed of five spiniferous processes. 11
- 10 Postocular region of head wider than long in dorsal view, with distinct constrictions laterally behind eyes.
 - *A. hulstaerti* Schouteden, 1960
 - Postocular region of head as long as wide in dorsal view, without constrictions behind eyes.
 - *A. marlieri* Schouteden, 1960
- 11 Ocellus large, wider than distance separating it from eye. 12
 - Ocellus small, narrower than distance separating it from eye. *A. decellei* Schouteden, 1960
- 12 Anterior lobe of pronotum distinctly longer than posterior lobe. 13
 - Anterior lobe of pronotum nearly as long as posterior lobe. *A. kivuensis* Schouteden, 1951

- 13 Apical two spiniferous processes of posteroventral series of profemur distinctly shorter than others.
 *A. longiceps* Villiers, 1959
- At least penultimate spiniferous processes of posteroventral series of profemur long. 14
- 14 Antennal scape as long as antecular region of head; apical-most spiniferous process of posteroventral series of fore femur long.
 *A. marlieri* Schouteden, 1960
- Antennal scape shorter than antecular region of head; apical-most spiniferous process of posteroventral series of fore femur very short.
 *A. linnavuorii* Villiers, 1969

DNA barcode. The standard *COI* barcode of the new species was sequenced in course of the present study as a voucher for its molecular identification. However, we did not introduce this data into broader comparative or phylogenetic analyses because there are currently no molecular data available for other species of *Anacanthiocnemis*, and it is not plausible to infer higher phylogenetic relationships based on such a short sequence. This molecular data will be useful in future studies by combining additional sequences.

Distribution of *Anacanthiocnemis*. The known distribution records of each species of *Anacanthiocnemis* are summarized in Fig. 4 and Table 1. The two Malagasy species are found in the eastern part of the island, which is mainly covered by humid forests; both of the two species have been discovered in the Andasibe-Mantadia National Park in Toamasina, showing their potential sympatric distribution. Regarding the species occurring in mainland Africa, most of them are distributed around the Congo Basin; two species (*A. longiceps* Villiers, 1959

and *A. punctumnigrum*) are reported in western Africa along the Gulf of Guinea; and two species (*A. attenuatum* (Miller, 1950) and *A. transvaalensis*) are found in southeast Africa. Based on the current distribution records, species of *Anacanthiocnemis* mainly inhabit tropical rainforests or savannas, but the single record of *A. punctumnigrum* from the Tibesti Mountains in northern Africa (VILLIERS 1960b) appears to be distinctive, where the environment is more arid.

It appears that the species of *Anacanthiocnemis* prefer vegetated environments, which may be driven by the occurrence of their prey, although other environmental factors such as annual temperature range and annual precipitation also play a role. The distribution of *Anacanthiocnemis* is restrictive and disjunctive, partly because of the disjunctive distribution of rainforests and savannas across the African continent and Madagascar, and also due to the lack of data in many areas. It is beyond the scope of this study to explain the ecological or evolutionary drivers underlying the distribution of *Anacanthiocnemis*, but further field investigations, especially in rainforest and savanna habitats, would enrich the basic data for exploring the issue. In addition, habitat-suitability predictions through the ecological niche modeling method would help to carve out niche preferences and potential distributions of species, and thus provide valuable information about their ecological adaptations and biogeography, as has been conducted in other reduviids (CHLOND & BUGAJ-NAWROCKA 2014, 2015).

Although *Anacanthiocnemis* has a wide distribution range across Africa, most species have a single or few findings in a restricted area, and their biological habits remain unknown. Many species of the genus are described from a single sex, suggesting that future field investigation

Table 1. Described species of *Anacanthiocnemis* and their known distribution.

Species	Distribution	References
<i>A. attenuatum</i> (Miller, 1950)	Uganda*, Zimbabwe	MILLER (1950), MALDONADO CAPRILES (1990)
<i>A. callani</i> Villiers, 1960	Madagascar	VILLIERS (1960a, 1961, 1968a)
<i>A. decellei</i> Schouteden, 1960	DR Congo	SCHOUTEDEN (1960), VILLIERS (1961)
<i>A. hulstaerti</i> Schouteden, 1960	DR Congo	SCHOUTEDEN (1960), VILLIERS (1961)
<i>A. kivuensis</i> Schouteden, 1951	DR Congo, Rwanda	SCHOUTEDEN (1951), VILLIERS (1961, 1964)
<i>A. leleupi</i> Villiers, 1972	DR Congo	VILLIERS (1972)
<i>A. lihui</i> sp. nov.	Madagascar	Present study
<i>A. linnavuorii</i> Villiers, 1969	South Sudan	VILLIERS (1969)
<i>A. longiceps</i> Villiers, 1959	Côte d'Ivoire	VILLIERS (1959, 1961, 1968b)
<i>A. marlieri</i> Schouteden, 1960	DR Congo	SCHOUTEDEN (1960), VILLIERS (1961, 1964)
<i>A. punctumnigrum</i> Reuter, 1882	Benin, Chad, DR Congo, Guinea*, Côte d'Ivoire*, Mali	REUTER (1882), VILLIERS (1961, 1962), MALDONADO CAPRILES (1990)
<i>A. schoutedeni</i> Villiers, 1961	Chad	VILLIERS (1961)
<i>A. transvaalensis</i> Villiers, 1961	South Africa	VILLIERS (1961)
<i>A. vansomereni</i> (Miller, 1955)	Uganda	MILLER (1955)

*) These records are provided in MALDONADO CAPRILES (1990) but lack detail information, thus need to be re-checked. These records are not included in the distribution map.

and taxonomic revision are necessary for clarifying their identities and natural history.

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