

A new ant genus from the late Eocene European amber

GENNADY DLUSSKY and ALEXANDER RADCHENKO



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Eocenomyrma gen. nov. of extinct ants of the family Formicidae, subfamily Myrmicinae, is described from the late Eocene European amber (ca. 40 Ma), based on six specimens from six pieces of amber; three of them contain *E. rugosostriata* (Baltic and Saxonian ambers); the remainder contain three new species: *E. orthospina* (Baltic Amber), *E. electrina* (Scandinavian Amber), and *E. elegantula* (Baltic Amber). *Eocenomyrma* resembles two extant genera: *Myrmica* and *Temnothorax* (both of which also occur in late Eocene European amber), but differs from them by the following apomorphies: clypeus short and broad, with two lateral longitudinal carinae and distinctly marked anterolateral corners, its median portion faintly concave transversally, anterior margin broad and shallowly concave medially, with pairs of long setae situated on the anterolateral clypeal corners, and central part of the anterior clypeal margin without setae; middle and hind tibiae lacking the spurs. Palp formula in *Eocenomyrma* is 4, 3 versus 6, 4 in *Myrmica*. We include *Eocenomyrma* in the tribe Formicoxenini. *Nothomyrmica rugosostriata* is transferred to *Eocenomyrma*, and the neotype of the latter species is designated; *Nothomyrmica petiolata* is transferred to the genus *Temnothorax*. A key for the identification of all known *Eocenomyrma* species is compiled.

Key words: Formicidae, Myrmicinae, *Eocenomyrma*, Baltic Amber, Saxonian Amber, Danish Amber, Eocene.

Gennady Dlussky [dlusskye@mail.ru], Moscow State University, Vorob'evy gory, 119899, Moscow, Russia;
Alexander Radchenko [rad@public.icyb.kiev.ua], Museum and Institute of Zoology, Polish Academy of Sciences,
ul. Wilcza 64, PL-00-679 Warsaw, Poland.

Introduction

The ants of the Baltic Amber (late Eocene, ca. 40 Ma) are the best studied among all known fossil ant faunas in the world. Many thousands of specimens preserved in amber have been studied until now, and 97 Formicidae species from 46 genera are known (Mayr 1868; André 1895; Emery 1905; Wheeler 1915; Dlussky 1967, 1997, 2002a, b). However, the ant fauna from other ambers of the same age either have not been studied to any extent (Saxonian and Scandinavian ambers) or studies have only recently started (Rovno Amber; Dlussky 2002a; Dlussky and Perkovsky 2002).

Among other species from the Baltic Amber, Mayr (1868) described *Macromischa petiolata*, *M. rugosostriata*, and *M. rudis*. Wheeler (1915) erected a new genus *Nothomyrmica* to include all Mayr's *Macromischa* species mentioned above, and the new species—*N. intermedia* Wheeler, 1915; he designated *M. rudis* as the type species of this genus. In that paper, Wheeler emphasised the similarity between genera *Nothomyrmica* and *Myrmica* Latreille, 1804, and considered as the main distinguishing character of *Nothomyrmica* from *Myrmica* the lack of spurs on the hind and middle tibiae in *Nothomyrmica*. However, the feature of reduced tibial spurs is considered much less diagnostic nowadays, since many extant *Myrmica* species have reduced tibial spurs (Bolton 1988; Radchenko and Elmes 2003). In our opinion, genus *Nothomyrmica* is heterogenic and artificially joins unrelated

species having one common feature—the absence of spurs on the hind and middle tibiae. Therefore, *N. intermedia* and *N. rudis* were very recently transferred to the genus *Myrmica*, and genus *Nothomyrmica* was formally synonymised with *Myrmica* (Radchenko et al. in press), because Wheeler (1915) designated *N. rudis* (Mayr, 1868) as its type species.

On the other hand, two of the *Nothomyrmica* species (*sensu* Wheeler 1915), *N. rugosostriata* and *N. petiolata*, definitely do not belong to *Myrmica*. *N. petiolata* is indistinguishable by all its characteristic features from *Temnothorax* Mayr, 1861 (*sensu* Bolton 2003), therefore we formally transfer it now to *Temnothorax* (comb. nov.). We could not place *N. rugosostriata* into a known extinct or extant ant genus. However, it clearly belongs to the same genus as three new species, that we had found in the course of our investigation of amber ants, which we considered represented a new genus—*Eocenomyrma*. Here we describe the new genus, the three new species, formally transfer *N. rugosostriata* to it, and finally provide a key for the identification of these four species.

Institutional abbreviations.—GPMHU, Geological-Palaeontological Institute and Museum, Hamburg University, Germany; MZ, Museum of Earth (Muzeum Ziemi) of the Polish Academy of Sciences, Warsaw, Poland; ZMHU, Zoological Museum of Humboldt University, Berlin, Germany; ZMUC, Zoological Museum of University of Copenhagen, Denmark.