



Description of a new species of *Calodromus* Guérin-Méneville, 1832 (Coleoptera: Brentidae: Cyphagoginae)

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Abstract. *Calodromus bambii* n. sp. is described based on three male specimens from Vietnam and Thailand. The new taxon is closely related to *Calodromus amabilis* Kleine, 1916, but can be distinguished by the different shape of the first tarsal article of male posterior legs, the different proportions between its thickened part and the slender one, and by the ball-like apical part of the distal tubercle. An updated key for the identification of the males of the known species of *Calodromus* is provided. A photo of the peculiar defensive behaviour of a *Calodromus* species is published for the first time.

Riassunto. Descrizione di una nuova specie di *Calodromus* Guérin-Méneville, 1832 (Coleoptera: Brentidae: Cyphagoginae). Viene descritto *Calodromus bambii* n. sp. sulla base di tre esemplari maschi provenienti da Vietnam e Thailandia. Il nuovo taxon è affine a *Calodromus amabilis* Kleine, 1916, ma può essere distinto per la forma diversa del primo articolo tarsale delle zampe posteriori dei maschi, per le proporzioni differenti fra la parte inspessita e quella sottile, e per l'ingrossamento rotondeggiante all'apice del tubercolo distale. Viene fornita una chiave aggiornata per l'identificazione dei maschi di *Calodromus*. Per la prima volta viene pubblicata una foto del particolare comportamento difensivo di una specie di *Calodromus*.

Tóm tắt. Mô tả một loài côn trùng cánh cứng mới cho khoa học thuộc giống *Calodromus* Guérin-Méneville, 1832 (Coleoptera: Brentidae: Cyphagoginae). *Calodromus bambii* n. sp. được mô tả dựa trên ba cá thể đực thu từ Việt Nam và Thái Lan. Loài mới gần với loài *Calodromus amabilis* Kleine, 1916 nhưng có thể được phân biệt bởi các hình dạng khác nhau ở đốt gốc phần bàn chân sau của cá thể đực, với sự khác biệt về tỷ lệ độ dày, mỏng ở 2 loài, cũng như sự khác biệt về cấu trúc hình cầu ở đốt ngón. Nghiên cứu cũng đề xuất khóa định loại cá thể đực của các loài *Calodromus*. Lần đầu tiên hình ảnh về tập tính bảo vệ của loài *Calodromus* cũng được công bố.

Key words. New species, *Calodromus bambii*, Vietnam, Thailand, identification key, defensive behaviour.

Introduction

During the study of brentid material coming from Vietnam and Thailand we found three specimens belonging to a new species of *Calodromus* Guérin-Méneville, 1832, described here. Two of the three specimens were collected during our seventh expedition to Vietnam, in the framework of a research Memorandum of Understanding (see VU *et al.*, 2014) signed between the Natural History Museum of the University of Florence, Italy, and the Vietnam National Museum of Nature in Hanoi.

The genus *Calodromus* belongs to the brentid subfamily Cyphagoginae Kolbe, 1892 and to the tribe Cyphagogini Kolbe, 1892. The main characteristic of the species belonging to this genus is the striking form of the posterior legs, where femora, metatibiae and mainly metatarsi assume incredible shapes, differing greatly between the sexes. Sexual dimorphism is present in most of the brentid species (SFORZI & BARTOLOZZI, 1998) but usually in the shape of rostrum and mandibles.

Material and methods

Photos of the hind legs were taken with Microscope Leica M205 C and dedicated software Leica Z-stac LAS V4 3; photos of the full body were taken with camera Nikon D2Xs and optical Micro Nikkor 60/f.2,8.

Specimens of the new taxon were compared to the holotype of *Calodromus amabilis* Kleine, 1916 (Naturalis Biodiversity Center, Leiden, Netherlands).

The examined material is deposited in the following collections (acronyms):

EOC = Eylon Orbach collection, Qiryat Tivon, Israel;

MZUF = Zoology Section of the Natural History Museum, University of Florence, Italy;

Naturalis = Naturalis Biodiversity Center, Leiden, Netherlands;

VNMN = Vietnam National Museum of Nature, Hanoi, Vietnam.

Calodromus bambii n. sp.

(Figs 1, 2)

Material

Holotype: ♂, Central Vietnam, Gia Lai Province, Kon Chu Rang Nature Reserve, about 8 km from Head Quarter, 1100 m, 14° 30.256' N 108° 30.109' E (WGS84), 8-12.V.2016, at light, leg. L. Bartolozzi, A. Bandinelli, S. Bambi, V. Sbordoni (VNMN).

Paratypes: 1 ♂, Central Vietnam, Gia Lai Province, Kon Chu Rang Nature Reserve, about 8 km from Head Quarter, 1100 m, 14° 30.256' N 108° 30.109' E (WGS84), 8-12.V.2016, at light, leg. L. Bartolozzi, A. Bandinelli, S. Bambi, V. Sbordoni (MZUF, collection number 18310); 1 ♂, Thailand, Mae Hong Son Province, Soppong, 1500 m, 19° 26.998' N 98° 20.000' E (WGS84), 7-12.V.1996, leg. S. Bečvář (EOC).

Diagnosis

Calodromus bambii n. sp. is related to *Calodromus amabilis* Kleine, 1916 but can be distinguished by the strongly different shape of the first tarsal article of male hind legs (Fig. 2).

Description

Male (Fig. 1). Body brown, elongate, parallel sided; head subsquare, slightly convex, indistinctly separated from the neck; surface with very thin and sparse punctuation and a small medial groove at base; rostrum shorter than the head, flat, mandibles very small, slightly directed downwards; mesorostrum sharply narrowing after metarostrum; prorostrum as wide as metarostrum; underside of head flat, with a small gular fovea, and with rows of thin erect hairs along eyes; eyes large, oval, prominent; temples about as half as eye diameter; antennae short, last three articles enlarged, articles 5-8 transverse, asymmetrical, articles 9 and 10 subquadrate, article 11 slightly shorter than the two preceding ones together.

Prothorax suboval, elongate, strongly compressed laterally in front, rounded at sides, widest on 2/3 of its length, flat on disc where a thin medial groove is present; some scattered short scales are at sides of disc.

Elytra slightly longer than prothorax, interstriae larger than striae, interstria 2 not reaching the base and disappearing after first third of elytra; some scattered very short hairs present.

Fore legs short; femora laterally compressed; tibiae shorter than femora, with a hair brush on inner margin and a strong spur distally; tarsi short. Median legs smaller than fore ones, first tarsal article long and flattened, laterally compressed and enlarged, curved inwards, about as long as tibiae. Hind legs extremely long, longer than the entire body; femora strongly compressed basally and thickened distally, with a small sharp tooth on the inner side near apex, and a hairy area on the upper surface; tibiae very short and thickened, ending with a small flat lamina and some short hairs internally; first tarsal article (Fig. 2a) longer than elytra, basally thickened and distally thin and slender; proximal thickened part almost equal in length to distal part; upper side of the thickened basal part concave in lateral sight; its superior face with 2 depressions separated by a strong, inwards curved tooth, placed at about 1/3 of thickened part, and facing a much smaller tooth on the inner side; a second strong tooth at the end of thickened part, also directed inwards; apical tubercle present, rounded apically like

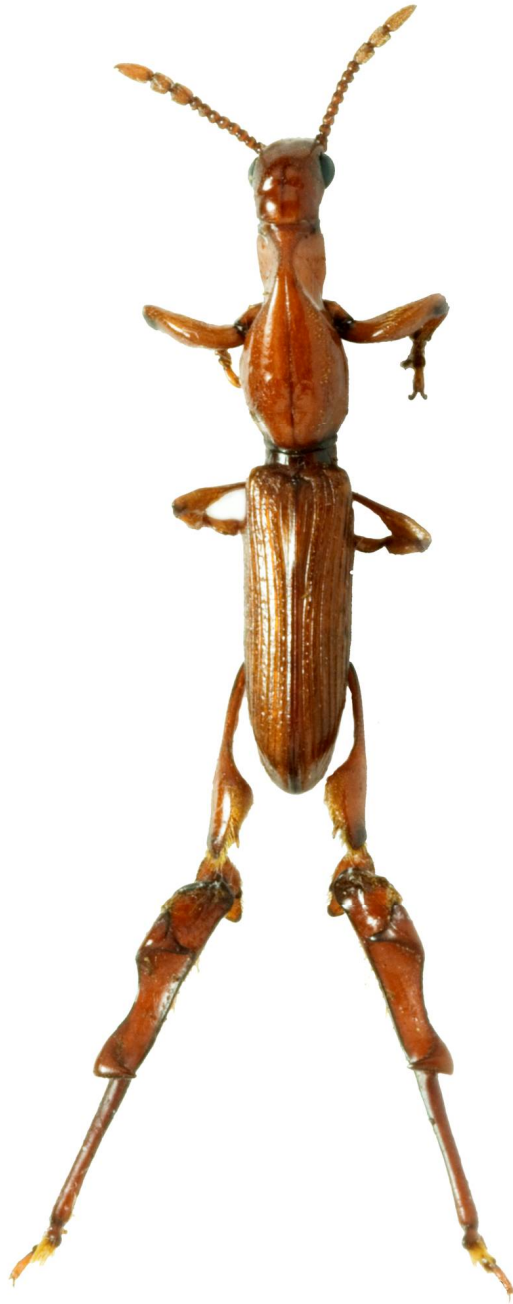


Fig. 1. Holotype of *Calodromus bambii* n. sp.; total body length 6.8 mm. Photo by S. Bambi.

a small ball, with a tuft of hair; inferiorly long row of hairs pointing backwards on inner side; second tarsal article short, third article much shorter than the second; onychium about as long as the two preceding articles together; metasternum with a median groove, sternites II-IV slightly convex, tergite VIII convex, with short sparse hairs.

Dimensions. Holotypus: total body length = 6.8 mm; body width (at prothorax) = 1.1 mm; length of the first metatarsal article of the hind legs = 3.9 mm. Paratypes: total body length = 6.8-6.9 mm; body width (at prothorax) = 1.0-1.1 mm; length of the first metatarsal article of the hind legs = 3.7-3.8 mm. Female: unknown.

Derivatio nominis

We are very glad to name this new species after our friend and colleague Mr Saulo Bambi (Natural History Museum, University of Florence) who was our partner and photographer during all the expeditions to Vietnam.

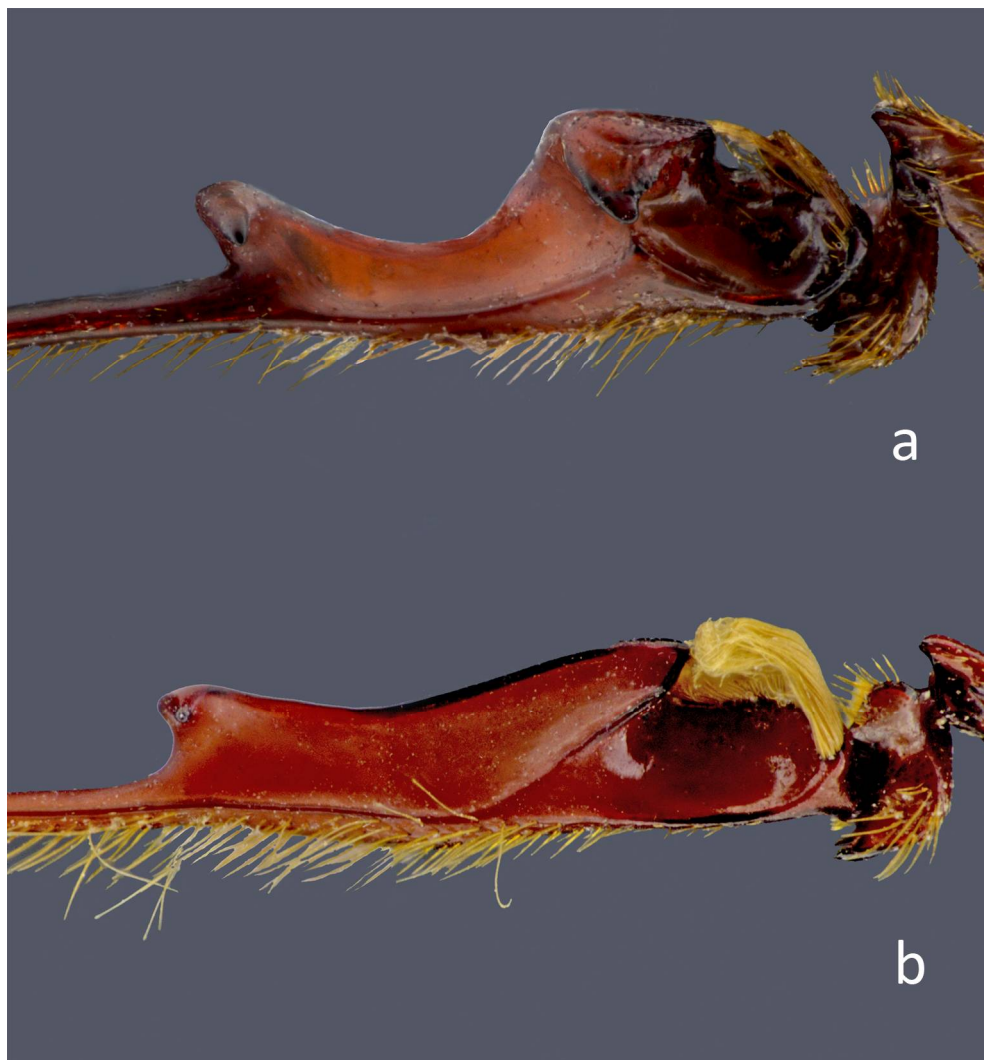


Fig. 2. Detail of the proximal part of the first tarsal article of male hind legs: a) *Calodromus bambii* n. sp.; b) *Calodromus amabilis* Kleine, 1916. Photos by S. Bambi.

Conclusions

DAMOISEAU (1971), SFORZI & BARTOLOZZI (2004), and BARTOLOZZI (2011) listed 11, 12 and 13 species respectively in the genus *Calodromus*. Now this number is increased to 14 and we give below an updated key for the identification of the males of 12 species - for *C. crinitus* Kleine, 1921 (Philippines) and *C. integer* Damoiseau, 1971 (Indonesia) only the females are known.

Key to species of male *Calodromus* Guérin-Méneville

1. First tarsal article of the hind legs shorter than femur *C. insignis* (Senna, 1894) 2
- First tarsal article of the hind legs always longer than femur
2. First metatarsal article ending with a tubercle about as long as, or longer than the second metatarsal article 3
- First metatarsal article not ending with a tubercle *C. kosteliae* Bartolozzi, 2011
3. Apical tubercle of the first metatarsal article bearing a tuft of hair 4
- Apical tubercle without tuft of hair 7
4. Thickened proximal part of the first metatarsal article short (less than 1/5 of the whole article), with a strongly hairy transverse depression *C. mellyi* Guérin-Méneville & Gory, 1832
- Thickened proximal part of the first metatarsal article longer (more than 1/5 of the whole article) 5
5. Thickened proximal part of the first metatarsal article almost parallelepiped, with a very small tooth directed inwards situated at its upper end *C. ito* Heller, 1910
- Inner dorsal face of the first metatarsal thickened part convex, with a strong curved tooth directed inwards distally 6
6. Thickened proximal part of the first metatarsal article almost equal in length to the thin distal part *C. bambii* n. sp.
- Thickened proximal part of the first metatarsal article much shorter than the thin distal part *C. amabilis* Kleine, 1916
7. Long slender distal part of the first metatarsal article without medial tooth 8
- Long slender distal part of the first metatarsal article with a medial tooth 11
8. Thickened proximal part of the first metatarsal article very short *C. simplex* Heller, 1910
- Thickened proximal part of the first metatarsal article at least as long as 1/3 of the whole article 9
9. Thickened proximal part of the first metatarsal article almost parallel sided in lateral view, ending with a strong pointed process directed inwards *C. malgosiae* Bartolozzi, 2011
- Thickened proximal part of the first metatarsal article posteriorly oblique in lateral view, without strong process directed inwards 10
10. First article of metatarsi as long as elytra; metafemora with a tooth on the inner side of the thickened part; borders of the transverse depression of the thickened part of the first metatarsal article with short hairs *C. luzonicus* Damoiseau, 1964
- First article of metatarsi as long as elytra and prothorax together; metafemora toothless on the inner side of the thickened part; borders of the transverse depression of the thickened part of the first metatarsal article hairless *C. kalabakani* Damoiseau, 1971
11. Thickened proximal part of the first metatarsal article short, with a small tooth directed inwards

- *C. vethi* Kleine, 1915
- Thickened proximal part of the first metatarsal article about as long as 2/5 of the entire article, with a very strong tooth directed inwards *C. douglasi* Kleine, 1931

According to DAMOISEAU (1971) the number of specimens of *Calodromus* present in museum collections is always very low, and members of this genus can be considered rare. During our last expedition to Vietnam (2016) we had the chance to collect many specimens belonging to some species of this genus, all of them collected at light during several nights, in tropical forest. It seems that *Calodromus* species are not as rare as supposed, but actually can be found in quite large numbers with light traps, in the right place (e.g. facing a primary forest) and at the right moment (e.g. nights without moon, and temperature and humidity conditions suitable for insect flight).

As pointed out by BARTOLOZZI (2011), the species belonging to this genus show a peculiar defensive behaviour: when disturbed, they are able to rotate the hind legs over the body so that the apical part of the long first metatibial article of the hind legs is directed upwards or forwards. We photographically document this behaviour for the first time (Fig. 3). The species illustrated is a male of *Calodromus mellyi* Guérin-Méneville & Gory, 1832, from Kon Chu Rang Nature Reserve, Vietnam. We have been able to verify that females also show this peculiar defensive behaviour.



Fig. 3. Defensive behavior of a male *Calodromus mellyi* Guérin-Méneville & Gory, 1832 (Vietnam: Kon Chu Rang Nature Reserve). Photo by S. Bambi.

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