Macratriinae (Coleoptera: Anthicidae) of the Baltic amber

Dmitry Telnov

Stopiņu novads, Dārza iela 10, LV-2130, Dzidriņas, Latvia; e-mail: anthicus@gmail.com

TELNOV D. 2012. MACRATRIINAE (COLEOPTERA: ANTHICIDAE) OF THE BALTIC AMBER. – *Latvijas Entomologs* 51: 27-39.

Abstract: A new species of Macratriinae (Coleoptera: Anthicidae) from Baltic amber is described and illustrated – *Macratria alleni* sp. nov. The genus *Protomacratria* Abdullah, 1964 is placed as a junior synonym of *Macratria* Newman, 1838. A key to fossil species of Macratriinae is presented for the first time. Additional information on known species of Baltic amber Macratriinae is also provided.

Key words: *Macratria*, *Protomacratria*, Macratriinae, Anthicidae, Coleoptera, Eocene, Baltic amber, taxonomy.

Introduction

The Macratriinae is one of eight subfamilies of the Anthicidae sensu stricto (Chandler 2010). There are 5 genera and two tribes recognized within this subfamily – Macratriini LeConte, 1862 and †Camelomorphini Kirejtshuk, Azar et Telnov, 2008 (Telnov 2011).

Two genera and three species of Macratriinae have been previously known from Baltic amber (Abdullah 1964, 1965, Kirejtshuk 2002). Descriptions of these three species have never been revised since their original descriptions. I received additional specimens of *Macratria* from Baltic amber for identification which stimulated this critical review of hitherto described Baltic amber Macratriinae.

Material and methods

Specimens were studied using a Leica S6D stereomicroscope. Specimen photographs were taken using a Canon EOS 450D SLR camera attached to the microscope, and CombineZP software was used for image stacking. All taxa are listed alphabetically, since a phylogenetic arrangement is impossible. All label

data is reproduced exactly, with no corrections or additions; labels (if more than one for the same specimen) are separated by slashes (/). If not otherwise stated, all labels are printed. My comments are placed in square brackets [ ].

The following abbreviations are used:

BMNH – British Museum (Natural History), London, U.K.;
GPIH – Geologisch-Paläontologisches Institut und Museum Universität Hamburg, Germany;
ISZP – Institute of Systematic and evolution of animals (Instytut systematyki i ewolucji zwierząt), Polish Academy of sciences, Krakow, Poland;
LDM – Latvian Natural History Museum (Latvijas dabas muzejs), Rīga, Latvia.

Systematic part

Among the five macratriine genera, two are known from amber inclusions. †*Protomacratria* Abdullah, 1964 (Macratriini) was established for two Baltic amber species, but †*Camelomorpha* Kirejtshuk, Azar et Telnov, 2008 (†Camelomorphini) (coauthors of this taxon are three and not two as specified by Bouchard et al. 2011) is a monotypic genus described from Lebanese amber. A fourth amber fossil macratriine species is known from the cosmopolitan genus *Macratria* Newman, 1838, the most diverse in the subfamily, which includes 295 recent and fossil species (Telnov 2011). No fossil representatives are hitherto known from the other genera of Macratriinae, namely *Salimuzzamania* Abdullah, 1968 (Central America) and *Thambospasta* Werner, 1974 (southern U.S.A.). According to recent studies (Telnov 2009), the Madagascan genus *Telesinus* Fairmaire, 1903 is a member of Eurygeniinae and not Macratriinae, where it was erroneously placed by Chandler (2010).

In this publication, one new synonymy and two new combinations are made and one species new to science is described and illustrated. An original identification key to all fossil species of Macratriinae (Anthicidae) is also provided for the first time.

Protomacratria Abdullah, 1964

Abdullah (1964: 332) placed his new genus into 'Pedilinae Macratriini', now Macratriini of Macratriinae. Already in the original description it was stated, that (citation from Abdullah 1964: 332) 'in general form and shape of maxillary palpi the two specimens described below remind me of *Macratria* Newman but they lack pubescence on the tibial spurs and have unusual punctures on the vertex. When the revision of the world species of *Macratria* on which I am

now engaged is complete, the position of the two specimens from amber can be considered'; 'It is doubtful if the large punctures or pits on the vertex of *Protomacratria* are dorsal ocelli' (Abdullah 1964: 334). In his "Natural classification of the family Anthicidae..." Abdullah (1969: 353) erroneously stated that tibial spurs are absent in *Protomacratria*, what was obviously wrong. All other characters of *Protomacratria* given in the original description (reduced tempora, distinct clypeolabral and indistinct frontoclypeal suture, obsolete frontal ridge, 4-segmented maxillary palpi, lateral and convex eyes, width of the head nearly equal to that of pronotal base, filiform 11-segmented antennae, antennomeres 9-10 (or 11) slightly serrate, terminal antennomere slightly longer than penultimate one, longitudinal pronotum, non-contiguous metacoxae, short tibial spurs, tarsal claws simple or appendiculate, presence of epipleural fold (carina) on elytra, striato-punctate dorsal surface of elytra and 5 visible ventrites) are in fact not distinctive and do not separate Abdullah's taxon from *Macratria* (most of these characters are discussed by Telnov (2011) in a monograph of Indo-Australian *Macratria*).

After studying the type specimens of *Protomacratria appendiculata* (type of the genus, original designation by Abdullah (1964: 333)) and of *P. tripunctata*, I was unable to observe any differences separating the above-mentioned species from typical *Macratria*. Moreover, characters given by Abdullah - 'lack of pubescence on the tibial spurs' cannot be confirmed (all tibial spurs of both species are clearly densely pubescent by short and strong setae), but 'unusual punctures on the vertex' are no more than three vague circular impressions on the head (possibly caused by damage) and because of this are only visible in one specimen (*P. appendiculata*) and 'the two posterior punctures are not visible [in *P. tripunctata*] but I think they will be found to be present' (Abdullah 1964: 334). In any case, this character alone (presence of impressions on the head) could not be enough to keep this genus separately from *Macratria*. So a new synonymy is proposed:

***Macratria* Newman, 1838**
= *Protomacratria* Abdullah, 1964 **syn. nov.**

***Macratria alleni* sp. nov.** (Figs 6-7)
Holotype ?♀ LDM: No. G 404/3 / HOLOTYPE [label red] / MACRATRIA alleni sp. nov. det. D.Telnov, 2011.

Beetle inclusion in a slice of amber with some circular dim microcracks around upperside of the body, upperside is invisible; Baltic amber collected in Lithuania or

Latvia, Upper Eocene.

Derivatio nominis: Patronymic. This species is devoted to Mr. Albert Dean Allen (U.S.A.), the first owner of the holotype.

Measurements [due to the position of the inclusion which is not available in dorsal view, and strong deformation (specimen is flattened dorsally) it is not possible to measure the width of any of body parts]: Total body length ~3.0 mm. Head ~0.5 mm long, pronotum ~0.7 mm long, elytra 1.8 mm long.

Colouration: Forebody brown to reddish, elytra darker brown to black. Antennae and palpi paler reddish, 2-3 terminal antennomeres darkened. Legs reddish except darkened tibiae. Trochanters reddish. Abdomen reddish to reddish brown.

Description: Head [strongly damaged] elongate, constricted posteriad to eyes. Base narrower than median part. Eyes large. Dorsal pubescence with some separate long and erect setae. Groups of long setae also on posteriolateral margins of the head. Antennae reaching elytral humeri. Antennomeres 3-4 and 5-6 slender, almost equal in size and proportions. Antennomeres 8-9 slightly shortened and widened distally. Terminal antennomere elongate conical, almost twice so long as penultimate one. Terminal maxillary palpomere elongate cultriform. Pronotum [strongly damaged] with anterior rim, dorsally densely but shortly suberect pubescent. Elytra [strongly damaged] with distinct longitudinal sulcus along the lateral margin. Punctures distinct, partly forming more or less regular rows in basal half of elytra. Pubescence subdecumbent, short and dense. Dorsally with separate longer and erect setae. Legs with distinctly clavate femora. Tibial spurs long, minutely setose. Three basal pro- and mesotarsomeres strongly widened and dorso-ventrally flattened. Basal metatarsomere longer than combined length of three remaining tarsomeres. All tarsal claws appendiculate. Hind wings well developed. Last visible ventrites without apical appendages.

Differential diagnosis: Among the known fossil species, *M. alleni* sp. nov. is remarkable due to the reddish colouration of the ventral surface and legs (meso- and metatibiae look darker than femora and tarsi), head constricted posteriad, long tibial spurs and strongly widened three basal tarsomere of pro- and mesotarsi.

Macratria appendiculata (Abdullah, 1964) comb. nov. (Figs 1-4)

Abdullah (1964: 333, plate 1: figs 1-3), as *Protomacratria appendiculata*; Abdullah (1969: 353), as *Protomacratria appendiculata*; Larsson (1978: 146), as *Protomacratria appendiculata*; Spahr (1981: 10), as *Proto-*

macratria appendiculata; Kirejtshuk (2002: no pagination), as *Protomacratria appendiculata*.

Holotype (BMNH): In. 18788 [Baltic amber, Upper Eocene].

Additional material 1?♀ LDM: No. G 404/4, beetle inclusion in a slice of amber, with air bubble held on setae all around the specimen; Baltic amber collected in Lithuania or Latvia, Upper Eocene.

Characters additional to the original description: Eyes very large and strongly prominent, roughly facetted. Tempora short. Head base with short but broad median longitudinal impression. Tibial spurs minutely setose. Three basal pro- and mesotarsomeres strongly widened and dorso-ventrally flattened. Basal metatarsomere longer than combined wide of three remaining tarsomeres.

***Macratria succinia* Abdullah, 1965** (Figs 8-11)

Abdullah (1965: 38, plate 1: figs 1-2); Kirejtshuk (2002), erroneously mentioned description year of this species as 1964; Kubisz (2000: 227), incorrectly identified as *Protomacratria appendiculata*.

Holotype (GPIH): Typ.-Kat. 3893 [Baltic amber, Upper Eocene].

Additional material, LDM 2 specimens: No. G 404/5 & G 404/6 [two beetle inclusions about 3 mm apart in a large slice of amber], Baltic amber collected in Lithuania or Latvia, Upper Eocene; ISZP 1 specimen: MP/1348 Coleoptera: Anthicidae: *Protomacratria appendiculata* 1 det: D. Kubisz, 1999 waga: 3.4 g Dar: Jacek Serafin [single specimen], Baltic amber [collecting locality unknown], Upper Eocene.

Notes: Abdullah gave the wrong ID number of type specimen in his original description of this species. The holotype specimen is numbered 3893 and not 'no. 1065' as mentioned by Abdullah (1965).

***Macratria tripunctata* (Abdullah, 1964) comb. nov.** (Figs 4-5)

Abdullah (1964: 333, plate 1: fig. 4), as *Protomacratria tripunctata*; Abdullah (1969: 353), as *Protomacratria tripunctata*; Larsson (1978: 146), as *Protomacratria tripunctata*; Spahr (1981: 10), as *Protomacratria tripunctata*; Kirejtshuk (2002: no pagination), as *Protomacratria tripunctata*.

Holotype (BMNH): In. 17723 [Baltic amber, Upper Eocene].

Characters additional to the original description: Eyes very large and strongly prominent.

***Macratria* sp.**

Klebs (1910: 237); Bachofen-Echt (1949: 112); Abdullah (1964: 331); Larsson (1978: 146); Spahr (1981: 10).

There are no indet. *Macratria* in Klebs's collection's, part which is stored at BMNH (C. Mellish pers. comm.). I was not able to locate these

5 specimens at any museum. At least a part of Kleb's collection is considered to be lost or even destroyed in Königsberg during World War II.

Identification key to fossil Macratriinae (Anthicidae)

I have included all known fossil species of Macratriinae in this key, and not only species described from the Baltic amber.

1 Pronotum strongly narrowed in posterior part, anterior half being distinctly broader than posterior one. Three terminal antennomeres very elongate, almost as long as combined length of 8 preceding antennomeres. Lebanese amber (Lower Cretaceous) .... *Camelomorpha longicervix* Kirejtshuk, Azar et Telnov, 2008

– Pronotum only slightly narrowed posteriad, anterior half indistinctly broader than posterior one. Three terminal antennomeres much shorter 2

2 Large species, total body length (excluding exposed abdominal ventrites) ~8.0 mm. Pronotum elongate and narrow. Florissant formation of Colorado (Eocene) .... *Macratria gigantea* Wickham, 1910

– Species of distinctly smaller body size. Pronotum not very narrow. Species from Baltic amber (Upper Eocene) 3

3 Tarsal claws of all tarsi appendiculate ... 4

– Tarsal claws of at least one leg pair simple .... *Macratria tripunctata* (Abdullah, 1964)

4 Legs red, underside reddish to reddish brown. Head distinctly constricted posterior to eyes ..... *Macratria alleni* sp. nov.

– Legs dark to yellowish brown but never red. Underside dark brown to black. Head is not or only shortly constricted posterior to eyes 5

5 Head base narrowly rounded, notched medially. Third maxillary palpomere widened distally but distinctly longer than broad. Tempora short but clearly visible. Antennomeres 6-8 widened distally but elongate ..... *Macratria appendiculata* (Abdullah, 1964)

– Head base broadly rounded, notched medially. Third maxillary palpomere short and strongly triangular, not longer than broad. Eyes very strongly prominent and large, almost covering all tempora. Antennomeres 6-8 shortened and widened, looks ovoid .... *Macratria succinia* Abdullah, 1965

Acknowledgements

I am deeply indebted to Aneta Garbula and Daniel Kubisz (both ISZP), Dr. Ulrich Kotthoff (GPIH), Claire Mellish (Department of Palaeontology, BMNH) for providing material for study and friendly assistance in preparing photographs of previously described species. Albert Dean Allen (Boise, Idaho, U.S.A.) is thanked for his altruism for providing highly interesting Macratriinae specimens from Baltic amber. I

am also grateful to Dr. Stephen G. Compton (Leeds University, Leeds, United Kingdom) for reading and commenting on the manuscript.

References

Abdullah M. 1964. New heteromerous beetles (Coleoptera) from the Baltic amber of eastern Prussia and gum copal of Zanzibar. – *Transactions of the Royal Entomological Society of London* **116**, No. 13: 329-346, pls. I-II.

Abdullah M. 1965. New Anthicidae and Pyrochroidae (Coleoptera) from the Baltic Amber (Oligocene). – *The Entomologist* **98**: 38-42.

Abdullah M. 1969. The natural classification of the family Anthicidae with some ecological and ethological observations. – *Deutsche entomologische Zeitschrift* **16**, No. 4/5: 323-366.

Bachofen-Echt A. 1949. *Der Bernstein und seine Einschlüße.* Springer Verlag, Wien: 1-204 + 1 pl. + 188 figs.

Bouchard P., Bousquet Y., Davies A.E., Alonso-Zarazaga M.A., Lawrence J.F., Lyal C.H.C., Newton A.F., Reid C.A.M., Schmitt M., Ślipiński S.A., Smith A.B.T. 2011. Family-group names in Coleoptera (Insecta). – *ZooKeys* **88**: 972 pp.

Chandler D.S. 2010. 11.26. Anthicidae Latreille, 1819: 729-741. In: Leschen R.A.B., Beutel R.G. & Lawrence J.F. (eds) *Coleoptera, Beetles. Volume 2: Morphology and systematics (Elateroidea, Bostrichiformia, Cucujiformia partim). Arthropoda Insecta. Handbook of zoology*. Berlin & New York, De Gruyter: 786 pp.

Kirejtshuk A.G. 2002. Catalogue of fossil Coleoptera [permanent website] – http://www.zin.ru/Animalia/Coleoptera/eng/paleosys.htm [last accessed: 15.08.2011].

Klebs R. 1910. Über Bernstein Einschlüße im allgemeinen und die Coleopteren meiner Bersteinsammlung. – *Schriften der Physikalisch-Ökonomischen Gesellschaft zu Königsberg* **51**, No. 3: 217-242.

Kubisz D. 2000. Fossil beetles (Coleoptera) from Baltic amber in the collection of the Museum of Natural History of ISEA in Krakow. – *Polskie pismo entomologiczne* **69**, No. 2: 225-230.

Larsson S.G. 1978. *Baltic Amber - a palaeobiological study.* Entomonograph **1**: 192 pp.

Spahr U. 1981. Bibliographie der Berstein- und Kopal-Käfer

(Coleoptera). – *Stuttgarter Beiträge zur Naturkunde, Serie B (Geologie und Paläontologie)* **80**: 1-107.

Telnov D. 2009. Review of the genus *Telesinus* Fairmaire, 1903, with a general discussion on African Eurygeniinae (Coleoptera: Anthicidae). – *Mitteilungen des Internationalen Entomologischen Vereins e.V.* **34**, No. 3/4: 93-113.

Telnov D. 2011. Taxonomische Revision der Gattung *Macratria* Newman, 1838 (Coleoptera: Anthicidae: Macratriinae) aus Wallacea, Neuguinea und den Salomonen: 97-286, pls. 17-37. In: Telnov D. (ed.) *Biodiversity, biogeography and nature conservation in Wallacea and New Guinea*: Rīga, The Entomological Society of Latvia: 434 pp. + 92 pls.

Received: September 25, 2011.

1

2

3

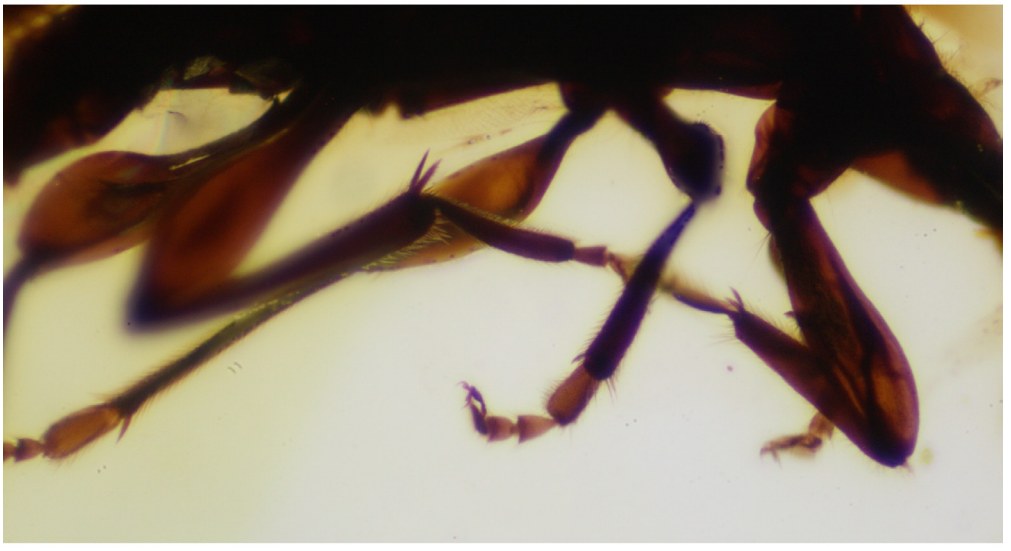
Figures 1-4. *Macratria appendiculata* (Abdullah, 1964), holotype BMNH (photo: P. Hurst, © BMNH). 1 - habitus (dorsal), 2 - forebody (dorsal), 3 - habitus (lateral).

4

5

Figures 4-5. *Macratria tripunctata* (Abdullah, 1964), holotype BMNH (photo: P. Hurst, © BMNH). 4 - elytra and legs (lateral), 5 - habitus (lateral).

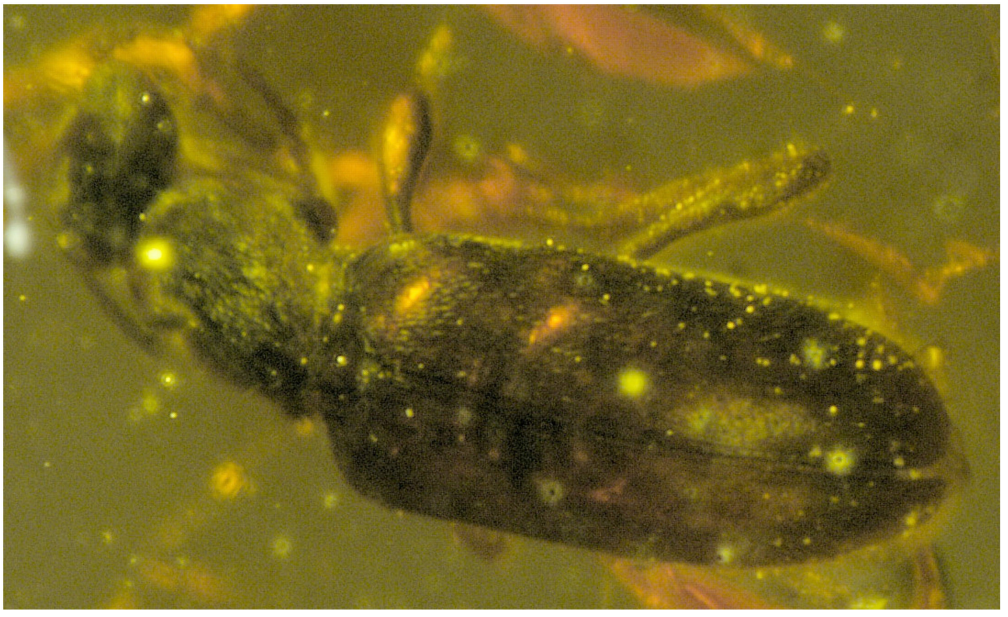
6



7

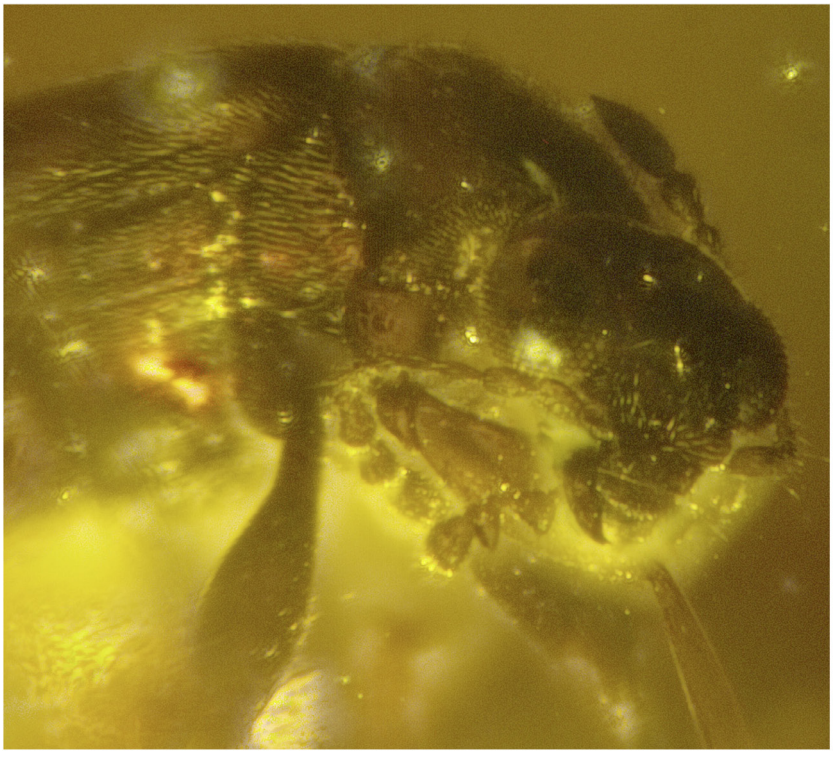
Figures 6-7. *Macratria alleni* sp. nov., holotype LDM. 6 - habitus (lateral), 7 - legs.

8

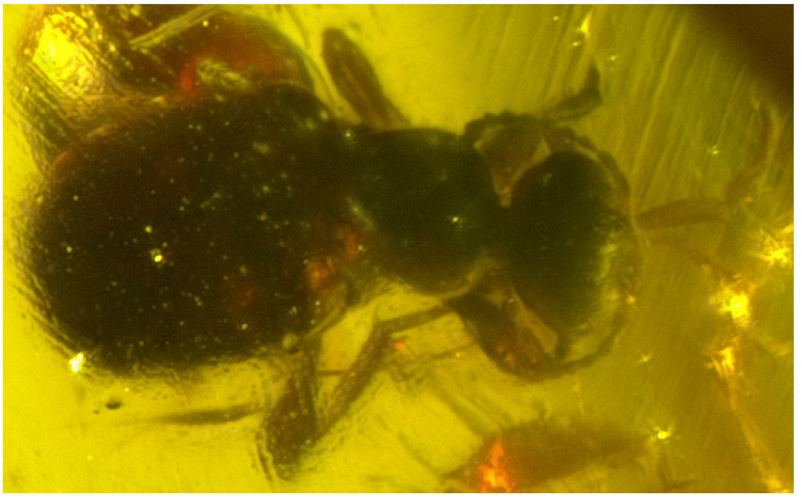


9

Figures 8-9. *Macratria succinia* Abdullah, 1965, holotype GPIH (photo: U. Kotthoff, © GPIH). 8 - habitus (dorso-lateral), 9 - elytra (dorsal).



10



11

Figures 10-11. *Macratria succinia* Abdullah, 1965, holotype GPIH (photo: U. Kotthoff, © GPIH). 10 - head & mesosternum (lateral), 11 - forebody (dorsal).