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Cover

Two new species of stag beetles (Coleoptera: Lucanidae: Lucaninae) from Taiwan, China

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Abstract

Aegus jengi sp. nov. and *Figulus hsui* sp. nov. are described from Taiwan, China.

Keywords

Aegus, *Figulus*.

Introduction

During our preparing of third volume of "Stag Beetles of China", we found that some results of our studies had been spread out among the collectors. As the publishing period of the book is somewhat longer than we expected, we decide to publish some of our new taxa quickly to avoid synonyms.

The type specimens are deposited in the following public and private collections:

NMNST - National Museum of Natural Science, Taiwan

CCCC - private collection of Chang-Chin Chen, Tianjin, China

CHH - private collection of Hao Huang, Shanghai, China

Aegus jengi Huang & Chen sp. nov.

Aegus nakaneorum Ichikawa & Fujita, 1986: 139, partium [Fig. 2-4, ♂ & ♀ paratypes, Fig. 10a, ♀ mandible]; Mizunuma & Nagai 1994: 289, partium [Pl. 128, Fig. 558-1-3, ♂♂, Fig. 558-5, ♀]; Fujita 2010: 345, partium [Pl. 216, Fig. 1062-1, 3-4, ♂ & ♀ paratypes].

Type data. CHINA: Taiwan: Holotype ♂ (NMNST, Figs. 3 & 15), Taipei City, Mt. Da Tun, Mian-tian-shan, 25. IV. 1993, X.-F. Wang leg..

Paratypes: 2 ♂♂ (CCCC), Xinbei City, Xindian, Wulai, 15.IV.2013, S. Horaguchi leg.; 1 ♂ (CCCC), Taipei County, Ping-lin, IV.1994, C.-L. Lee leg.; 1 ♂ (CCCC), Taipei City, Datunshan, VI.1991, C.-C. Chen leg.; 1 ♂ (CCCC), Taipei City, Datunshan, Erziping, VI.1991, C.-C. Chen leg.; 1 ♂ (NMNST, collection number: 1724-2), Nantou County, Lienhuachih, 26. I. 1994, C.-S. Lin & M.-L. Chan leg.; 1 ♂ (NMNST, collection number: 3602-63), Taipei City, Peitou, 30. XI. 2000, Y.-S. Liu leg.; 2 ♂♂, 3 ♀♀ (CCCC, CHH), Taipei City, Yangming-shan, Erziping, VII-VIII.1990; 6 ♂♂ (CCCC), Taipei City, Yangming-shan, VI-VIII. 1990; 1 ♂ (CCCC), Taichung, Guguan, Malunshan, 11. VI. 2012, Y.-D. Wang leg.; 1 ♀ (NMNST, 6001-378), Taipei City, Mt. Da Tun, Mian-tian-shan, 23. X. 1987, I.-H. Hsu leg.; 1 ♀ (CCCC), same data as holotype; 1 ♀ (CCCC), Shang-sha, 1. VII. 1992; 1 ♀ (CCCC), Taipei City, Yangming-shan, Erziping, V.1992.

Etymology. This new species is named in honour of Mr. Ming-Luen, Jeng, Taiwan.

Diagnosis. This new species is very similar to the medium and small-sized forms of *A. laevicollis* Saunders, 1854 from Chinese continent, but can be distinguished from the latter by the following combination of characters: 1) male mandible shorter or with apical half less curved; 2) flagellum (permanently everted internal sac) of male genitalia with apical part about half as wide as basal part; 3) body of female slenderer, with a larger length-width ratio; 4) canthus of female thinner; 5) each branch of spermatheca in female genitalia almost entirely fat and stable, at most with a very short membranous base, but without a long and flexible basal part.

This new species can be distinguished from *Aegus subnitidus* Waterhouse, 1873, *A. nakanei* Ichikawa & Imanishi, 1976 and *A. ishigakiensis* Nomura, 1960 from Japan simply by the different male and female genital characters. We examined both male and female genitalia of all these species.

Discussion. This new species has been misidentified as *Aegus nakaneorum* Ichikawa & Fujita, 1986 for long until we dissected a large series of specimens collected from Taiwan. We noticed that some paratypes of *Aegus nakaneorum* actually belong to *A. jengi* sp. nov.. The holotype of *Aegus nakaneorum* is not deposited in the National Science Museum (N.H.), Tokyo (Horaguchi, pers. comm.) as stated in the original description; it is most likely still in the private collection of Mr. Ichikawa, but we have been unable to get contact with him. However, the holotype of *Aegus nakaneorum* belongs to the major form and possesses the following important characters which are not shared by large-sized males of *A. jengi* sp. nov.: 1) dorsal medial tooth of mandible remote from ventral basal tooth; 2) apical part of mandible more strongly curved. An examination of genitalia shows that the two species are clearly separable in both sexes (Figs. 14-17).

Length of body. Male: 12.3-19.5mm. Female: 12.5-15.0mm.

Distribution. Taiwan.

***Figulus hsui* Huang & Chen sp. nov.**

Figulus punctatus: Miwa 1934: 320, partium [records from Wushe and Puli, Taiwan].

Type data. CHINA: Taiwan: Holotype ♀ (NMNST, Figs. 12 & 19), Taoyuan County, Fuxing, Baling, Xuanyuan, 1000m, 5. III. 1995, C.-C. Chen leg..

Paratypes: 1 ♂ (CCCC, Figs. 13 & 21), same data as holotype; 1 ♂ (CCCC), Taoyuan County, Fuxing, Baling, Xuanyuan, 1000m, 8. X. 1995, S.-P. Wu leg.; 1 ♂ (CCCC), Taoyuan County, Fuxing, Daman, 15. III. 1998, C.-C. Chen leg.; 1 ♀ (CCCC), Nantou County, Hewangshan, 2. V. 2003, S.-S. Hsu leg.; 1 ♀ (CHH), Taoyuan, Fuxing, Beiheng, 57k, Sileng, 5. III. 1995, C.-C. Chen leg.; 1 ♂ (CHH), Xinzhu County, Zhudong, Dalulindao 10k, 24.IV.1994, C.-C. Chen leg.; 1 ♂ (CCCC), Taoyuan, Fuxing, Beiheng, 16. VI. 1995, Z.-W. Chen leg..

Etymology. This new species is named in honour of Mr. Hsu Huan-Chih, Taiwan.

Diagnosis. The following characters are important in recognizing this species: 1) basal tooth of mandible ill-defined; 2) median tooth of left mandible not followed by a medial tubercle in front; 3) lateral carina of mandible narrow and continued to apex of mandible; 4) clypeolabrum shaped as transverse plate; 5) canthus with anterior angle present but rather rounded; 6) vertex with a pair of obscure bulges near posterior margin, and with large punctures in central depressed area; 7) antenna composed of 10 antennomeres; 8) mentum without lateral carinae, but with a pair of oval bilateral concavities; 9) frontal median tubercle of pronotum traceable; 10) central depression along midline of pronotum broad and long, almost reaching both anterior and posterior margins of pronotum, associated with large punctures; 11) pronotum almost coarsely punctured everywhere; 12) lateral margin of pronotum crenulated behind anterior angle, more markedly at posterior one third; 13) inner margin of protibia gently curved near middle; 14) scutellum thinner; 15) intervals between furrows

about three times wider than furrows, with rather flat transversal surface; 16) sexual dimorphism entirely absent; 17) basal piece of aedeagus with a pair of short lateral processes at caudal end; 18) length-width ratio of basal piece 1.4-1.6; 19) non-pigmented area on ventral surface of basal piece long and rather thin, with cephalic end rounded or bilobed; 20) caudal ventral plate of basal piece extending well beyond middle of parameres, tapered and colourless near apex, with pigmented part excavated and V-shaped on posterior end; 21) paramere not excavated near inner apex, rather elongate and almost evenly pigmented; 22) median lobe between parameres about 3 times longer than wide, nearly even in width throughout and with a colourless stripe along midline of dorsal surface; 23) basal belt-part of flagellum nearly as long as aedeagus; 24) spermatheca shaped as a hooked tube, without basal duct-part.

This species is apparently a local representative of *F. punctatus* Waterhouse, 1873 from Japan and southern Taiwan, hardly distinguishable from the latter in external characters, but can be distinctly separable from the latter by the following combination of genital characters: 1) male genitalia larger in size, with caudal ventral plate of basal piece more extensively pigmented and less intruded by the apical non-pigmented part; 2) spermatheca of female genitalia shaped like a hooked tube. We dissected a good number of specimens of *F. punctatus* from various localities of Japan and southern Taiwan and found that the male and female genital characters are constant among the different populations.

Length of body. Male: 9.8-11.2 mm. Female: 10.2-10.6 mm.

Distribution. N. & C. Taiwan.

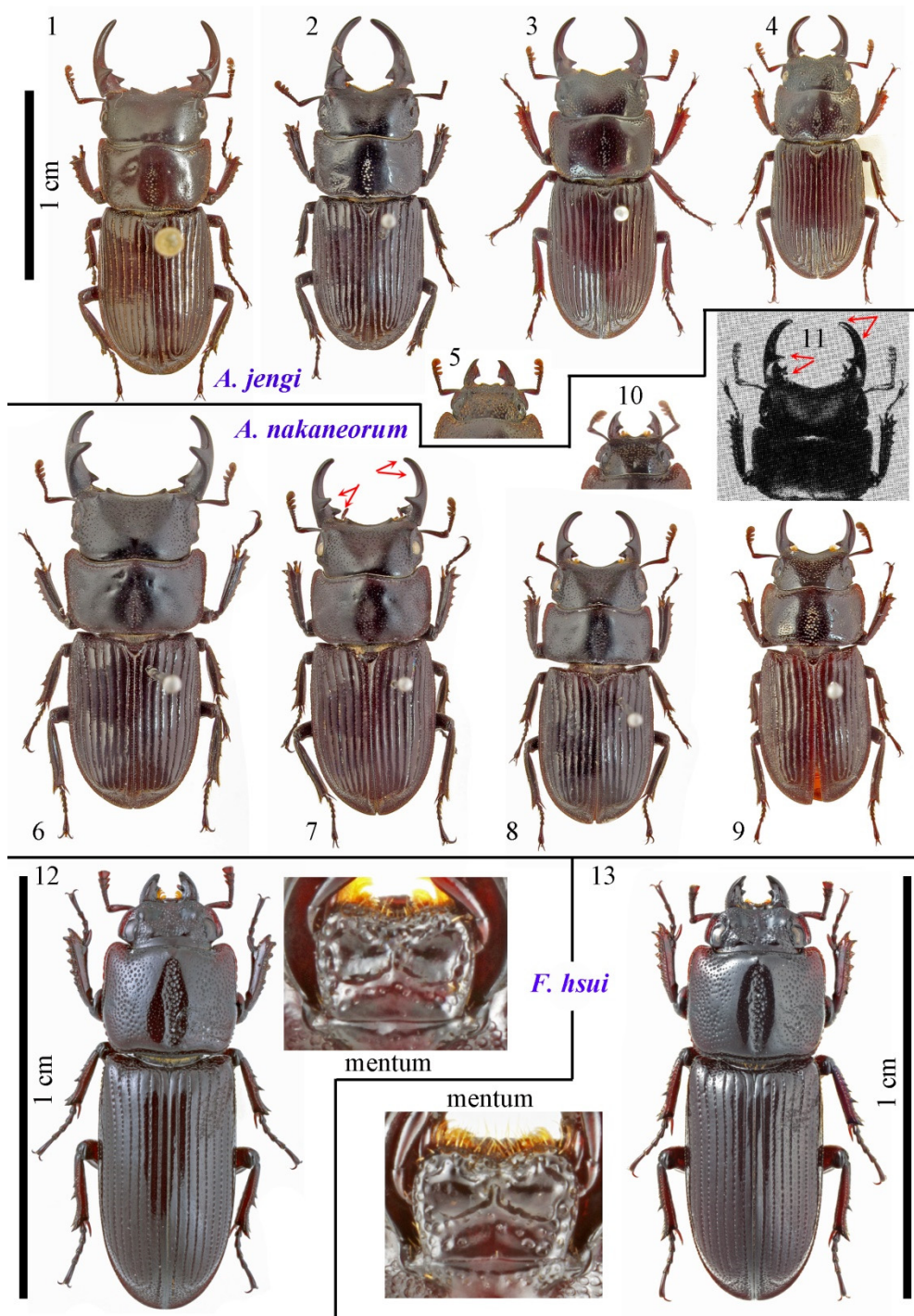
Records. The specimens of this new species, mixed with some specimens of *F. punctatus*, were recorded by some collectors from subalpine forests in Taiwan from Beiheng in the north to Tengzhi in the south as an unidentified species close to *F. punctatus*, with more clearly defined dorsal carina near apex of mandible, more rectangular pronotum less crenulated at lateral margins, and more coarsely punctured lateral margins of elytra (Chang 2006). However, we find that all the above-mentioned external characters do not work for separating *F. hsui* **sp. nov.** from *F. punctatus* and only a dissection of genitalia can distinguish the two species. *F. hsui* **sp. nov.** is restricted to northern and central Taiwan, not found in southern Taiwan, and *F. punctatus* is not only found in lower areas of southern Taiwan, but also found in subalpine area of southern Taiwan in higher elevation as in habitats of *F. hsui*. The population from Dulanshan belongs to *F. punctatus*, not *F. hsui* **sp. nov.**

Acknowledgements

We thank Dr. Schenk for helping a quick publication and our friends who collected the type series of the new species. We also thank Mr. S. Horaguchi for checking the Lucanidae collection deposited in National Science Museum (N.H.), Tokyo.

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Figs. 1–5. *Aegus jengi*. (1, 2 & 4) Male paratypes; (3) male holotype; (5) female paratype.

Figs. 6–11. *Aegus nakaneorum*. (6-9) Males; (10) female; (11) male holotype (after Ichikawa & Fujita 1986). Red arrows directed to important characters.

Figs. 12–13. *Figulus hsui*, habitus & mentum. (12) Female holotype; (13) male paratype.

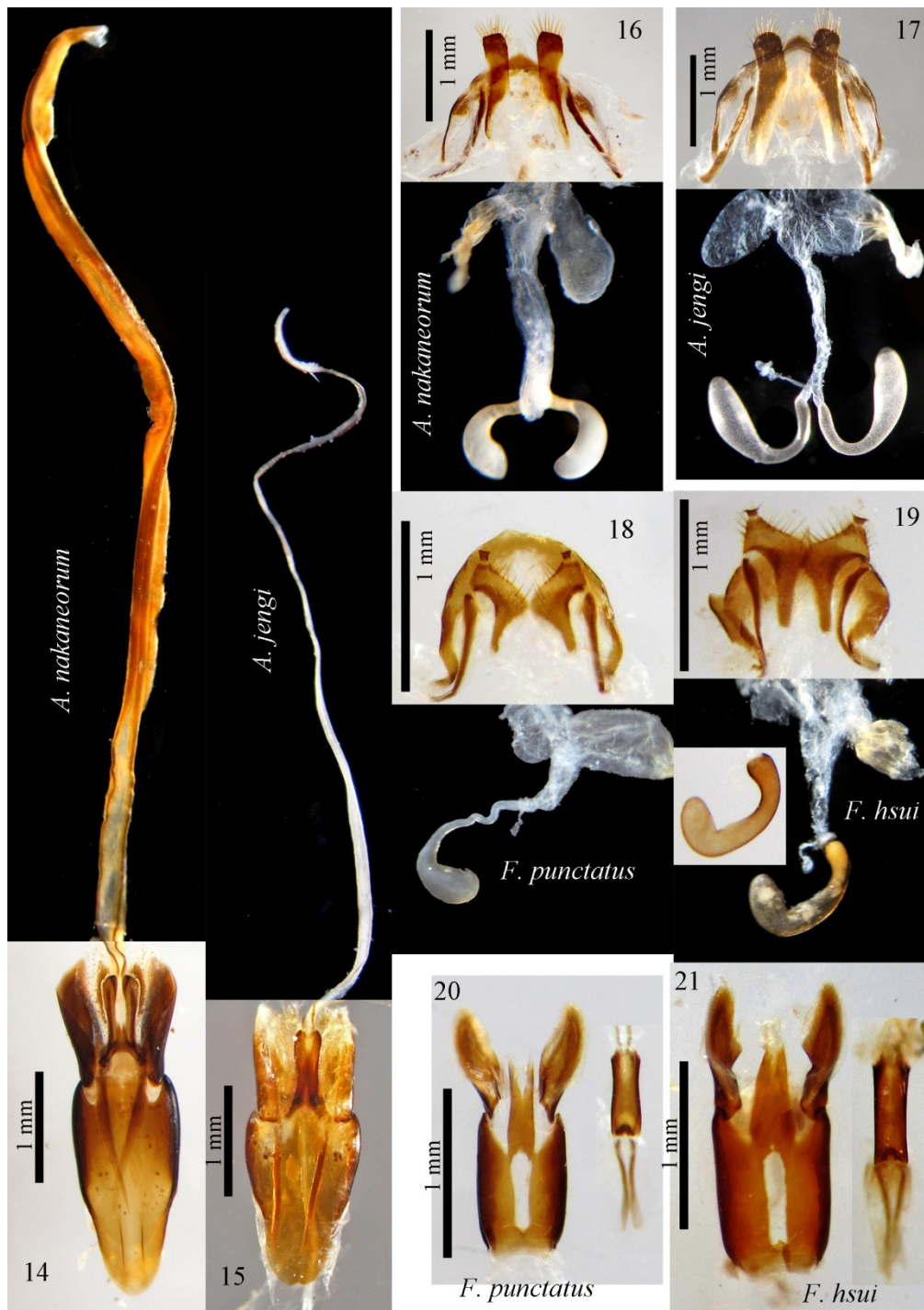


Fig. 14. Male genitalia of *Aegus nakaneorum*.

Fig. 15. Male genitalia of *Aegus jengi*.

Fig. 16. Female genitalia of *Aegus nakaneorum*.

Fig. 17. Female genitalia of *Aegus jengi*.

Fig. 18. Female genitalia of *Figulus punctatus*.

Fig. 19. Female genitalia of *Figulus hsui*.

Fig. 20. Male genitalia of *Figulus punctatus*.

Fig. 21. Male genitalia of *Figulus hsui*.