



CHALCOSOMA ARGREGS SP. NOV. FROM MALAYSIA (COLEOPTERA: SCARABAEIDAE: DYNASTINAE)

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ABSTRACT

A new species of Scarabaeidae from Malaysia, *Chalcosoma argregs* sp. nov is described. It is compared with other species and diagnostic features illustrated and discussed.

Key words: Coleoptera, Scarabaeidae, Dynastinae, Malaysia, *Chalcosoma*, Cephalic horn, *Xylotrupes*

The genus *Chalcosoma* Hope (Coleoptera: Scarabaeidae: Dynastinae) consists of four species with eleven subspecies reported so far (Nagai, 2004). These are extensively distributed in tropical Asia. *C. argregs* sp. nov. the fifth new species, has been found in rain forests on an elevation of 600 msl ASL in Batang Padang, Perak, Malaysia.

Adult males of the genus *Chalcosoma* are equipped with a large horn towered steeply from the head and two very large curved horns protruded forward from the thorax. In comparison with other species of the genus such as *C. atlas* Linnaeus and *C. chiron* Olivier (synonym: *C. caucasus* Fabricius) (Kreml, 2002), *C. argregs* has a forked cephalic horn and is clearly distinguishable in the shape of the cephalic horn. Interestingly, the cephalic horn possesses a distinctive characteristic closely resembling that of the genus *Xylotrupes* Hope (Coleoptera: Scarabaeidae: Dynastinae). This characteristic feature is sufficient to determine that *C. argregs* as a new species.

MATERIAL AND METHODS

Chalcosoma atlas and *C. chiron* occur mainly in the mountains and hills of northern Malaysia. In middle elevation forests (600 meters ASL) of Batang Padang, Perak, Malaysia. The adult male was captured with a light trap and killed in 75 % of ethanol. Its specimen was compared with adult male specimens of other *Chalcosoma* species which were provided by Mr. Greg Watson, an entomologist in Malaysia. It was photographed using a Olympus C-1000L digital camera. The description of colour was based on dried specimen.

Chalcosoma argregs n. sp. (Fig. 1-2)

Diagnosis. While the adult male is extremely similar to that of *C. atlas* in the whole form and coloration, it is very easily distinguishable from the latter by the shape of its cephalic horn. The cephalic horn is bifurcated at the tip and is rather close to that of the genus *Xylotrupes* (Figs. 1-3). The most prominent characteristic is that the male has an elaborate forked horn with a small tooth, growing upward on its head, unlike the ones on the heads of *C. atlas* and *C. chiron*.

Material examined. Male, holotype, "Malaysia: Perak, Batang Padang, alt. 600 m, 16. IV. 2009, Greg Watson coll."; "*Chalcosoma argregs* n. sp. Takeuchi Satoru and Greg Watson det. B&".

Description

Male. The body is rounded overall and has sharp pointed claws at the end of each of its six legs. Head and horns are shiny black with a forked cephalic horn and two curved thoracic horns. Body 68 mm long and 31 mm wide. Head (with the cephalic horn) 15 mm long and 9 mm wide. Thorax 18 mm long and 21 mm wide (Figure 2A).

Etymology. The adult male was collected in Perak, a Malaysian state, by Mr. Greg Watson, an entomologist living in Malaysia. The Perak means silver in Malay. The new species is named by a combination of "Greg", his first name and first two letters of "argentum", meaning silver in Latin.

Distribution. Distribution of the genus *Chalcosoma* is Southeast Asia such as Indochina, Malay Peninsula, Indonesia, and Philippines, as shown in Table 1. (Unno, 1993; Kawano, 2002; Nagai, 2004). The adult male of

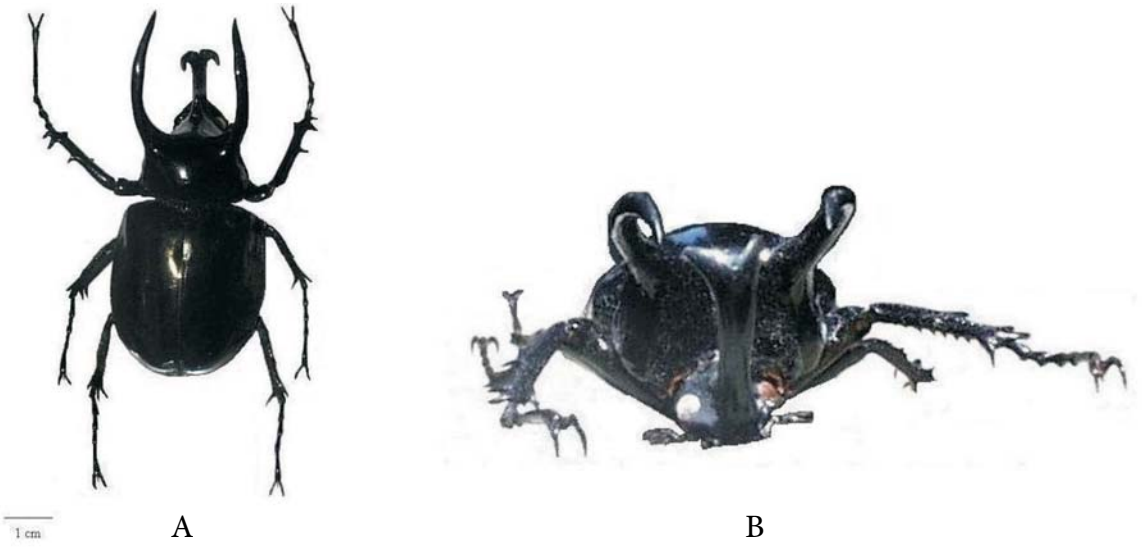


Fig. 1. *Chalcosoma argregs* n. sp.: male holotype, dorsal (A) and anterior (B) views

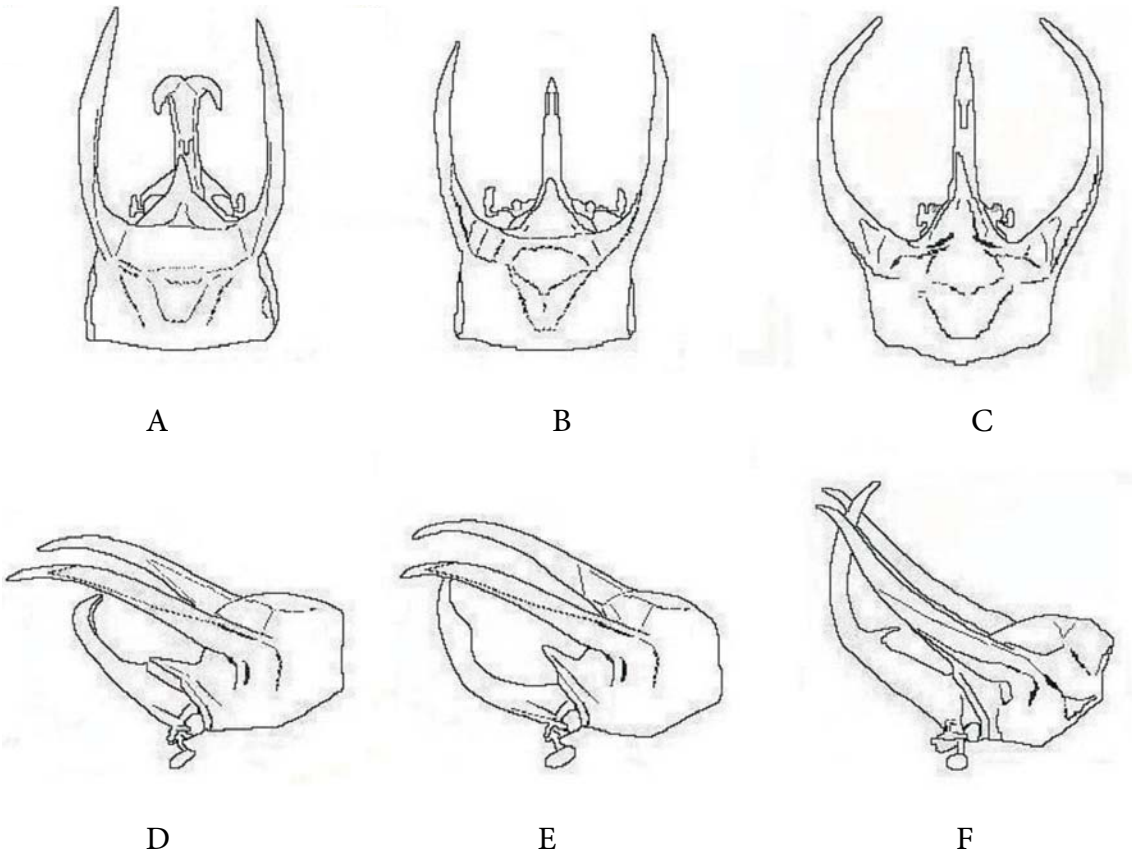


Fig. 2. *Chalcosoma* species from Malay Peninsula, head, dorsal and lateral views.

C. argregs sp. nov.(A,D) ; *C. atlas* (B,E); *C. chiron* (C,F).

Table 1. Distribution of the genus *Chalcosoma*.

Species and subspecies	Location
<i>Chalcosoma atlas atlas</i>	Sulawesi, Sangihe, Sitaro, and Togian islands
<i>Chalcosoma atlas hesperus</i>	Luzon, Mindanao, Palawan, Leyte, Mindoro, Marinduque, Romblon, Samar, Negros, Panaon, and Dinagat islands
<i>Chalcosoma atlas keyboh</i>	Malay Peninsula, Singapore, Borneo, and Sumatra islands
<i>Chalcosoma atlas mantetsu</i>	Myanmar, Thailand, Laos, and India
<i>Chalcosoma atlas shintae</i>	Peleng island
<i>Chalcosoma atlas butonensis</i>	Buton island
<i>Chalcosoma atlas simeuluensis</i>	Simeulue island
<i>Chalcosoma chiron chiron</i>	Java island
<i>Chalcosoma chiron jassens</i>	Banyak and Nias islands
<i>Chalcosoma chiron kirbyi</i>	Malay Peninsula
<i>Chalcosoma chiron belangeri</i>	Indochina and Pulau Langkawi island
<i>Chalcosoma moellenkampi</i>	Borneo and Laut islands
<i>Chalcosoma engganensis</i>	Enggano island

argregs was found in rainforests at an elevation of 600 msl ASL in Batang Padang, a district of the Perak State, which was a Malaysian state located in northwestern part of Malay Peninsula.

RESULTS AND DISCUSSION

The genus *Chalcosoma* is among the largest beetles in Asia. *C. chiron* inhabits forests at elevation of 800-1500 msl while the habitat of *C. atlas* is low-middle elevation forests (0-1200 msl) (Unno, 1993). An adult male of the new species was found in middle elevation forests (600M msl) of Batang Padang, Perak, Malaysia. The Perak is classic tropical rainforest climate, with 20-30 °C and over 80 % of humidity. In Malaysia, *Chalcosoma* species occur throughout the year and are especially plentiful from July to August.

Adult males of the genus *Chalcosoma* are recognized by their three large horns, the one projecting upward on the head and the others projecting forward from the thorax. The cephalic horns of the adult males of *C. atlas* and *C. chiron* are like a fish hook equally in shape (Fig. 2). In the case of *C. atlas*, there are two barb-like protrusions at the end of its cephalic horn. In the case of *C. chiron*, this feature is lacking and there is a tooth in the middle portion of its cephalic horn. On the other hand, *C. argregs* possesses a fork-like or forked cephalic horn with a small tooth in adult male. In shape, the cephalic horn is very unlike those of *C. atlas* and *C. chiron* (Fig. 1 and 2) and is very

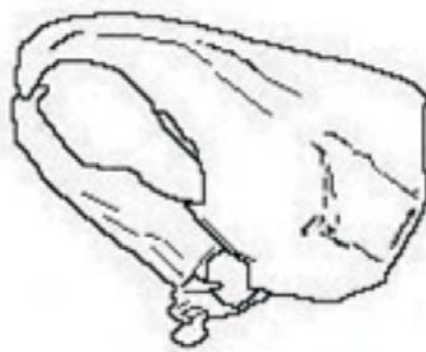


Fig. 3. *Xylotrupes beckeri*, head, lateral view : obtained from "Exoreptiles Malaysia", an online shop (Selangor, Malaysia).

similar to that of the genus *Xylotrupes* (Fig. 3). Two thoracic horns of *C. argregs* tend to bend down, and the thoracic horns are more like those of *C. atlas* than of *C. chiron* in shape (Figs. 1B and 2). Importantly, the cephalic horn of *C. argregs* is peculiar and this characteristic is not seen in other species of the genus *Chalcosoma*. *C. argregs* is recorded as a new species based on its morphological characteristics.

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