

**Two new species of the genus *Awas*  
from Central and East China  
(Coleoptera: Staphylinidae: Pselaphinae)**

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**Abstract.** Two new species, *Awas kayan* sp. nov. from Hunan, Central China and *Awas loebli* sp. nov. from Zhejiang, East China are described and their diagnostic features illustrated with photos and line drawings. An updated key to *Awas* species is included. The distribution of the genus is mapped and briefly discussed.

**Key words.** Coleoptera, Pselaphinae, *Awas*, taxonomy, new species, identification key, China, Oriental Region

### **Introduction**

Since the publication of our last paper describing *Awas sinicus* Yin & Li, 2010 from the Yunnan Province, South China (YIN et al. 2010), we have examined two additional specimens of the genus from Central and East China, both representing undescribed species. These new species significantly extend the known range of the genus *Awas* Löbl, 1994 (see Fig. 6) with *Awas kayan* sp. nov. from the Hunan Province and *A. loebli* sp. nov. from the Zhejiang Province. The new species are described and illustrated in this paper, with an identification key to all known *Awas* species.

### **Material and methods**

The terminology used in this paper largely follows CHANDLER (2001), except for using the term ‘ventrite’ instead of ‘sternite’ when concerning the meso- and metathoracic structures. A slash (/) is used to separate lines on the same label, a double slash (//) is used to separate different labels. The type material is deposited in the Insect Collection of Shanghai

Normal University (SNUC). All measurements are in millimeters. The following acronyms are used in the text:

AL	length of the abdomen along the midline;
AW	maximum width of the abdomen;
BL	length of the body (= HL + PL + EL + AL);
EL	length of the elytra along the suture;
EW	maximum width of the elytra;
HL	length of the head from the anterior clypeal margin to the occipital constriction;
HW	width of the head across the eyes (including eyes);
PL	length of the pronotum along midline;
PW	maximum width of the pronotum.

The type series of *Awas rajah* Nomura & Idris, 2004 and *Awas shunichii* Nomura, 2005 deposited in National Science Museum, Tokyo, Japan were examined for comparative purposes (Fig. 5). Their label data are cited below:

*Awas rajah* (Figs. 5a–b): HOLOTYPE: ♂: labeled ‘Endau-Rompin Nat. Res. / FIT St. 2: fogging site / [Pahang: Malaysia] / 6-9.vii.2003, S. Nomura leg. // [red] HOLOTYPE / NSMT-I-C-200109 / Staphylinidae / *Awas rajah* / Nomura et Idris, 2004’. PARATYPE: ♂: labeled ‘Endau-Rompin Nat. Res. / FIT St. 1: nr. Shalet, 150 m / [Pahang: Malaysia] / 6-9.vii.2003, S. Nomura leg. // [blue] PARATYPE / NSMT-I-C-200109 Staphylinidae / *Awas rajah* / Nomura et Idris, 2004’.

*Awas shunichii* (Figs. 5c–d): HOLOTYPE: ♂: labeled ‘Mt. T’êngchih (1,550 alt.) / Paoshan-ts’un, T’aoyüan-hsiang / Kaohsiung-hsien, TAIWAN / 1.xi.1989, Hirotsugu Ono leg. // [red] HOLOTYPE // COLEOPTERA, Pselaphidae // *Awas shunichii* Nomura, 1995 // Type No. 2949’.

## Description of new species

### *Awas kayan* sp. nov.

(Figs. 1–2, 6)

**Type locality.** Central China, Hunan Province, Zhang-Jia-Jie Natural Reserve, 1,000 m a.s.l., 29°36’46”N, 110°27’22”E (Fig. 6).

**Type material.** HOLOTYPE: ♂ (SNUC): labeled ‘CHINA: Hunan Province / Zhangjiajie N. R. / 13.viii.2004, alt. 1,000 m / Jiang-Hua Huang leg. // [red] Holotype / *Awas kayan* / Yin & Li sp. n. / det. 2012’.

**Diagnosis.** Head strongly elongate, much longer than pronotum; pronotum with lateral margins broadly and shallowly emarginate at level of antebasal sulcus, lacking distinct setal tuft; elytra convex and strongly rounded laterally.

**Description.** Male (Fig. 1): BL 3.70; body reddish-brown, mouth parts and tarsi lighter. Head strongly elongate (HL 1.05, HW 0.50) (Figs. 2a–b), uniformly densely punctate; pubescence directed anteriorly; anterior frontal margin roundly protruding medially, then slightly emarginate admesally; postocular margins gradually narrowed to basal third, then parallel toward occipital constriction; lacking dense setae around genae; gula with thin and short mesal sulcus in basal half; eyes prominent, situated at mid-length of anterior head, each with about 65 facets; maxillary palpi (Fig. 2d) with palpomeres I short, II elongate, slightly dilated distally, III nearly triangular, IV nearly oval, with membranous apical palpal cone; antennae (Fig. 2c) gradually thickened through entire length.



Fig. 1. Dorsal habitus of *Awas kayan* sp. nov., holotype. Scale = 1.0 mm.

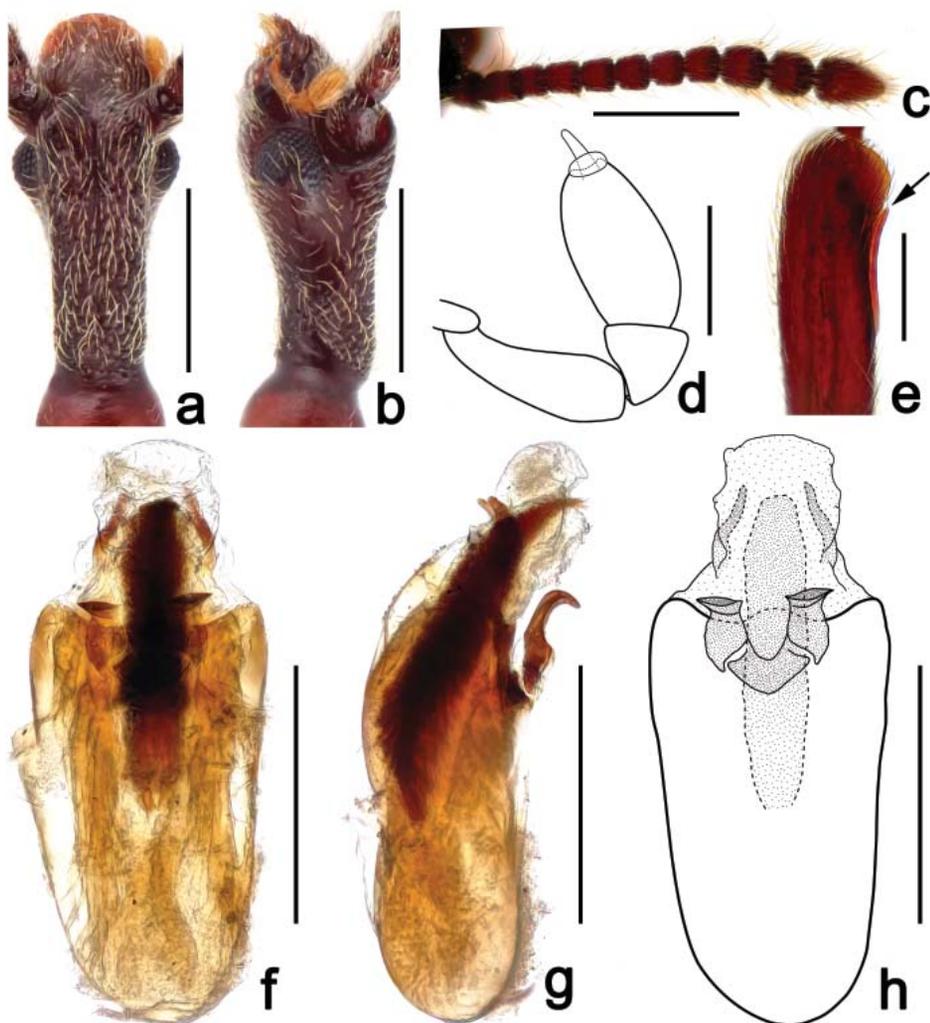


Fig. 2. Details of *Awas kayan* sp. nov. a – head, in dorsal view; b – same, in lateral view; c – right antenna; d – maxillary palpus; e – apex of profemur, detail; f, h – aedeagus, in ventral view; g – same, in lateral view. Scales: a–c = 0.5 mm, d = 0.1 mm, e = 0.2 mm, f–h = 0.3 mm.

Pronotum slightly longer than wide (PL 0.68, PW 0.59); with pubescence similar to that on head; dorsal surface with deep T-shaped antebasal sulcus; punctation fine, coarser between antebasal sulcus and pronotal base. Prosternum with long, erect admesal pubescence, pubescence on lateral margins much sparser.

Elytra slightly longer than wide (EL 1.27, EW 1.18); widest at basal two-fifths, strongly narrowed basally and weakly narrowed apically; each elytron with one distinct basal fovea; lacking humeral angles and with complete sutural striae; pubescence denser along posterior

margin than on surface. Mesoventrite with dense long pubescence lateral to mesocoxal cavities; metaventrite strongly swollen medially, forming distinct oval hump, with dense long pubescence laterally to hump. Legs slender; profemora with indistinct preapical denticle (Fig. 2e); tibiae with dense short apical setae.

Abdomen wider than long (AL 0.70, AW 1.00); tergite IV largest, fused with sternite IV, basomedian portion with patch of pubescence directed medially, otherwise pubescence of abdomen short and oriented posteriorly. Aedeagus slightly sclerotized (Figs. 2f–h), length 0.69 mm; median lobe truncate apically; endophallus covered with numerous hair, apical half with pair of sclerites curved dorsally; parameres hook-like, strongly curved ventrally.

Female. Unknown.

**Comparative notes.** General appearance more similar to *Awas shunichii*, *A. sinicus* and *A. loebli* sp. nov. described below than to *A. giraffa* and *A. rajah*. *Awas kayan* sp. nov. can be quickly separated from all other species by the pronotum with lateral margins broadly and shallowly emarginate at the level of the antebasal sulcus. *Awas giraffa* and *A. rajah* share straight lateral margins in the basal half of the pronotum, while *A. shunichii*, *A. sinicus* and *A. loebli* sp. nov. have the pronotal lateral margins deeply incised at the level of the antebasal sulcus.

**Etymology.** The specific name ‘*kayan*’ is taken from the tribal name of a group of Red Karen (Karenni) people. Women of this group are known for wearing brass neck coils. The name refers to the greatly elongate head of the new species.

**Biology.** The individual was captured by sifting leaf litter in a broad-leaved forest.

**Distribution.** Currently known only from the type locality (Fig. 6).

### *Awas loebli* sp. nov.

(Figs. 3–4, 6)

**Type locality.** East China, Zhejiang Province, West Tianmushan Mountain, 400 m a.s.l., 30°12'05"N, 119°23'55"E (Fig. 6).

**Type material.** HOLOTYPE: ♂ (SNUC): labeled ‘CHINA: Zhejiang Province / W. Tianmushan Mt. / 3.x.–6.xi.2011, alt. 400 m / Rui Pan leg., FIT // [red] Holotype / *Awas loebli* / Yin & Li sp. n. / det. 2012’.

**Diagnosis.** Head moderately elongate, slightly longer than pronotum; pronotum with lateral margins deeply incised adjacent at level of antebasal sulcus, basolateral margins moderately incised posterior to level of antebasal sulcus, with setal tufts at incisions; elytra convex, with rounded lateral margins.

**Description.** Male (Fig. 3). BL 3.53; body reddish-brown, mouth-parts and tarsi lighter. Head relatively short (Figs. 4a–b), HL 0.89, HW 0.48, uniformly densely punctate; pubescence directed anteriorly; anterior frontal margin roundly protruding medially, then indistinctly emarginate admesally; postocular margins gradually narrowed to basal fourth, then parallel toward occipital constriction; lacking dense setae around genae; gula with thin and short mesal sulcus in basal half; eyes prominent, situated at mid-length of anterior head, each with about 65 facets; maxillary palpi (Fig. 4d) with palpomeres I short, II elongate, slightly dilated distally, III nearly triangular, IV nearly oval, with membranous apical palpal cone; antennae (Fig. 4c) gradually thickened through entire length.

Pronotum longer than wide, PL 0.71, PW 0.55; with pubescence similar to head; with deep T-shaped antebasal sulcus; punctation fine, more coarse along pronotal base; prosternum



Fig. 3. Dorsal habitus of *Awas loebli* sp. nov., holotype. Scale = 1.0 mm

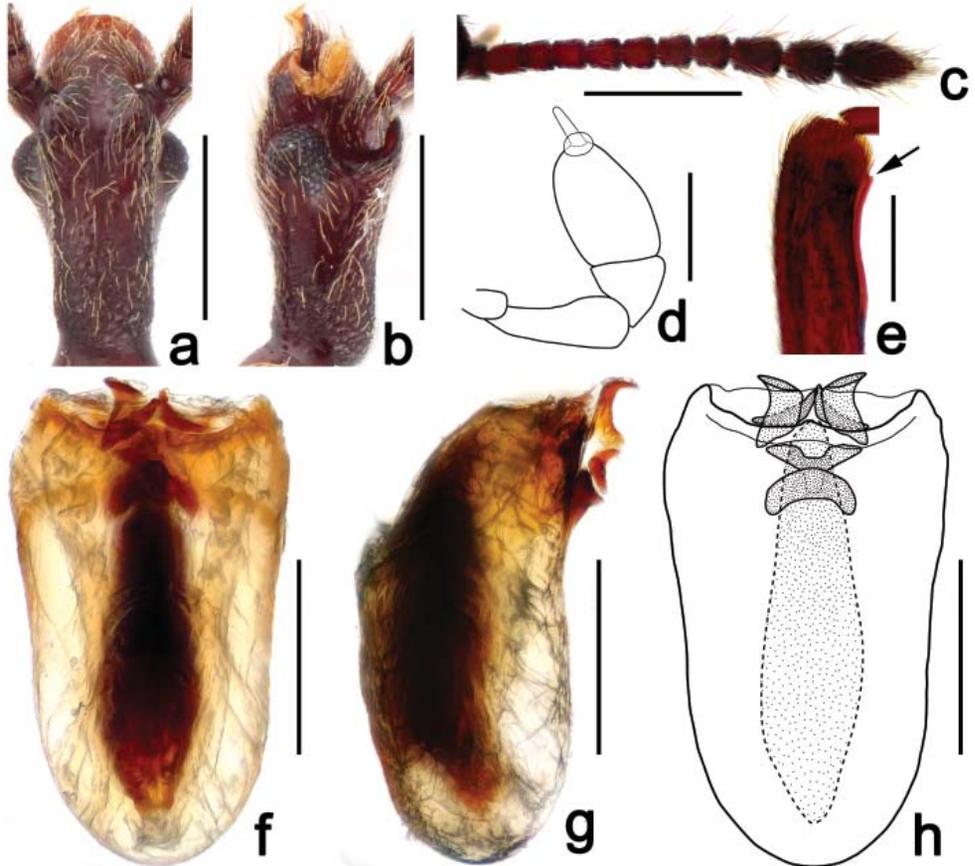


Fig. 4. Details of *Awas loebli* sp. nov. a – head, in dorsal view; b – same, in lateral view; c – right antenna; d – maxillary palpus; e – apex of profemur, detail; f, h – aedeagus, in ventral view; g – same, in lateral view. Scales: a–c = 0.5 mm, d = 0.1 mm, e = 0.2 mm, f–h = 0.3 mm.

with long pubescence paramedially and anterolaterally, pubescence on lateral margins much more sparse.

Elytra slightly longer than wide (EL 1.22, EW 1.07), widest near middle, strongly narrowed basally and weakly narrowed apically; each elytron with distinct basal fovea, faint humeral angles and complete sutural striae. Elytral pubescence denser along posterior margin than on disc. Mesosventrite with dense, long pubescence lateral to mesocoxal cavities; metaventrite strongly swollen medially, forming distinct oval hump, with dense long pubescence lateral to hump. Legs slender; profemora with tiny preapical denticle (Fig. 4e); tibiae with dense short apical setae.

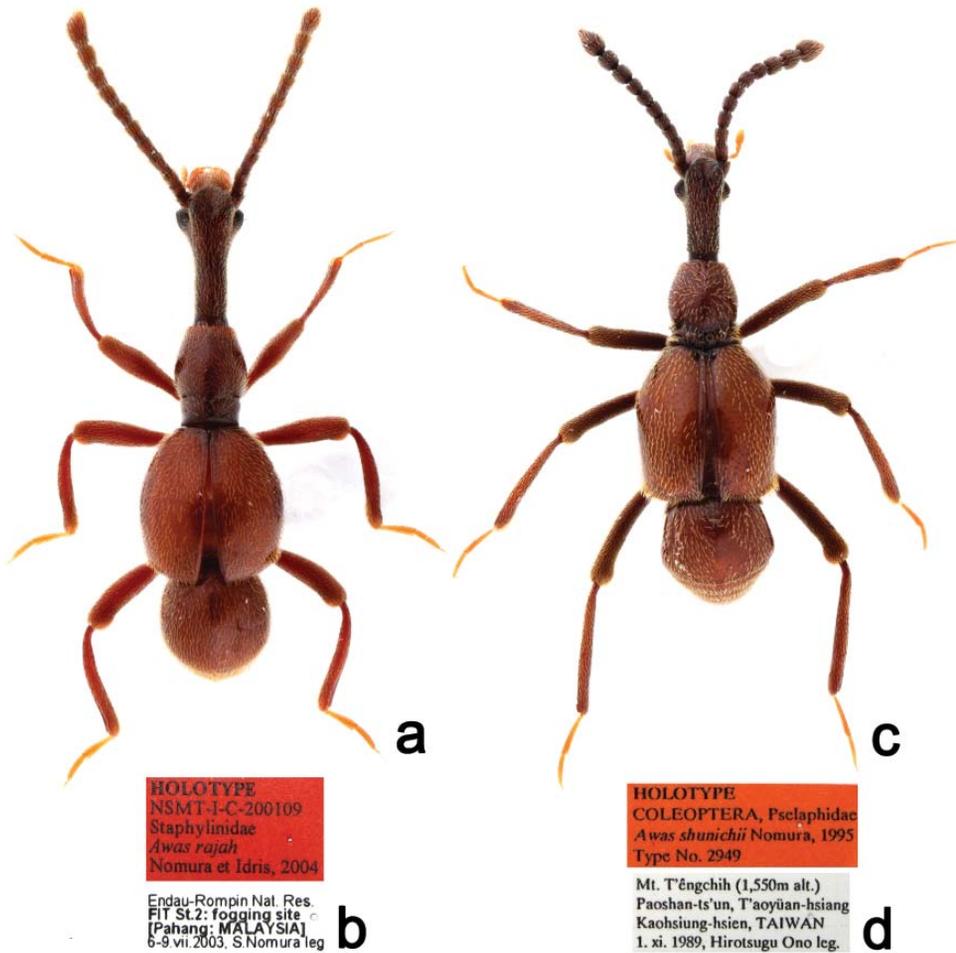


Fig. 5. Holotypes of *Awas* species. a–b – *A. rajah* Nomura & Idris, 2004 (a – dorsal habitus; b – type labels); c–d – *A. shunichii* Nomura, 1995 (c – dorsal habitus; d – type labels).

Abdomen wider than long (AL 0.60, AW 0.86), tergite IV largest, fused with sternite IV, basomedian portion with patch of sparse pubescence directed medially, otherwise pubescence of abdomen short and oriented posteriorly. Aedeagus slightly sclerotized (Figs. 4f–h), length 0.49 mm; median lobe truncate apically, with X-shaped sclerites ventrally; endophallus covered with numerous hairs; parameres with apices strongly curved ventrally.

Female. Unknown.

**Comparative notes.** This new species is placed close to *A. sinicus* and *A. shunichii*, sharing with them a similar appearance and having the lateral margins of the pronotum deeply incised at the level of the antebasal sulcus. The male of *Awas loebli* sp. nov. has eyes each comprised

of about 65 facets, and the pronotum with the basolateral margins moderately incised posterior to the antebasal sulcus. Males of *A. sinicus* have eyes each with about 85 facets and those of *A. shunichii* have about 100 facets, and the basolateral margins of both of the latter species are deeply and broadly incised. The head of *Awas sinicus* has dense setae around the genae while such setae are lacking in *A. loebli*. The relatively short head and the rounded lateral margins of the elytra also readily separate the new species from *A. shunichii*.

**Etymology.** Named after Ivan Löbl, in acknowledgement to his contribution to the genus *Awas*, and help during the course of our study of the Chinese pselaphine beetles.

**Biology.** The species was collected by a flight insect trap set near a rotten coniferous tree.

**Distribution.** Currently known only from the type locality (Fig. 6).

### Notes on distribution

Prior to the present study, no *Awas* species had been recorded to occur farther north than northwestern Yunnan Province (Fig. 6). The discovery of these two new species extends the known distribution of *Awas* far in the northeast direction, and fills the gap in East and Central China. Based on the present knowledge, it may be predicted that additional species of *Awas* are likely to occur in the following areas: Southeast Asia including China (Fujian, Jiangxi, Guangdong, Guangxi, Hainan, Sichuan), Indochina and Malay Peninsula.

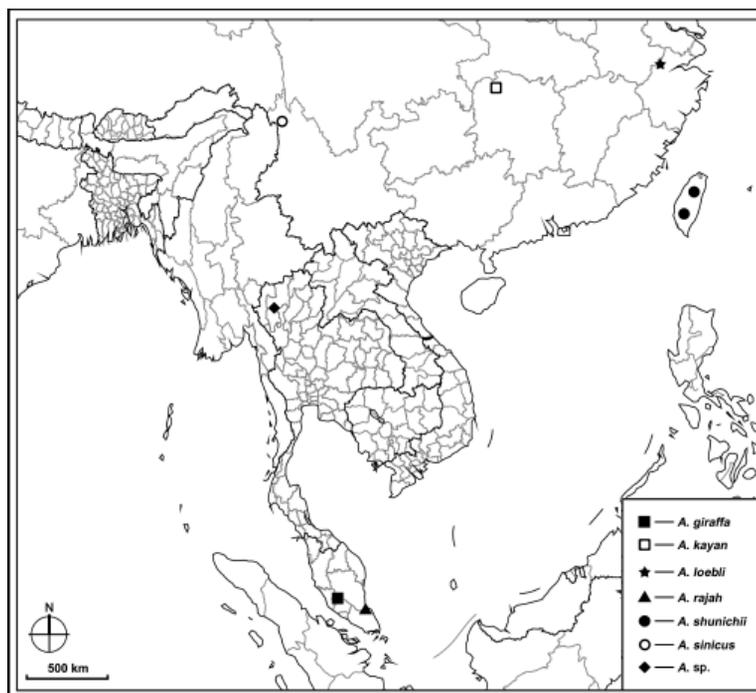


Fig. 6. Distribution of the known *Awas* species.

Four out of seven *Awes* species (six described and one unnamed (NOMURA et al. 2008)), *A. giraffa* (1,300 m), *A. shunichii* (1,100–1,550 m), *A. kayan* sp. nov. (1,000 m) and *Awes* sp. (1,600 m) are recorded from mid-altitudes, one, *A. sinicus*, was collected at a high altitude of 2,000 m, and two other species, *A. rajah* (150 m) and *A. loebli* sp. nov. (400 m) at low altitudes (data of holotype of *A. rajah* not available from the reference), showing a large variety of altitude range for this genus. Most of the species are only known from the type series, and usually by the holotype alone. Additional specimens were found only for *Awes shunichii* (SUGAYA & NOMURA 2003), and *Awes rajah* (NOMURA & IDRIS 2005). It is possible all these species are more widely distributed than currently known.

### Key to males of *Awes*

The key is modified from NOMURA & IDRIS (2004) and YIN et al. (2010).

1. Each elytron with a distinct basal fovea ..... 2
  - Basal elytral fovea absent or indistinct ..... 5
2. Elytra nearly hexagonal (Fig. 5c; NOMURA 1995: 361, Fig. 1); each eye composed of about 100 facets. Taiwan. .... *Awes shunichii* Nomura, 1995
  - Elytra with lateral margins rounded (Figs. 1, 3; see also YIN et al. (2010: 479, Fig. 1)); each eye composed of no more than 85 facets. .... 3
3. Pronotum with lateral margins shallowly and broadly emarginate at level of antebasal sulcus (Fig. 1). China: Hunan. .... *Awes kayan* sp. nov.
  - Pronotum with lateral margins deeply incised at level of antebasal sulcus (Fig. 3; see also YIN et al. (2010: 479, Fig. 1)). .... 4
4. Head about 1.85 times as long as wide, lacking tufts of setae around genae (Fig. 2a); each eye composed of about 65 facets; antennomeres III–VIII slightly longer than wide (Fig. 2c); pronotum with basolateral margins posterior to antebasal sulcus moderately incised (Fig. 1). China: Zhejiang. .... *Awes loebli* sp. nov.
  - Head about 2.05 times as long as wide, with tufts of setae around genae (YIN et al. 2010: 480, Fig. 3); each eye composed of about 85 facets; antennomeres III–VIII distinctly longer than wide (YIN et al. 2010: 480, Fig. 2); pronotum with deep and broad basolateral incisions posterior level of antebasal sulcus (YIN et al. 2010: 479, Fig. 1). China: Yunnan. .... *Awes sinicus* Yin & Li, 2010
5. Scutellum scarcely exposed; elytra lacking basal fovea (LÖBL 1994: 686, Fig. 2). Malay Peninsula: Pahang ..... *Awes giraffa* Löbl, 1994
  - Scutellum partially exposed; each elytron with indistinct basal fovea (Fig. 5a; NOMURA & IDRIS 2004: 332, Fig. 2D). Malay Peninsula: Pahang. .... *Awes rajah* Nomura & Idris, 2004

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