

The fossil species of the subfamily Blacinae described by C. T. Brues (Hym.: Braconidae)

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ABSTRACT. — The fossil species from Baltic Amber belonging to the Blacinae (Hym.: Braconidae) described by C. T. Brues are revised. The types from the Königsberg Amber Collection and from the Fritsch Collection are considered to be lost. A neotype is designated for *Eubazus (Calyptus) crassicornis* (Brues) comb. nov., and together with *Eubazus (Calyptus) gracilicornis* (Brues) comb. nov. it is redescribed. *Blacus facialis* (Brues), *Orgilus ashmeadii* (Brues), *O. grandior* (Brues) and *O. longicornis* (Brues) are new combinations. The fossil genus *Electroblacus* Brues, 1933 is treated as subgenus of the genus *Blacus* Nees.

From 1923 till 1939 C. T. Brues described 10 species from Baltic Amber, which were assigned to the subfamily Blacinae. The fossil species were not included in my revision of the Blacini (Van Achterberg, 1976), because the types were largely unavailable for study. Six years later the situation has not become better and it seems best to nothing to publish my limited notes.

The large Baltic Amber Collection of the Königsberg University is no longer present at Kaliningrad (USSR, formerly Germany, Königsberg) and is considered to be completely lost (Stárý, 1973: 1). The late Dr. E. Königsmann (Berlin) kindly informed me that at least a part of this collection is present at the Geologisch-Paläontologisches Institut und Museum at Göttingen (West Germany). Owing to a grant by the Uyttenboogaart-Eliassen Stichting I was able to visit the institute at Göttingen in October 1975. Examination of the remnants of the Königsberg Amber Collection revealed that the identified part of the fossil Braconidae has been completely destroyed by fire. In the last days of the second world war the Königsberg Amber Collection was stored in a salt-mine about 40 km from Göttingen, together with petrol, which was set on fire by the allied troops for strategic reasons. The inescapable conclusion is that the 73 types of fossil Braconidae in the Königsberg Collection are lost.

However, Brues described another 10 species from types in the Fritsch Collection. This private collection could not be traced, neither in Göttingen, nor in Warsaw or Berlin and is also considered to be lost. There remains one species (*Blacus gracilicornis* Brues, 1939) which could be studied, since its type is housed in the Museum for Comparative Zoology at Cambridge, U.S.A. In the following part two species are redescribed and figured, and the remaining species are revised solely on the basis of the original descriptions. The age of the fossils from Baltic Amber is between 35 and 37.5 million years; it is surprising to note the close resemblance of many species (among them the two species redescribed below) with existing Braconidae. For terms used, see Van Achterberg, 1979 (p. 242-249).

Blacus andreei Brues

Blacus andreei Brues, 1933: 83 (key), 85; Shenefelt, 1969: 16.

Unfortunately Brues has not figured this species and supplied no data on the structure of the propodeum and the 1st metasomal tergite. Judging from the number of antennal segments, the length of the ovipositor, the shape of the ovipositor sheath and of the pterostigma, and the antefurcal vein m-cu of fore wing, it may be a quite ordinary member of the subgenus *Ganychorus* Haliday of the genus *Blacus* Nees. There is in the Museum for Comparative Zoology a piece of Baltic Amber, containing some males, which probably also belong to this subgenus.

Orgilus ashmeadii (Brues) comb. nov.

Neoblacus ashmeadii Brues, 1933: 87, fig. 49; Shenefelt, 1969: 116.

Neoblacus ashmeadii is certainly not congeneric with the type-species of the subgenus *Neoblacus* Ashmead (figs. 447-453 in Van Achterberg, 1976). Because of the distinctly enlarged hind coxae (fig. 49 in Brues, 1933), the gently sloping, not distinctly areolated propodeum, the smooth mesopleuron, and the rather robust 1st tergite, this species fits best in the genus *Orgilus* Nees (Orgilinae), despite the absence of the vein 1-SR+M of the fore wing.

Pygostolus clavatus Brues

Brues, 1933: 88-89; Shenefelt, 1969: 122.

Because the holotype is lost and not figured, its generic position is uncertain and is provisionally retained in the genus *Pygostolus* Haliday (Euphorinae).

Eubazus (Calyptus) crassicornis (Brues) comb. nov. (figs. 4-6).

Blacus crassicornis Brues, 1933: 82 (key), 83; Shenefelt, 1969: 18.

The eight type-specimens are lost, and I designate a ♀ ("Blacus sp. no. 2") in the Museum for Comparative Zoology as neotype. The main difference between the Blacini and the Brachistini is the presence in the Blacini of the dorsope on the 1st tergite; these are absent in the Brachistini. Because it is not possible to verify the presence of a dorsope in the examined fossil specimens, an additional character has been used, viz., the position of vein 2-SR of the fore wing. In the Blacini the vein points towards a spot about halfway on the vein 1-R1 (metacarp) of the fore wing (but the Neotropical genus *Blacozona* Van Achterberg is borderline in this as in other aspects), and in the Brachistini the vein 2-SR points to a spot near the apex of the pterostigma (fig. 5).

Redescription of the neotype of *E. crassicornis*: Length of body 2.4 mm, of fore wing 2.2 mm.

Head. — Antennal segments 18 (but apical segment composed of two parts; according to the original description 17-18 segments), 3rd segment 1.2 times 4th segment, length of 3rd and 4th segments 3.6 and 3.0 times their width, respectively, subapical segment quadrate, moniliform (fig. 4); length of maxillary palp about equal to height of head; eye in dorsal view about 1.7 times temple; occipital carina meeting hypostomal carina far above base of mandible; length of malar space about 0.7 times basal width of mandible; malar suture distinct; mandible robust, not twisted apically.

Mesosoma. — Length of mesosoma 1.3 times its height; pronotal side largely reticulate; prepectal carina complete; precoxal sulcus absent, except for a shallow depression; pleural sulcus medium-sized and distinctly crenulate; metapleural flange absent; metapleuron reticulate (but medially smooth); notauli present, crenulate; mesoscutum densely, short setose; dorsal part of propodeum shorter than posterior part, areolate and spaced reticulate; propodeal spiracle small; propodeal tubercle absent.

Wings. — Fore wing: First discal cell broadly truncate anteriorly; marginal cell comparatively wide (fig. 5); 3-SR+SR1 distinctly curved basally (fig. 5); 2-R1 present, short; 1-CU1 : 2-CU1 = 1 : 6; CU1b absent, resulting in an open 1st subdiscal cell; remnants of 2A and a are present. Hind wing: M+CU about 2.5 times 1-M.

Legs. — Hind coxa rugose dorsally; tarsal claws simple, slender, rather small, without lobe; length of femur, tibia, and basitarsus of hind leg 3.4, ca. 7 and 6 times their width, respectively; inner hind tibial spurs slightly shorter than half of its basitarsus.

Metasoma. — First tergite rather robust, its dorsal carinae distinct, converging; laterope large, deep; 2nd tergite smooth, without distinct sharp lateral crease; 4th segment exposed (fig. 4); length of ovipositor sheath 0.66 times fore wing; ovipositor straight, but apex curved downwards; hypopygium medium-sized; metasoma largely short setose.



Figs. 1-3, *Eubazus (Calyptus) gracilicornis* (Brues), holotype. 1, habitus, lateral aspect; 2, hind leg; 3, wings. Figs. 4-6, *Eubazus (C.) crassicornis* (Brues), neotype. 4, habitus, lateral aspect; 5, wings; 6, hind leg.

Colour. — Blackish; pterostigma brown; legs yellowish; coxae and hind femur infuscated. Neotype deposited in the Museum of Comparative Zoology, Cambridge, U.S.A.

Note. *Eubazus crassicornis* is closely related to the recent *E. flavipes* (Haliday, 1835), because of the untwisted mandible, the broadly sessile 1st discal cell of fore wing and the moniliform subapical antennal segments. However, *flavipes* differs by the slender marginal cell of fore wing, the long ovipositor sheath (about 1.1 times fore wing), the number of antennal segments (22-25) and the (sub)equal 3rd and 4th antennal segments.

Blacus facialis (Brues) comb. nov.

Electroblacus facialis Brues, 1933: 86, fig. 47; Shenefelt, 1969: 33.

Brues (1933: 85-86) erected the genus *Electroblacus* for *facialis* because of the large head, which is "very much wider than the thorax, the very long vertex, the temples greatly widened, while the lengthened face is strongly receding so as to be almost horizontal". However, all these characters (as shown by Brues in his fig. 47) are more or less equally present in the genus *Blacus* Nees and judging from the wing venation, moniliform antenna and sculpture of propodeum it may be closely related to the subgenus *Blacus*. In my key to the (sub)genera of the Blacini (Van Achterberg, 1976: 174-176) it can be inserted as follows:

- 7a. Antennal segments of ♀ 16; precoxal sulcus absent; propodeum without tubercles
 subgenus *Electroblacus* Brues stat. nov.
 — Antennal segments of ♀ 17; precoxal sulcus at least medially present; propodeum often
 with tubercles subgenus *Blacus* Nees.

Blacus facialis is the only known species of the subgenus *Electroblacus*.

Blacus fritschii Brues

Brues, 1933: 84-85; Shenefelt, 1969: 20.

Because the type (in the Fritsch Collection) is considered to be lost and the type has not been figured by Brues, its generic position is uncertain; for the moment it is retained in the genus *Blacus*.

Eubazus (Calyptus) gracilicornis (Brues) comb. nov. (figs. 1-3)

Blacus gracilicornis Brues, 1939: 256; Shenefelt, 1969: 20.

Study of the holotype (kindly loaned by Prof. Carpenter) revealed that it belongs to the genus *Eubazus* and is closely related to *Eubazus macrurus* (Thomson, 1892) of which the type-series was kindly loaned by Dr. R. Danielsson. Both species have the mandibles distinctly twisted apically and the subapical antennal segments slender. However, *macrurus* has the ovipositor sheath longer (about 1.3 times fore wing), vein 2-R1 of fore wing shortly developed, 1st discal cell of fore wing distinctly sessile anteriorly and number of antennal segments 19.

Redescription of holotype, ♀: length of body 2.2 mm, of fore wing 1.9 mm.

Head. — Antennal segments 17, 3rd antennal segment as long as 4th segment, length of 3rd and 4th segments both 4.5 times their width, penultimate segment 1.5 times its width; length of maxillary palp about equal to height of head; POL : Ø ocellus : OOL = ca. 4 : 3 : 6; occipital carina complete, meeting hypostomal carina far above base of mandible; clypeus less transverse than that of *crassicornis*; malar suture present; length of malar space about 0.7 times basal width of mandible; mandible distinctly twisted apically.

Mesosoma. — Length of mesosoma 1.3 times its height; pronotal sides reticulate, but medially largely smooth; prepectal carina complete; precoxal sulcus absent, except for a shallow depression; pleural sulcus wide, distinctly crenulate; metapleural flange small, truncate apically; metapleuron reticulate, medially partly smooth (fig. 1); notauli complete, rather widely crenulate; dorsal part of propodeum shorter than posterior part, both reticulate and areolate;

medial carina short; propodeal spiracle small; propodeal tubercle absent.

Wings. — Fore wing: First discal cell subpetiolate anteriorly (fig. 3); marginal cell comparatively wide (fig. 3); 3-SR+SR1 slightly curved basally; 2-R1 absent; 1-CU1 : 2-CU1 = 3 : 13; CU1b absent; remnants of 2A and a are present. Hind wing: M+CU about 2 times 1-M.

Legs. — Hind coxa largely smooth dorsally; tarsal claws simple, stout, without lobe; length of femur, tibia and basitarsus of hind leg about 3.6, 7.8 and 5 times their width, respectively; inner hind tibial spur about 1/3 length of hind basitarsus.

Metasoma. — First tergite rather stout; 2nd tergite smooth, without distinct lateral crease; 4th tergite distinctly exposed (fig. 1); metasoma rather glabrous dorsally; length of ovipositor sheath 0.92 times fore wing; ovipositor straight, with apex curved downwards; hypopygium medium-sized.

Colour. — Dark reddish-brown.

Holotype in the Museum for Comparative Zoology, Cambridge, U.S.A.: "No. 9400, *Blacus gracilicornis* Brues, Holotype, Baltic Amber".

Orgilus grandior (Brues) comb. nov.

Blacus grandior Brues, 1933: 83-84; Shenefelt, 1969: 20.

This species was not figured by Brues, but his notes about the propodeum ("quite smooth") and the 1st metasomal tergite ("without any longitudinal ridges") indicate that it does not belong to the *Blacini*, and may fit best in the genus *Orgilus* Nees.

Orgilus longicornis (Brues) comb. nov.

Neoblacus longicornis Brues, 1933: 87-88, fig. 48; Shenefelt, 1969: 116.

As shown in the figure given by Brues the hind coxa is distinctly enlarged and vein 1-SR+M of fore wing is absent. This indicates that it is related to *Orgilus ashmeadii* (Brues); the species is placed also provisionally in the genus *Orgilus* Nees.

Blacus multiarticuliformis Shenefelt

Blacus multiarticulatus Brues, 1923: 330, 1933: 82, 84, fig. 46; Shenefelt, 1969: 22 (nec Ratzeburg, 1852).

Blacus multiarticuliformis Shenefelt, 1969: 22.

Peculiar species because of the high number of antennal segments, viz., 24 (according to the key) — 28 (according to the description) in each sex.

The fossil species retained or placed in the genus *Blacus* can be separated as follows:

1. Ovipositor sheath about as long as body; antennal segments 24-28
..... *multiarticuliformis* Shenefelt.
— Ovipositor sheath a little longer than half length of metasoma or shorter; antennal segments 16-23 2.
2. Antennal segments 16; length of body 1.5-1.7 mm *facialis* (Brues).
— Antennal segments 21-23; length of body 2.0-2.7 mm 3.
3. Antennal segments of ♀ 21; ovipositor a little longer than half of metasoma, its sheath slender; pterostigma triangular and rather narrow; vein m-cu of fore wing distinctly antefurcal
..... *andreei* Brues.
— Antennal segments of ♀ 23; ovipositor very short, extending scarcely beyond tip of metasoma, its sheath curved and very weakly clavate; pterostigma broad; vein m-cu of fore wing interstitial with vein 2-SR *fritschii* Brues.

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FIBIGER, M. & P. SVENDSEN, 1981. DANSKE NATSOMMERFUGLE: 1-272, 278 tekstfiguren, 6 kleurenplaten met 119 figuren. Scandinavian Science Press Ltd, Christiansholms Parallevej 2, 2930 Klampenborg, Danmark. Prijs (gebonden) Dkr. 249. ISBN 87-87491-38-9.

Het boek is een vervolg en aanvulling op de drie bekende werken van dr. Skat Hoffmeyer: De Danske Spindere (1948, tweede druk 1960), De Danske Uglar (1949, tweede druk 1962) en De Danske Maalere (1952, tweede druk 1966), een indeling van de nachtvlinders (Deens: Natsommerfugle) zoals die ook bij Seitz te vinden is.

Hoffmeyer overleed in 1979 op 87-jarige leeftijd. Zijn portret staat op de eerste pagina van het nieuwe boek als herinnering aan een man wiens boeken een enorme stimulans geweest zijn voor de Deense amateurs om zich met enthousiasme te wijden aan de studie van de vlinderfauna van hun land. Het resultaat daarvan is dat tal van nieuwe gegevens bekend geworden zijn, zowel wat de verspreiding en biologie van de soorten als wat nieuwe aanwinsten voor de Deense fauna betreft, zodat een aanvulling op Hoffmeyers boeken zeer welkom is.

De beide auteurs hebben dit alles verwerkt in een uitstekend verzorgd boek. De talrijke tekstfiguren geven afbeeldingen van de nieuwe soorten, rupsen en veel verspreidingskaarten. De mooie kleurenplaten geven afbeeldingen van interessante Deense exemplaren en tekeningen van rupsen. Het boek wordt besloten met een literatuurlijst van bijna 18 pagina's en een index.

Overigens is dit het eerste deel van een geheel nieuwe serie, genaamd Dansk Faunistisk Bibliothek. De drie volgende delen zullen in elk geval weer insecten tot onderwerp hebben. — B. J. Lempke.

CORRECTIE

Op p. 35, regel 24 van onderen staat, dat in 1980 in het duingebied slechts 57 exemplaren van *Issoria lathonia* waren waargenomen. Dit moet zijn: 157.