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Michele Zilioli

# *Lucanus brivioi* n.sp., a new stag beetle from the Wuyi shan mountains, Fujian, China (Coleoptera Lucanidae)

**Abstract** – A new species, *Lucanus brivioi,* is here described. It belongs to the *L. fortunei* species-group and is related to *L. kraatzi* s.l. It differs from the latter through: 1) its more shining and stouter body, devoid of abundant yellow pubescence; 2) its mandibles, which are more shining and more strongly curved proximally and have a longer and forward tilted median tooth; 3) its slenderer aedeagus, which has a long and thin median lobe, a short flagellum and weakly apically curved paramera.

**Key words**: Lucanidae, *Lucanus brivioi*, new species, Fujian, China.

**Riassunto** – *Lucanus brivioi* n.sp., un nuovo cervo volante dalle montagne del Wuyi shan, Fujian, Cina (Coleoptera Lucanidae).

La nuova specie *Lucanus brivioi*, qui descritta, appartiene al gruppo del *L. fortunei* ed è vicina al *L. kraatzi* s. l. Differisce da quest'ultimo per: 1) il corpo più lucido e robusto, privo di abbondante pubescenza gialla; 2) le mandibole più lucide e più incurvate alla base e munite di un dente mediano più lungo e inclinato in avanti; 3) l'edeago più snello, con lobo mediano molto sottile, flagello più corto e parameri debolmente incurvati apicalmente.

**Parole chiave**: Lucanidae, *Lucanus brivioi*, nuova specie, Fujian, Cina.

## Introduction

*Lucanus kraatzi* Nagel (1926) was described on the basis of a single specimen from Sze Tsong, east Yunnan, China. Unfortunately, the holotype of this rare and interesting species, deposited in the Hannover Museum, Germany, was lost, probably destroyed during the Second World War (Krajcik, 2003). Several years later Ikeda (1998) described the subspecies *Lucanus kraatzi gingae* from Northern Vietnam.

Museo Civico di Storia Naturale, Corso Venezia 55, 20121 Milano, Italia, e-mail: michzilioli@libero.it

Recently, studying the material of the genus *Lucanus* coming from Wuyi shan and received from my German colleague G. Pross, I recognized a new species close to *Lucanus kraatzi* Nagel, 1926 and belonging to the *Lucanus fortunei* Saunders, 1854 species-group. This new species is here described as *Lucanus brivioi* n. sp.

***Lucanus brivioi*** n. sp. (Figs. 1, 4)

Holotype. Male: China, Fujian, Wuyi shan mts, 800-850 m, VI.1999. Deposited in the collections of the Museo Civico di Storia Naturale di Milano, Italy (MSNM).

Paratypes. 22 males: 4 with the same data as the holotype, deposited in the collection G. Pross, Esslingen, Germany (2) and in the author's collection (2); 18 males, same locality, VI.2003, deposited in the collection G. Pross (16) and in the collection A. Kirchner, Reichertshofen, Germany (2).

Measurements (Holotype's data are reported in parentheses). Length, including mandibles: 52-66 mm (61.4 mm). Length, without mandibles: 33.8-41.2 mm (39.2 mm). Maximum Head Width, excluding mandibles: 14-18.5 mm (18.1 mm).

Description (Holotype). Body slender, black, strongly punctured throughout, covered by sparse, long and appressed yellowish hairs. Abdominal sternites black with anterior and lateral margins dark reddish brown, clothed with short appressed pubescence. Elytra reddish brown, black along the edges and the suture. Antennae and palpi black. Legs reddish brown, with tarsi and coxae black. Fore and hind femora with base, apex, dorsal and ventral edges black; mid-femora without a black dorsal edge. Tibiae reddish brown, blackish proximally.

Mandibles long and slender, strongly bent basally, then almost straight to their feebly curved apex, finely sculptured, matt and with short and scattered yellowish appressed hairs proximally, sparsely punctured and slightly shining distally. Upper surface of the distal third of the mandibles with a sharp and well marked marginal carina. Median tooth strong, long, sharp and tilted forward, placed slightly before the mid-length. Inner margin of the mandibles with 6-8 proximal and 7-9 distal denticles. Upper apical tooth directed upward and inward, longer than the lower one. Lower tooth of the mandibular base well developed, strong and conical.

Head transverse (W/L: 1.94), finely and irregularly sculptured throughout, matt and covered by short and appressed yellowish pubescence. Frons trapezoidal, depressed in the middle, fused with the epistoma. Clypeal ridge vanishing in the middle and projecting laterally as two small and sharp teeth; epistoma triangular with a rounded apex. Frontal ridge bisinuate, strongly raised and protruding medially; lateral cephalic ridges strongly sinuate behind the anterior angles and with rounded and wide posterior corners. Anterior angles strongly projecting laterally, but slightly more prominent than the eyes. Ocular canthus penetrating less than half the eye's diameter. Mentum large, trapezoidal, finely sculptured and with sparse yellowish hairs, its anterior corners widely rounded and its anterior margin strongly convex medially. Antennal club 4-jointed.

Prothorax transverse (W/L: 1.75), finely and irregularly sculptured, matt, cov-

ered by short and somewhat sparse yellowish hairs. Posterior angles slightly protruding. Prosternum weakly prominent but strong, thin, rounded and covered laterally by yellowish hairs. Scutellum transverse, widely rounded posteriorly, punctured and, except for a narrow lateral margin, finely microreticulated, clothed with appressed yellowish hairs.

Elytra finely and densely punctured throughout, superficially microreticulated, covered by a sparse and very short yellowish pubescence. Shoulders distinctly toothed.

Legs slender, finely sculptured and punctured, with sparse and short yellowish hairs, even shorter on fore tibiae. Fore tibiae irregularly toothed on their external edge, mid-tibiae with three preapical spines (the basalmost smaller). Hind tibiae with one very small and weakly protruding preapical spine.

Aedeagus (Fig. 1), with a short and slightly apically widened flagellum; middle lobe long and slender, almost long as the paramera, which are feebly curved and protruding apically.

Paratypes. Consistent with the holotype's description. The mandibles of the smaller specimens have less denticles. Some specimens have the posterior angles of the head slightly more angular.

Female. Unknown.

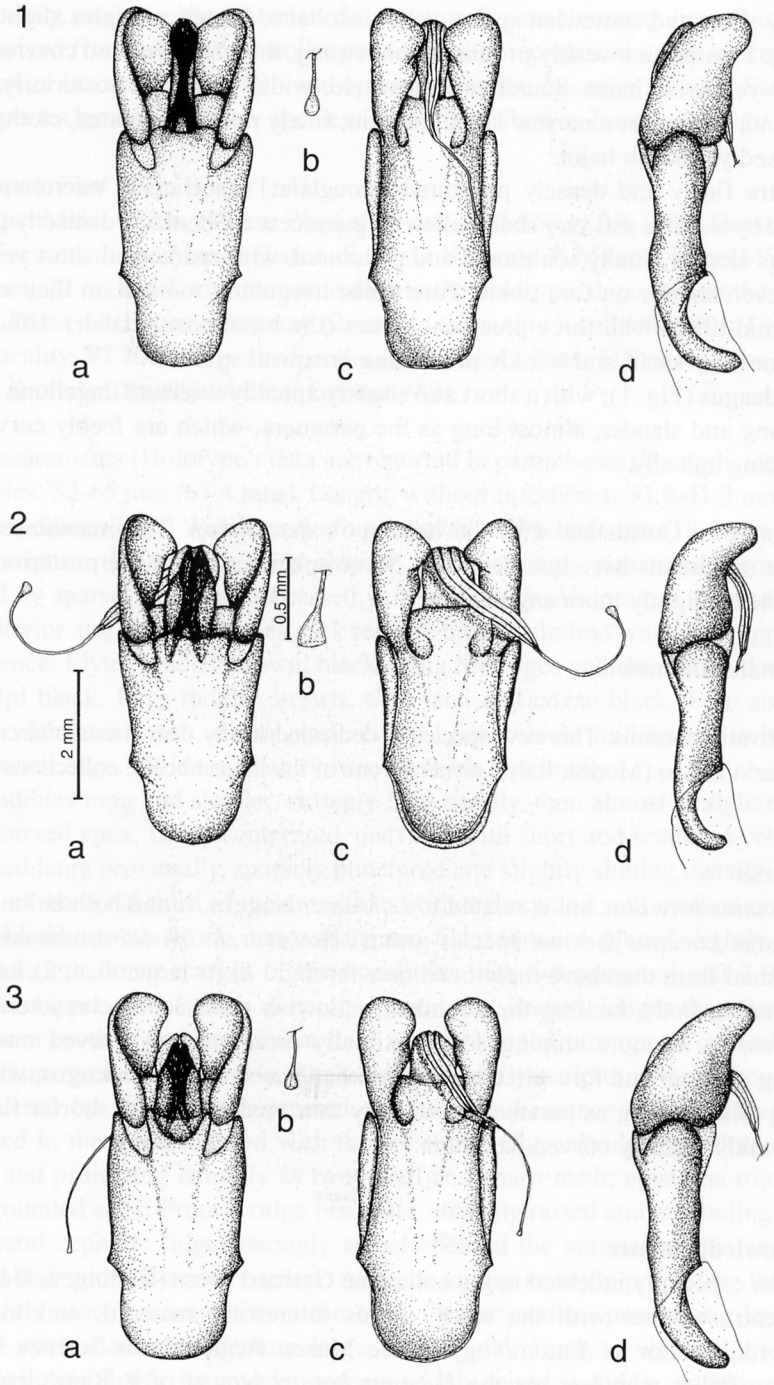
Derivatio nominis. This new species is dedicated to my dear friend and colleague Rev. Carlo Brivio (Monza, Italy), owner of one of the largest beetle collections in Italy.

**Remarks**

*Lucanus brivioi* n. sp. is related to *L. kraatzi* Nagel s. l. and both belong to the very large *Lucanus fortunei* species-group . However, *L. brivioi* can be easily distinguished from the above mentioned taxa through: 1) its larger size; 2) its stouter and shining body, lacking the abundant yellowish pubescence characterizing its relatives; 3) its more shining and proximally more strongly curved mandibles, bearing a longer and fore-tilted median tooth; 4) its slenderer aedeagus, which has a long (almost long as paramera) and very thin median lobe, a shorter flagellum and weakly apically curved paramera.

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I am especially indebted to my colleague Gerhard Pross (Esslingen, Germany), who entrusted me with the study of his interesting material, and to Mauro Daccordi, curator of Entomology at the Museo Regionale di Scienze Naturali (Torino, Italy), who lent me the *Lucanus kraatzi kraatzi* of P. Ratti's collection. Many thanks also to my colleagues Carlo Pesarini and Fabrizio Rigato (MSNM) for their critical reading of the manuscript.




Figs. 1-3 -1) *Lucanus brivioi* n.sp. 2) *Lucanus kraatzi* Nagel. 3) *Lucanus kraatzi gingae* Ikeda. Aedeagus. a) ventral view, b) apex of flagellum, c) dorsal view, d) lateral view.

Figs. 1-3 -1) *Lucanus brivioi* n.sp. 2) *Lucanus kraatzi* Nagel. 3) *Lucanus kraatzi gingae* Ikeda. Aedeagus. a) visione ventrale, b) apice del flagello, c) visione dorsale, d) visione laterale.

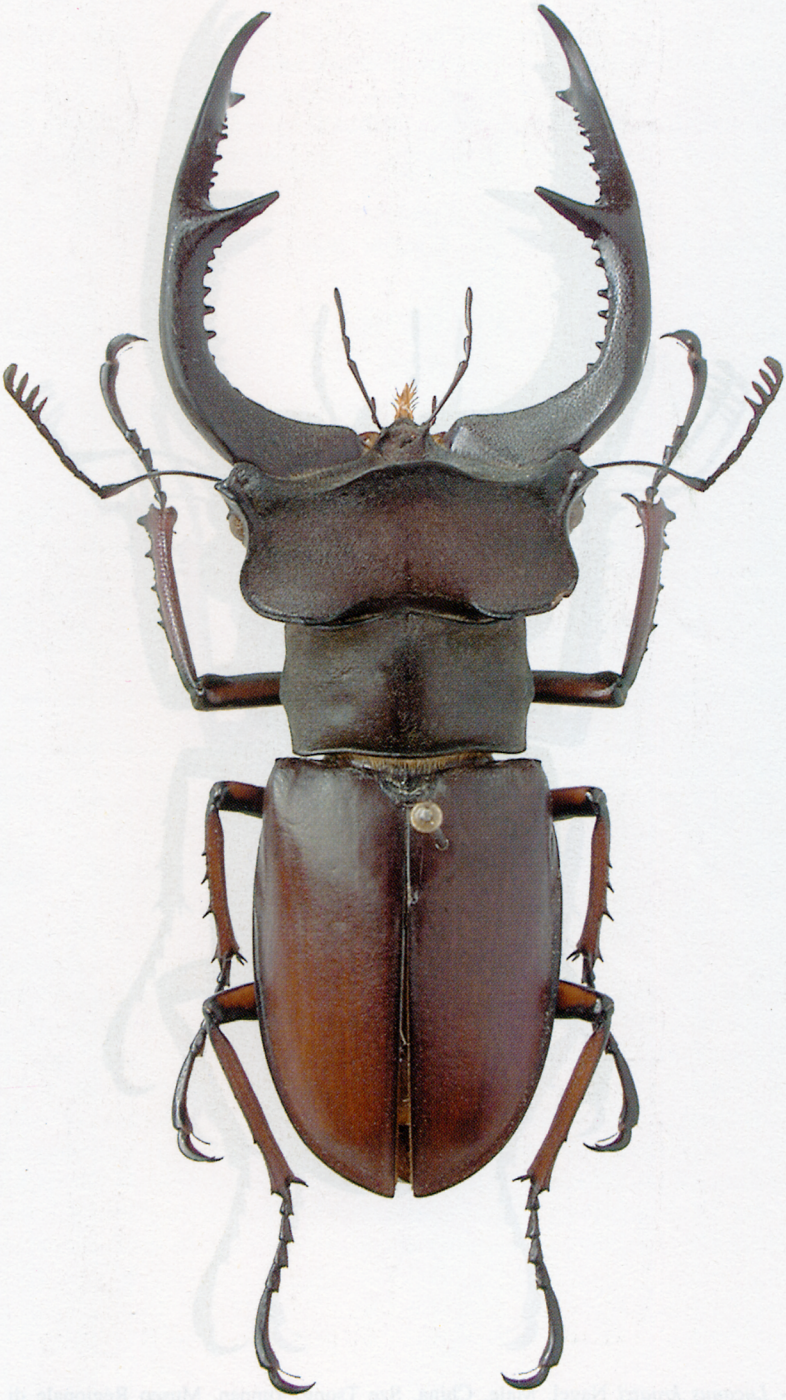


Fig. 4 - *Lucanus brivioi* n.sp. Male, holotype. (MSNM).
Fig. 4 - *Lucanus brivioi* n.sp. Maschio, olotipo. (MSNM).

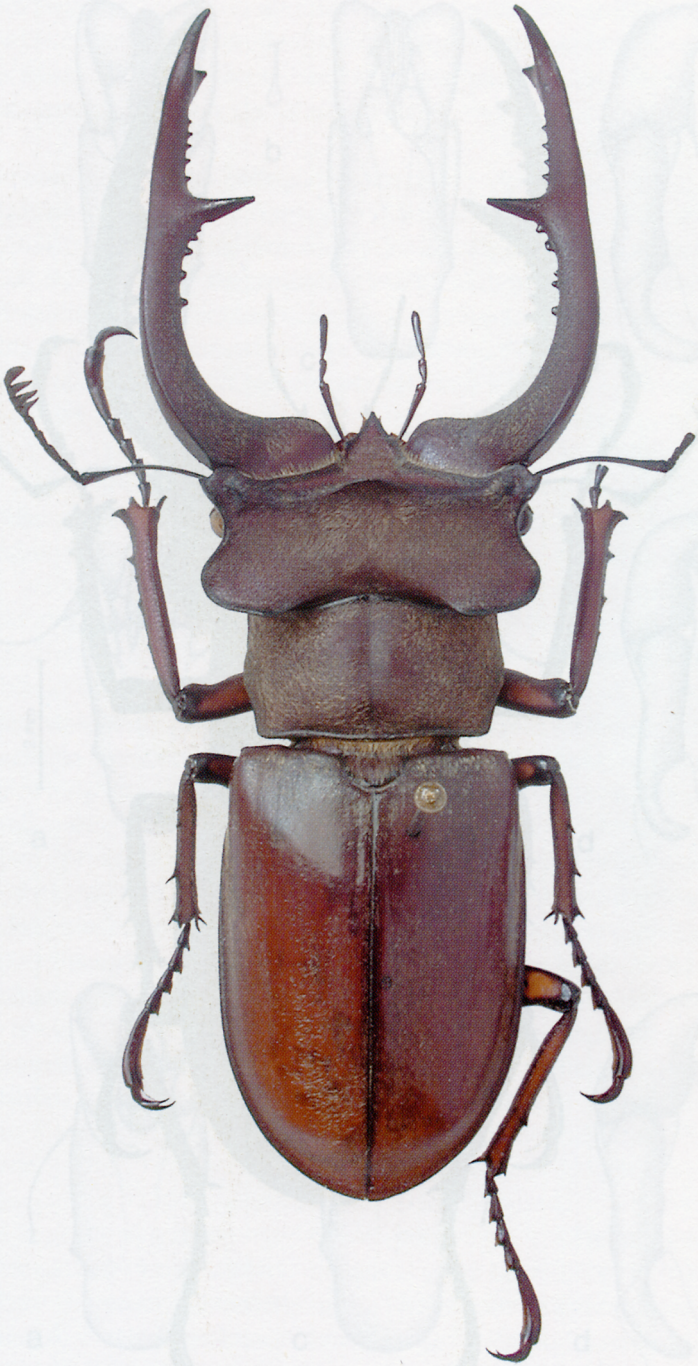


Fig. 5 - *Lucanus kraatzi* Nagel. Male, China, Sze Tsong, Yunnan. Museo Regionale di Scienze Naturali, Torino, Italy.
Fig. 5 - *Lucanus kraatzi* Nagel. Maschio, Cina, Sze Tsong, Yunnan. Museo Regionale di Scienze Naturali, Torino.

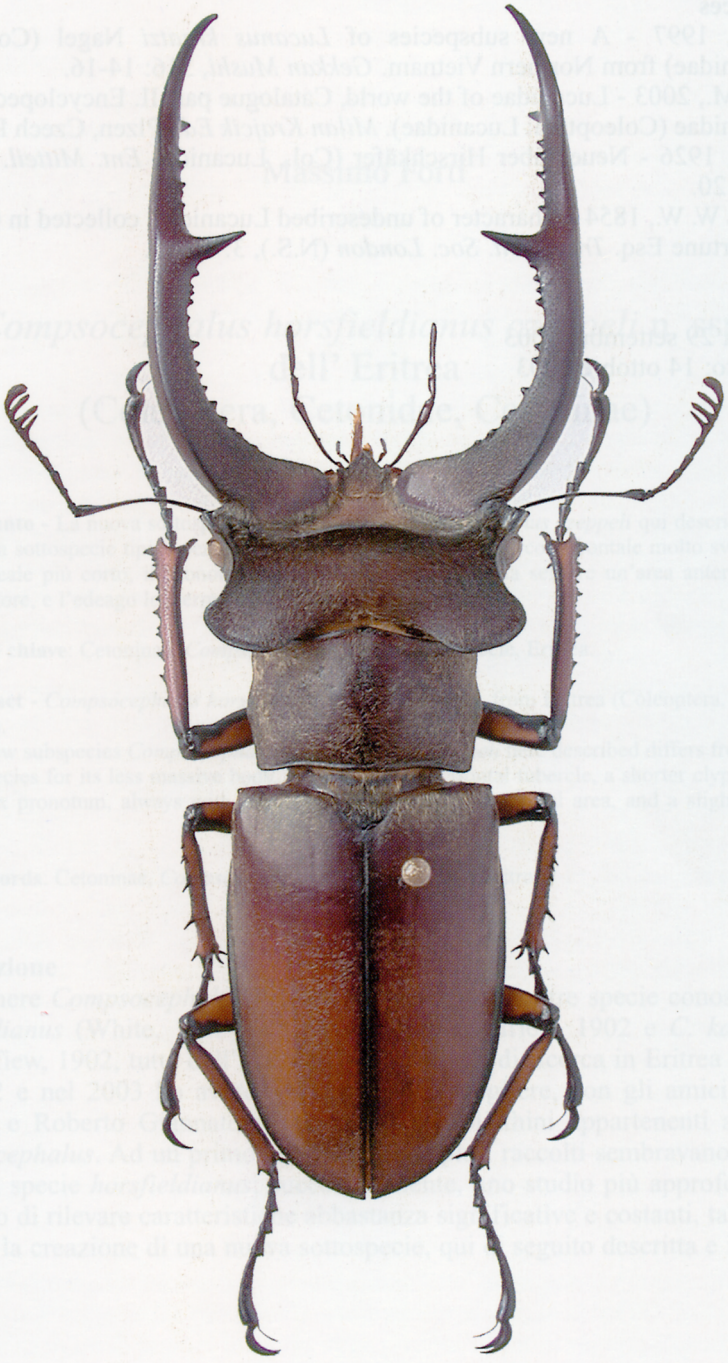


Fig 6 - *Lucanus kraatzi gingae* Ikeda. Male, Vietnam. (Author's coll).
Fig 6 - *Lucanus kraatzi gingae* Ikeda. Maschio, Vietnam. (Coll. dell'autore).

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