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Procleomenes gouverneuri sp. n. (Coleoptera: Cerambycidae) from Baltic amber: the first fossil member of the tribe Sestyrini Lacordaire, 1869

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A new fossil cerambycid from Baltic amber, *Procleomenes gouverneuri* sp. n. (Cerambycinae, Sestyrini) is described. It differs from all extant species in its peculiar elytral pattern formed by a scutellar spot, a pre-apical spot and an apical band. *Isosaphanus ferranti* Hintz, 1913 (Cerambycidae Xystrocerini) is recognised as a younger synonym of *Iridoclava congolensis* Bjørnstad, 2014 n. syn. (Cerambycinae, Sestyrini).

Key words: Coleoptera, Cerambycidae, fossil, Baltic amber, new species.

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INTRODUCTION

The tribe Sestyrini Lacordaire, 1869 (= Cleomenini Lacordaire, 1869) includes 27 genera and 283 species (Zicha, 1999-2018) widespread in Asia and Africa. *Iridoclava* Bjørnstad, 2014 must be excluded from this list since it is synonym of *Isosaphanus* Hintz, 1913, Xystrocerini, as it will be proved hereafter.

The Asian genus *Procleomenes* Gressitt & Rondon, 1970 is distributed with 23 species from south-eastern China to Sulawesi through Borneo and Philippines (Niisato & Tichý, 2016).

The first fossil species of Sestyrini, moreover the only known European species of this tribe, is described here.

MATERIALS AND METHODS

The beetle is preserved inside a oval piece of amber measuring 43x15x7 mm and including some "stellate hairs" (trichomes covering inflorescences of oaks), several small bubbles -especially covering the ventral side of the specimen - and fine dust.

Observations on the fossils were made using a stereomicroscope Antares Geminar 3 with 20-

40x eyepieces equipped with a micrometer system. However, the original cut of the amber, oblique and very close to the specimen, did not allow taking exact measures and valuating exact proportions. Pictures were furnished by Jonas Damzen, seller of this piece. The reconstruction of the habitus has been obtained with mixed traditional and computer graphic techniques.

SYSTEMATIC PART

Cerambycinae Latreille, 1802
Xystrocerini Blanchard, 1845
***Isosaphanus* Hintz, 1913**
= *Iridoclava* Bj¸rnstad, 2014 **n. syn.**

***Isosaphanus ferranti* Hintz, 1913**
= *Iridoclava congolensis* Bj¸rnstad, 2014 **n. syn.**

A simple comparison of the picture of the type (Vitali, 2010: Fig. 11) allows verifying that *Iridoclava congolensis* is actually a younger synonym of this species. The types of *Iridoclava congolensis* are topotypical (Kondué), collected by the same person (the Luxembourgish biologist and explorer Eduard Luja) and even having the pink label "*Ferranti* Hintz" (Bj¸rnstad, 2014), which actually indicated a paratype of *Isosaphanus Ferranti*. This genus is not related with *Hexarrhopala* Gahan, 1890, as Bj¸rnstad (2014) claimed, or other African Sestyrini but with some other Xystrocerini with elongated habitus, such as *Oemodana* Gahan, 1904; *Gennarus* Adlbauer, 2008; *Oxycauloeme* Lepesme, 1948; *Ethiolygrus* Adlbauer, 2008 and *Neolygrus* Martins, 1980.

Cerambycinae Latreille, 1802
Sestyrini Lacordaire, 1869
***Procleomenes* Gressitt & Rondon, 1970**
***Procleomenes gouverneuri* sp. n.**
(Figs. 1-4)

Holotype. Baltic amber, ex coll. J. Damzen, author's coll. FS71BS40.

The death position with opened wings suggests that the specimen was attracted by the flowing resin and drowned, swimming inside for a certain time.

Differential diagnosis
Procleomenes gouverneuri sp. n. differs from all known extant species in the elytra long and with a peculiar pattern. Concerning the pattern, a scutellar spot can be found only in the Bornean *P. tenuiformis* Niisato, 1986 and *P. longicollis* Niisato, 1986, but none of these species show a yellow elytral apex (Niisato, 1986). Moreover, all species with three elytral bands (basal, premedian and postmedian) always show a premedian yellow band and a black apex (both absent in *Procleomenes gouverneuri* sp. n.). The elytra cover the whole abdomen, whereas they leave uncovered one or two urites in modern species. However, the variability of such characters suggests to not introduce new names.

Description
Female (for general habitus and relatively short antennae), body length ~8 mm. Body elongated, black; antennae yellow with scape and apex of each segment black; legs black with femoral and tibial base more or less yellow; elytra black with a yellow pattern disposed as follows: a cordiform large scutellar spot, a pre-apical spot not reaching both marginal and sutural margin, and a transverse apical band.

Head large; forehead oblique, short; antennal tubercles close and not elevated; inter-antennal furrow reaching the base of the neck; eyes large, finely facetted, strongly reniform, very prominent laterally (as large as pronotum including lateral teeth), separated above by about one-third of the greatest width of head; neck with some raised setae. Palpi small; last maxillar and labial palpomere securiform, obliquely truncate at apex. Antennae eleven-segmented, barely shorter than body; antennomeres IV-X toothed externally, with some apical setae; antennomeres II-IV with median setae as well; scape weekly clavate, straight; pedicle elongate, one-fourth as long as

Fig. 1. *Procleomenes gouverneuri* sp. n., dorsal view

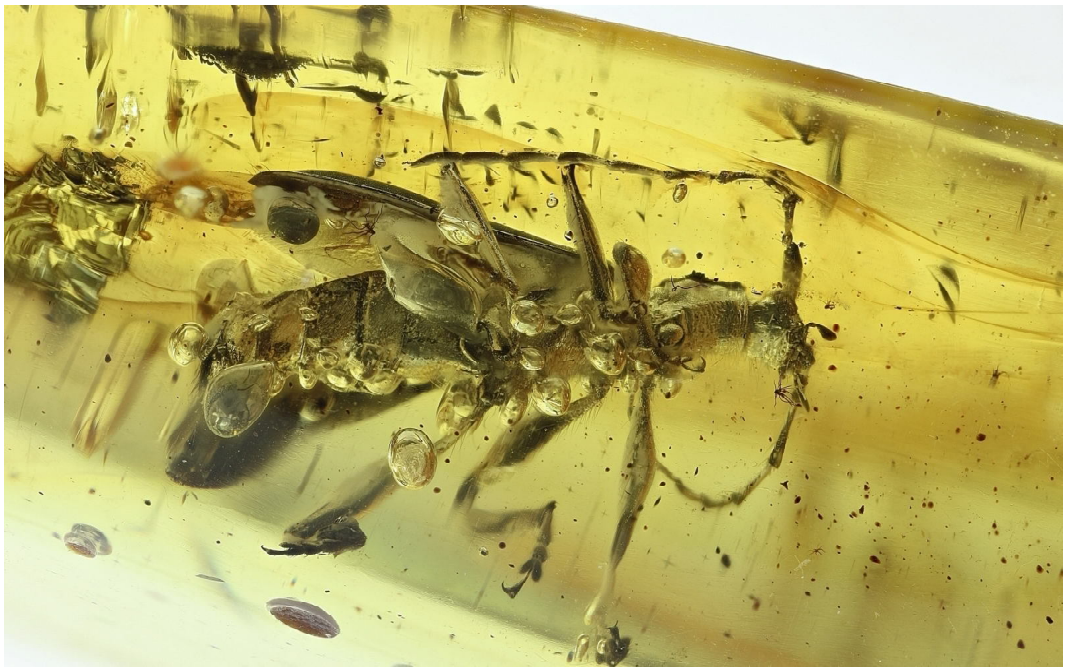

Fig. 2. *Procleomenes gouverneuri* sp. n., ventral view

scape; antennomere III less than two-thirds as long as scape; antennomere IV, VI and VII equal, about one-third as long as III; antennomere VIII-X progressively shortened; antennomere XI as long as IX (antennomere proportions according to the formula: 1.6: 0.4: 1.0: 1.3: 1.4: 1.3: 1.3: 1.2: 1.1: 0.9: 1.1).

Prothorax cylindrical, elongate, 2.3 times as long as wide, slightly larger at apex than at base; apex with a large apical collar, then slightly enlarged; sides armed with a large blunt conical tubercle at the middle and covered by some raised setae on the apical half; base one-half as wide as elytral base, biarcuate and acutely produced posteriorly in the middle, flattened along the posterior margin; disc covered with extremely fine dense punctures. Scutellum minute, subrectangular.

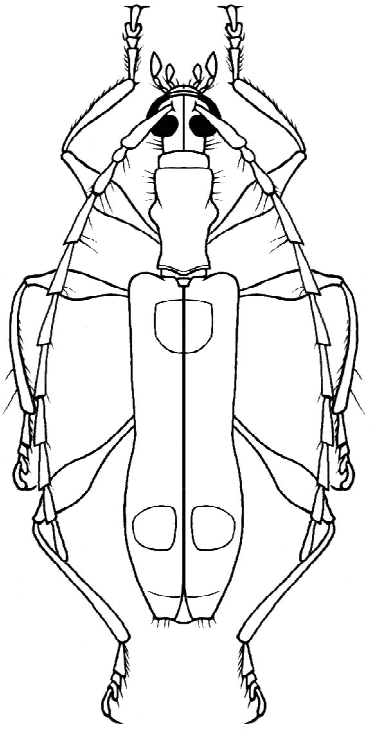

Fig. 3. *Procleomenes gouverneuri* sp. n., reconstruction

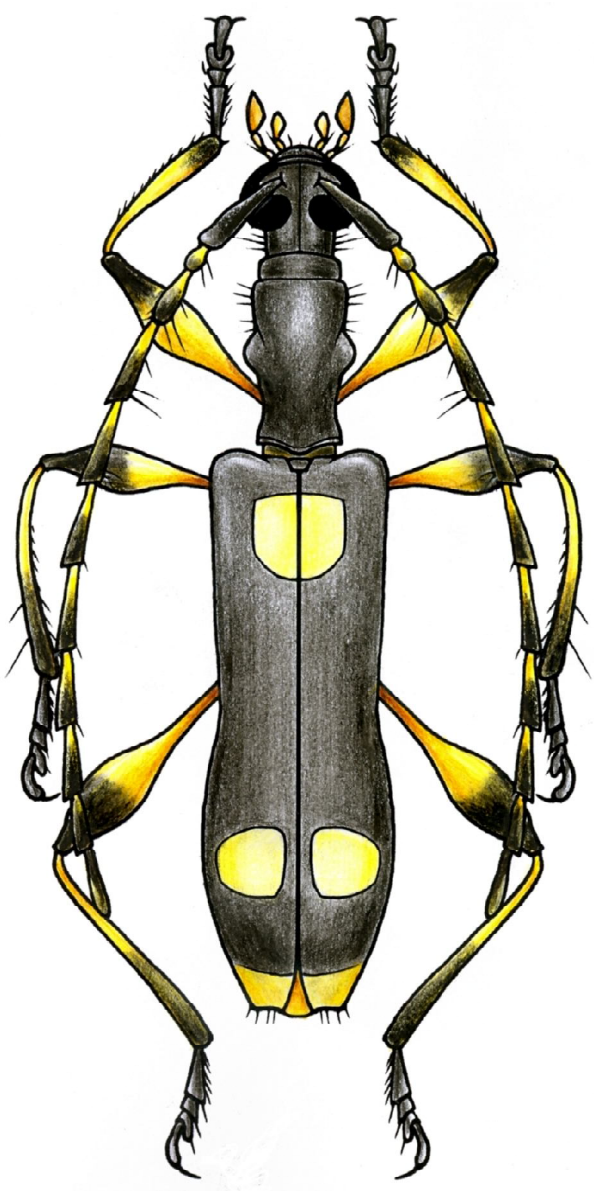

Fig. 4. *Procleomenes gouverneuri* sp. n., colour reconstruction

Elytra elongate, slightly dehiscent posteriorly, 3.4 times as long as wide at humeri; base anteriorly concave; humeri squared; sides constricted in the middle; apex concavely truncated; disc flat, covered with extremely fine dense punctures.

Ventral side covered with pubescence long and raised on head and prosternum, long and recumbent on the metasterum and fine and recumbent on the abdomen; procoxae globose, procoxal cavities rounded, posteriorly closed; urosternite visible I-V progressively shortened; urosternite VIII (genital segment) posteriorly rounded.

Legs relatively long, femora pedunculate, covered with long setae; tibiae evidently shorter than femora, feebly curved, covered with some sub-erect short setae; tarsi short; metatarsi one-half as long as metatibiae; metotarsomere I as long as metatarsomeres II and III together.

Etymology

This new species is dedicated to Xavier Gouverneur, enthusiastic explorer and excellent entomologist of the South-eastern Asian Cerambycofauna.

Assumed biology

Preimaginal forms and biology of the genus *Procleomenes* are still unknown, even if larvae are in all likelihood related to broadleaf-trees. Adults are collected mostly in clearings of mountain forests (Gressitt & Rondon, 1970). In Laos, adults of *P. elongatithorax* Gressitt & Rondon, 1970 were collected on flowers of *Castanopsis* (Fagaceae) at a height of about 6 m (Gouverneur, *in litt.*). Presumably, *Procleomenes gouverneuri* sp. n. shared analogue behaviour.

Remarks

The genus *Procleomenes* is characterised by elytral reduction, more accentuated in the most evolved species. The elytral apex is rounded, truncated, bispinose or pointed and more or less dehiscent. The pattern consists of three transverse light bands (basal, premedian and postmedian), which are often reduced to two in brachypterous species, the basal one tending to disappear. This pattern can be found in the sibling Malayan genus *Pseudocleomenes* Hayashi 1979 and in the Indochinese genus *Diplothorax* Gressitt & Rondon, 1970. The Bornean *P. longicollis* shows only a scutellar spot, looking somehow similar to the Malayan *Collyrodes lacordairei* Pascoe, 1859.

The putatively most primitive species, i.e. those with the longest elytra and three transverse bands, are widespread in the mountains bordering Yunnan, Thailand and Indochina, while the most evolved ones show a Malayan-Philippine-Indonesian distribution.

Manifestly, the genus widespread eastwards colonising Philippines and Sulawesi and cannot be considered as of Tropical origin. In contrast, the localisation of the more ancient taxa corresponds to those Baltic refuges already individuated for most beetles (Alekseev, 2017), including some cerambycids (Vitali, 2014; 2016), and dipterans Rachycerinae (Henning, 1967).

The habitus of *Procleomenes gouverneuri* sp. n. supports the fact that primitive members of this genus showed normally developed elytra as other members of the tribe. The truncated apex and the peculiar pattern do not seem, however, to fully fit an ancestral taxon since we could have expected rounded elytral apex and 4 regular transverse bands (basal, premedian, postmedian and apical).

On the other side, *Procleomenes gouverneuri* sp. n. seems directly related to current Bornean congeners that do not show the wasp-like elytral pattern of most congeners. This mimic pattern could have evolved only lately in *Procleomenes*; nonetheless, this hypothesis does not seem founded since Vespini and mimicking Lepturini were already present in Baltic fauna (Zang, 1905; Spahr, 1987).

Thus, *Procleomenes gouverneuri* sp. n. shows primitive characters but it was already specialised enough. This conclusion antedates the appearance of the genus *Procleomenes* to epochs preceding the Baltic fauna. Other observations are hazardous since the real limits

and consistence of this tribe and its relations with other ones are still debated.

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