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Syntypes of Baltic amber ants *Formica flori* Mayr and *Ponera atavia* Mayr (Hymenoptera: Formicidae)

Синтипы муравьев *Formica flori* Mayr и *Ponera atavia* Mayr из балтийского янтаря (Hymenoptera: Formicidae)

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KEY WORDS: Baltic amber, Eocene, Formicidae, *Formica flori*, *Formica gustawi*, *Ponera atavia*, *Hypoponera atavia*, *Pachycondyla baltica*.

КЛЮЧЕВЫЕ СЛОВА: балтийский янтарь, эоцен, Formicidae, *Formica flori*, *Formica gustawi*, *Ponera atavia*, *Hypoponera atavia*, *Pachycondyla baltica*.

ABSTRACT. Syntypes of the Baltic amber ants *Formica flori* Mayr, 1868 (13 workers and 7 males) and *Ponera atavia* Mayr, 1868 (male and female) from Naturhistorische Museum in Wien are revised, lectotype and paralectotypes are designated and re-described. Specimens originally designated as types of *F. flori* are found to belong to several species and genera: 11 paralectotypes (9 workers and 2 males) are found conspecific with the lectotype worker of *F. flori*, two paralectotype workers and one paralectotype male are described as *Formica gustawi* sp.n., one paralectotype worker is identified as *Pseudolasius boreus* Wheeler, 1915; others are poorly preserved and cannot be determined precisely. *Formica antiqua* Dlussky, 1967, *F. baltica* Dlussky, 1967, and *F. parvula* Dlussky, 1967 are referred to as junior synonyms of *F. flori* (new synonyms). Female syntype of *P. atavia* belongs to the genus *Hypoponera* Sant.: it is designated as lectotype and redescribed. Male syntype of *P. atavia* is described as *Pachycondyla baltica* sp.n.

РЕЗЮМЕ. Изучены синтипы муравьев *Formica flori* Mayr, 1868 (13 рабочих и 7 самцов) и *Ponera atavia* Mayr, 1868 (самка и самец) из балтийского янтаря, хранящихся в коллекции Музея естественной истории в Вене, обозначены лектотипы и паралектотипы. Выяснилось, что экземпляры, обозначенные Майром как типы *F. flori*, на самом деле относятся к разным родам и видам: 11 паралектотипов (9 рабочих и 2 самца) конспецифичны с лектотипом *F. flori* (рабочий). Два рабочих и один самец описаны как *Formica gustawi* sp. n., один из синтипов оказался рабочим *Pseudolasius boreus* Wheeler, 1915; остальные синтипы плохо сохранились и не могут быть точно определены. Установлено, что *Formica antiqua* Dlussky, 1967, *F. baltica* Dlussky, 1967 и *F. parvula* Dlussky, 1967 являются младшими синонимами *F. flori*. Лектотип *P. atavia* (самка) переописан и отнесен к роду *Hypoponera* Sant., паралектотип (самец) описан как *Pachycondyla baltica* sp. n.

Gustaw Mayr was the first who described ants from the Baltic amber [Mayr, 1868]. Among 44 described species, he referred *Lasius schiefferdeckeri* Mayr, *Prenolepis henschei* Mayr, *Formica flori* Mayr and *Ponera atavia* Mayr to as very similar to living European species, respectively *Lasius alienus* (Foerst.), *Prenolepis nitens* Mayr, *Formica fusca* L. and *Ponera coarctata* (Latr.). W. M. Wheeler [1915] in his monographic revision of the Baltic amber ants has basically complied with Mayr's opinion. The first three species are very common in the Baltic amber: Wheeler studied 9527 fossil ants and 1022 of them found to be *Formica flori*, 902 — *Lasius schiefferdeckeri*, and 524 — *Prenolepis henschei*. *Ponera atavia* is not so common (Wheeler studied 29 specimens), however it is the most abundant species in the subfamily Ponerinae.

Some of later students were of different opinion about one species or another. Wilson [1955] has demonstrated that *Lasius schiefferdeckeri* is related to more primitive *L. sitkaensis*. Baroni Urbani and Graeser [1987] have studied submicroscopic structure of the integument surface of *Formica flori* and founded that it is quite different from that of *F. fusca* and other potentially related species.

In the course of my revision of Baltic amber ants in collections of Paleontological Institute RAS (Moscow) and Museum Ziemi PAN (Warsaw), it was found that some species of *Formica* L. agree formally with the description of *Formica flori* Mayr, and the same was true for some species of *Ponera* Latr. and *Hypoponera* Sant. in respect to *Ponera atavia* Mayr. Fortunately a part of Mayr's syntypes of *Formica flori* and *Ponera atavia* were found safe in the Naturhistorische Museum in Wien, and due to the courtesy of Dr. Ortwin Schultz and help of Dr. Alexander Rasnitsyn I was able to borrow them for revision.

There are 20 syntypes of *Formica flori* (13 workers and 7 males) and 2 syntypes of *Ponera atavia* (a female and a male). Close inspection of the material borrowed has revealed there a mixture of species and even genera resulted in description one new species of *Formica* L. and another of *Pachycondyla* F. Smith (see below). The present study additionally results in three species of *Formica* suppressed as junior synonyms of *F. flori.*

The museums housing the material studied are referred to as follows: MZ PAN — Muzeum Ziemi PAN, Warsaw, Poland; NHMW — Naturhistorisches Museum Wien, Austria; PIN — Paleontological Institute RAS, Moscow, Russia.

Measurement symbols: AL — mesosoma (alitrunk) length; BL — total body length; FJ1L, FJ2L, FJ3L — length of first, second and third funiculus joints; FJ1T, FJ2T, FJ3T — maximal thickness of these joints; F3L — hind femur length; FWL — fore wing length; HL — head length without mandibles; HW — maximal head width; SL — scape length; ST — maximal thickness of scape.

Formica flori Mayr, 1868
Figs. 1–9.

Formica Flori Mayr, 1868: 48, Taf. II, Figs. 35–37 (worker, female, male) (part.).

Formica flori: Dalla Torre, 1893: 196; André, 1895: 82; Wheeler, 1915: 124 (part.); Baroni Urbani, Graeser, 1987: 1; Bolton, 1995: 195.

Formica antiqua Dlussky, 1967: 82, fig. 1 (worker); 1997: 59, fig. 3a; Bolton, 1995: 191. **Syn.n.**

Formica baltica Dlussky, 1967: 81, fig. 1 (worker); 1997: 59. **Syn.n.**

Formica parvula Dlussky, 1967: 83, fig. 1 (male); 1997: 59. **Syn.n.**

MATERIAL EXAMINED. Lectotype (present designation), NHMW # 1984/31/210 with label: "ST Formica flori MAYR, 1868. Eozän, Baltischer Bernstein, Kollection HANDLIRSCH, Syntype zu MAYR 1868: 48". Nearly completely preserved worker lacking right funiculus, well seen in side view. Late Eocene; Baltic amber. Paralectotypes: workers — *Formica flori* ## 1984/31/196, 1984/31/202, 1984/31/203, 1984/31/205, 1984/31/209, 1984/31/211a, 1847-IX-17, 1865-X-940; males — ## 1984/31/198, 1984/31/199, 1984/31/207. Other material: workers — PIN №№ 364/407 (holotype of *Formica baltica* Dlussky), 364/366 (paratype of *Formica baltica* Dlussky), 364/419 (holotype of *Formica antiqua* Dlussky), 964/13, 964/411, 964/414, 964/416−429, 964/431, 964/432, 964/435, 964/436, 964/439. MZ PAN 21544, 21560; male — PIN # 364/414 (holotype of *Formica parvula* Dlussky).

WORKER (lectotype). Body slender, BL 5.25 mm. Head subrectangular, longer than wide, wider behind, with rounded occipital corners and weakly convex occipital margin; HL 1.1 mm. Clypeus with keel and acute anterior margin. Frontal area well defined. Eyes large. Maxillary palp 6-jointed, reaching occipital foramen, with fourth joint hardly longer than fifth. SL 1.4 mm. First funicular joint twice as long as second and about four times as long as broad; second and third joints of equal size, twice as long as broad. AL 1.9 mm. Mesonotum in side view gently ascending above pronotum to form strongly rounded angle. Propodeum angulate in side view with rounded angle and nearly straight anterior half of propodeal dorsum; propodeal dorsum and declivity of near equal length. F3L 1.45 mm. Scale thick, with fore surface convex in side view, hind surface weakly convex, and upper margin rounded; upper margin rounded without impression in strict fore view.

Whole body slightly shagreened, feebly shining, cheeks and gaster with sculpture hardly visible, weaker than hair pits. Frontal area with sculpture similar to adjacent head parts.

Mesosoma, tibiae, middle and hind femora and scale lacking erect pubescence. Erect hairs present: one pair on front near antennal bases, two pairs on clypeus, and two hairs near base of anterior femur. Tibiae with row of short spines along the internal margin. Gaster with rows of hairs along posterior margin of each tergum, and with few hairs on tergum surface, scattered on first tergum and forming rows on second and third ones. Declivity of first tergum lacking erect hairs.

Mesosoma and head with fine and comparatively sparse decumbent pubescence, with hairs shorter than intervals on cheeks. Gaster with sparse pubescence, with hairs usually shorter than intervals.

MALE. Body length about 7 mm. Head subtrapezoidal with rounded occipital corners; HL 1.25 mm. Clypeus convex in side view. Eyes and ocelli large and convex. Cheek about one and a half times as long as maximal diameter of scape. Scape extending far beyond occipital margin of head, shorter than head length. Second joint of funiculus 1.6 times as long as first joint. SL 0.90 mm; FJ1L 0.17 mm; FJ2L 0.27 mm. Mandibles without teeth, with rounded basal angle of masticatory margin. Maxillary palp long, 6-jointed. AL 3.05 mm. Pronotum transverse. Scutum feebly convex, parapsidal furrows absent. Propodeum feebly angular in side view, with rounded blunt angle. F3L 1.7 mm. Upper scale margin strongly concave in strict front view, acute in side view. Genitalia with stipes triangular, acute apically, 0.65 mm long and 0,51 mm wide near base.

Body slightly shagreened, feebly shining. Erect hairs present on propodeum (2 pairs), on last gastral sterna and on genitalia.

VARIABILITY. Both erect pilosity and decumbent pubescence varies among workers. Some specimens lack erect hairs on the head and/or central part of the first gastral tergum. Other workers have 1–2 pairs of hairs on the promesonotum. In less pubescent specimens decumbent hairs are many times shorter than intervals on gastral terga, while the most hairy ones have hairs twice as long as intervals. AL of workers varies from 1.6 to 2.5 mm.

GEOLOGICAL AND GEOGRAPHICAL DISTRIBUTION. Late Eocene, Baltic amber.

DISCUSSION AND SYNONYMY. *Formica flori* is one of the most abundant ant species in the Baltic amber. Mayr [1868] have described this species based on 180 specimens (146 workers, 1 female, and 33 males), 20 of these are still kept at NHMW. Other specimens were preserved in Geological Institute of Königsberg and evidently lost during the World War II. At any case they are absent from the part of Königsberg collection preserved in the Institute and Museum of Geology and Paleontology of Göttingen University [Baroni Urbani, Graeser, 1987].

Later André [1895] have studied 99 and Wheeler [1915] 1022 specimens. Other four species of *Formica* described by Wheeler are very rare and known by 1–2 specimens. I have seen 80 specimens of *Formica flori* sensu Mayr and Wheeler, including 20 Mayr's syntypes.

The fossils designated by Mayr as types of *F. flori* belong in fact to several species and genera. The specimen # 1984/31/211(Fig. 18) is a well preserved major worker of *Pseudolasius boreus* Wheeler, 1915. Male # 1984/31/206 belongs to subfamily Formicinae, but not to *Formica*, as its comparatively short scape, narrow mandibles and genitalia are dissimilar to *Formica*. Poor preservation state of this inclusion does not allow to describe this species. Two poorly preserved males (## 1984/31/200 and 1984/31/201) belong to *Formica,* but cannot be further identified. The rest 12 workers and 4 males belong to two different *Formica* species. Workers of these

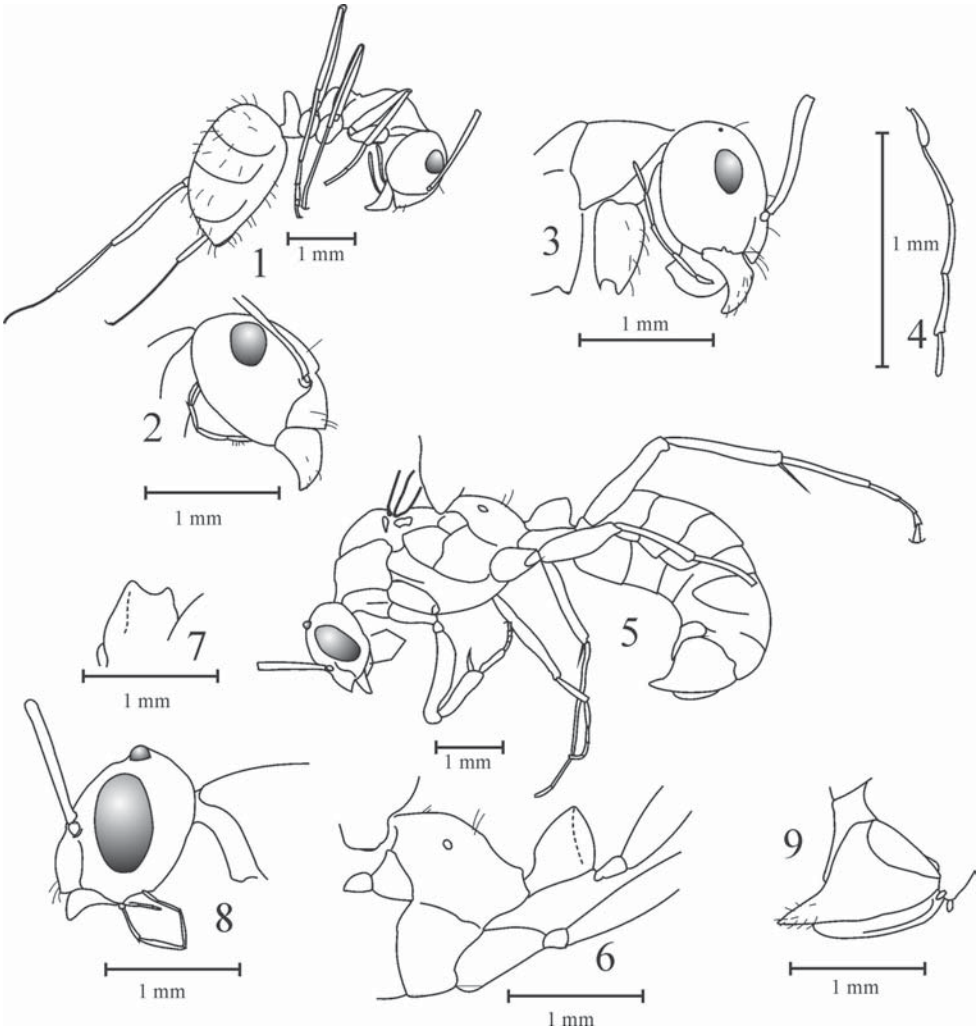

Fig. 1–9. *Formica flori* Mayr: 1–2 — worker, lectotype NHMW # 1984/31/210, total view of the inclusion (1), head in side view (2); 3–4 — worker, paralectotype NHMW # 1984/31/205, head and pronotum in side wiew (3), maxillary palp (4); 5–9 — male, paralectotype NHMW #. 1984/31/198, total view of the inclusion (5), propodeum and petiole in side view (6), petiolar scale seen from behind (7), head in side view (8), genitalia (9).

Рис. 1–9. *Formica flori* Mayr: 1–2 — рабочий, лектотип NHMW № 1984/31/210, общий вид инклюза (1), голова в профиль (2); 3–4 — рабочий, паралектотип NHMW № 1984/31/205, голова и пронотум в профиль (3), максиллярный щупик (4); 5–9 — самец, паралектотип NHMW № 1984/31/198, общий вид инклюза (5), проподеум и петиолюс в профиль (6), чешуйка петиолюса сзади (7), голова в профиль (8), гениталии (9).

species have quite different decumbent pubescence: either scarce like in living *Formica candida* F. Smith, *F. gagates* Latr., and *F. gagatoides* Ruzsky, or dense like in *F. fusca* L. Males differ in many traits, and particularly in the form of scale. This raises the question which species deserves the name *Formica flori* Mayr.

Mayr [1868] wrote about *F. flori* that "diese Art ist mit *Formica fusca* L, welche in Europa sehr gemein ist, höchst nahe verwandt und vielleicht von dieser nicht verschieden". Later Wheeler [1915] supported Mayr's opinion and wrote: "After the examination of a very long series of specimens of *F. flori* I can only confirm Mayr's statement, that it is the precursor or ancestor of *F. fusca*. I believe admits of little doubt, but I am not willing to regard the two species as identical. The amber form varies much in size and to a considerable extent also in the shape of the thorax and petiole. Some specimens are much more slender than others. But all such variations may be found in a single colony of the existing *fusca* and cannot be used as a basis for the description of several species". However workers of *F. fusca* always have very dense decumbent pubescence on the gastral terga, and this trait is not variable [Dlussky, 1967a]. At the same time Mayr had written in formal Latin description of *F. flori* "Sparse pubescens", and later in German description "Die anliegende feine Pubescenz ist ziemlich spärlich". Moreover, the species with sparse decumbent pubescence is abundant in Baltic amber, while specimens with dense pubescence are much more rare. That is why I prefer to accept the first one as *F. flori* Mayr, and so I have designated the best preserved worker syntype # 1984/31/210 as a lectotype.

Following Mayr's indication that the male of *F. flori* has scale with concave upper margin ("petioli sputa latior quam altior margine superiore distincte emarginato"), I accept two

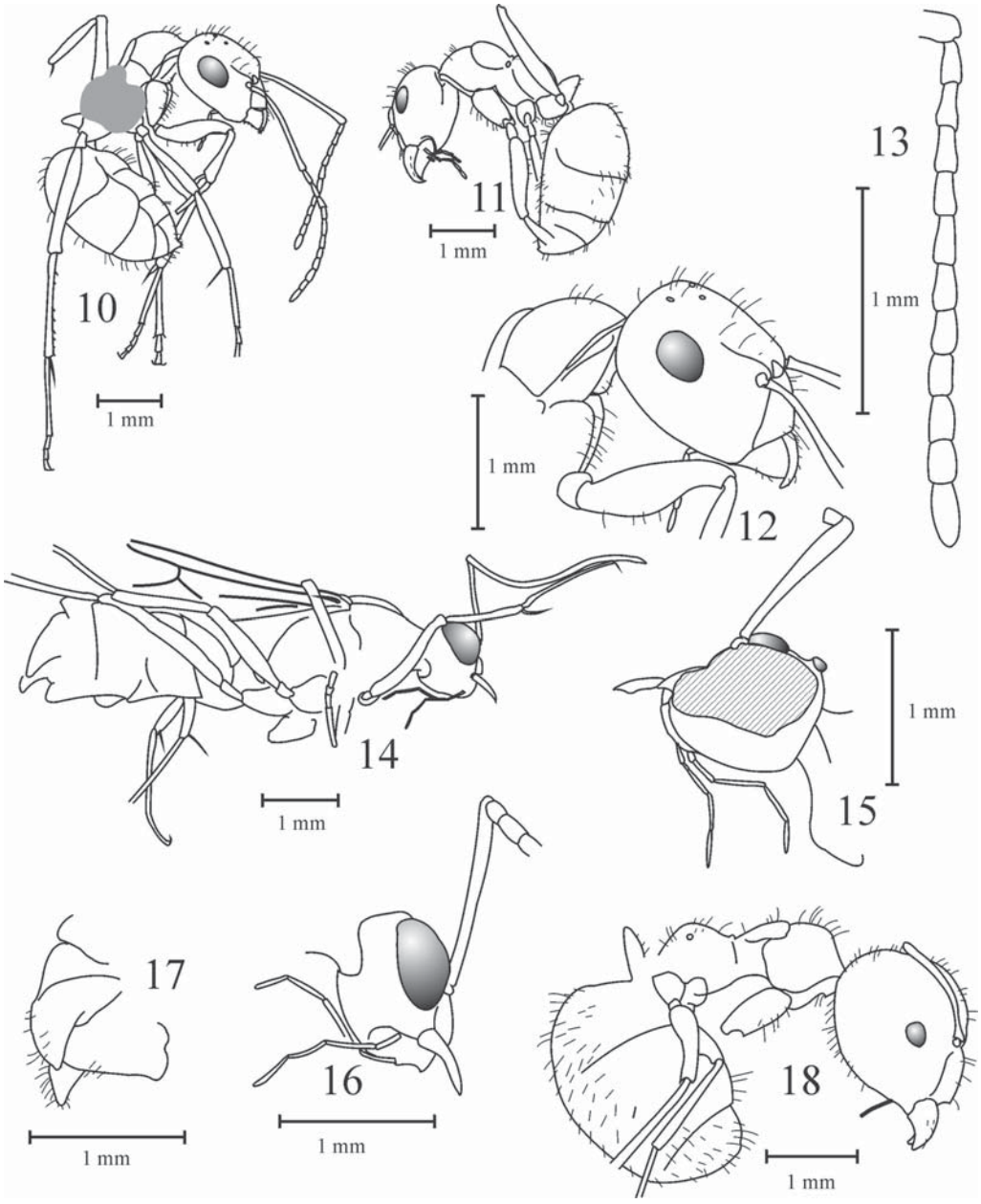

Fig. 10–18. *Formica gustawi* sp.n. (10–17) and *Pseudolasius boreus* Wheeler (18): 10–13 — worker, holotype NHMW # 1984/31/204, (paralectotype of *Formica flori* Mayr), total view of the inclusion (10), total view of the inclusion from other side (11), head in side view (12), funiculus (13); 14–17 — male, paratype NHMW # 1984/31/204, (paralectotype of *Formica flori* Mayr), total view of the inclusion (14), head in side view (15), head from other side (left part of the head is missing) (16), genitalia (17); 18 — worker NHMW # 1984/31/211, (paralectotype of *Formica flori* Mayr), total view of the inclusion.

Рис. 10–18. *Formica gustawi* sp.n. (10–17) и *Pseudolasius boreus* Wheeler (18): 10–13 — рабочий, голотип NHMW № 1984/31/204, (паралектотип *Formica flori* Mayr), общий вид инклюза (10), общий вид инклюза с другой стороны (11), голова в профиль (12), жгутик усика (13); 14-17 — самец, паратип NHMW № 1984/31/204, (паралектотип *Formica flori* Mayr), общий вид инклюза (14), голова в профиль (15), голова с другой стороны (левая часть головы утрачена) (16), гениталии (17); 18 — рабочий NHMW № 1984/31/211, (паралектотип *Formica flori* Mayr), общий вид инклюза.

males with such scale as *F. flori*, and designate the better preserved specimen # 1984/31/198 as the allolectotype.

In 1967 I had revised a small collection of Baltic amber ants preserved in the Paleontological Institute in Moscow (collection PIN # 364). There were several *Formica* there. Dense decumbent pubescence of the gaster being one of the main characters of worker *F. fusca*, and taking into consideration that Mayr and Wheeler characterized *F. flori* as very similar to *F. fusca*, I have taken the densely pubescent specimen PIN # 364/739 for a typical *F. flori*. The specifically different workers with sparse decumbent pubescence have been described as new species *Formica antiqua* Dlussky and *F. baltica* Dlussky [Dlussky, 1967b]. While revising the larger collections of Baltic amber at the Paleontological

Institute RAN (collection PIN # 964) and Museum Ziemi PAN (Warsaw, Poland), and later the Mayr's syntypes, I have realized that both latter species are junior synonyms of *Formica flori* Mayr: their differences in pubescence and form of mesonotum fall within the limits of variability of workers of *F. flori*.

At the same article I have described *F. parvula* Dlussky, an incompletely preserved male different from the extant species of *Formica fusca* group. The type is similar to male syntypes of *Formica flori* in having scale with concave upper margin and lacking erect hairs on gastral terga, therefore *F. parvula* is also a junior synonym of *F. flori* Mayr.

Both Mayr [1868] and Wheeler [1915] considered *Formica flori* related to *F. fusca*. Unlike them I have placed this species (under the names of *F. antiqua* and *F. baltica*) to *Formica gagates* group [Dlussky, 1967b]. Recently Baroni Urbani and Graeser [1987] have studied body microsculpture of fossil inclusion of *Formica flori* using scanning electronic microscope, and have found it different from all recent *Formica*. The only species that have partially similar microsculpture is *Formica gagates* Latr.

Formica gustawi Dlussky, **sp.n.**
Fig 10–17.

Formica Flori Mayr, 1868: 48 (part.)

Formica flori: Wheeler, 1915: 48 (part.); Dlussky, 1967: 80.

MATERIAL EXAMINED. Holotype (paralectotype of *Formica flori*), well preserved inclusion of worker NHMW # 1984/31/204 with label "ST Formica flori Mayr, 1868. Eozän, Baltischer Bernstein, Kollection HANDLIRSCH, Syntype zu Mayr 1868: 48". There is also Mayr's handwritten label: "Von d. recenten europ. F. fusca Raum verscheden"; specimen is visible in side view. Paratypes (workers) NHMW # 1984/31/208 (paralectotype of *Formica flori*), PIN ## 364/739, 964/430; male — NHMW # 1984/31/197 (paralectotype of *Formica flori*; specimen is visible in side view; left side of the head partially missed, otherwise complete). Late Eocene, Baltic amber.

WORKER (holotype). Body slender, BL 6.25 mm. Head subrectangular, longer than wide, wider backward, with rounded occipital corners and weakly convex occipital margin; HL 1.45 mm. Clypeus with rounded anterior margin and weak keel. Frontal area well marked. Eyes large. Maxillary palp not reaching occipital foramen, apparently 5-jointed. SL 1.5 mm. First funicular joint 1.4 times as long as second and about three times as long as broad; second and third joints of equal size and form, twice as long as broad. AL 1.9 mm. Mesonotum in side view gently ascending over pronotum forming strongly rounded angle. Propodeum rounded in side view, with convex propodeal dorsum. F3L 1.8 mm. Scale thick, with fore surface convex in side view, hind surface straight, upper margin rounded; upper margin rounded and not impressed in strict fore view. Whole body including gaster shagreened. Frontal area sculptured similarly to adjacent head surface.

Head with erect hairs on occipital margin (one pair), in ocellar area (three pairs), on front (three pairs), and on clypeus (more than three pairs). Pronotum with 2 pairs of curved hairs. All coxae with erect hairs. Fore femur with of 3–4 hairs in row along internal margin from base to mid-length. Middle and hind femora without erect hairs. Tibiae without erect hairs, with row of short spines along internal margin. Except for declivity of first tergum, all gastral terga and sterna with erect hairs.

Head fore side and mesosoma with relatively dense decumbent pubescence. Cheeks with more sparse pubescence: decumbent hairs shorter than intervals. Gaster with dense pubescence: hairs several times longer than intervals.

MALE (paratype). BL about 6.5 mm. Head subtrapezoidal with rounded occipital corners; HL 0.95 mm. Clypeus convex in side view. Eyes and ocelli large and convex. Cheek about as long as maximal scape diameter. Scape reaching far beyond occipital margin, longer than head. SL 1.2 mm. Mandibles very narrow, without developed masticatory margin. Second joint of funiculus twice as long as first. Maxillary palp long, apparently 5-jointed. AL about 2 mm. Pronotum transverse. Scutum feebly convex, parapsidal furrows absent. Propodeum rounded in side view. F3L 1.4 mm. Upper scale margin convex in strict fore view, rounded in side view. Genitalia with stipes triangular, rounded apically, 0.65 mm long, 0,36 mm wide near base. Body slightly shagreened, feebly shining. Erect hairs present only on genitalia.

VARIABILITY. Worker paratypes NHMW # 1984/31/208 and PIN ## 364/739 and 964/430 have erect pubescence scarcer (no erect hairs on promesonotum), but similar to holotype in decumbent pubescence and sculpture.

GEOLOGICAL AND GEOGRAPHICAL DISTRIBUTION. Late Eocene, Baltic amber.

DISCUSSION AND SYNONYMY. Workers of the new species are similar to *Formica flori* Mayr but can be easily distinguished by dense decumbent pubescence and more rich erect pilosity. It is also similar to extant *Formica fusca* L. and differs from it by rounded propodeum (distinctly angular in *F. fusca*) and shorter maxillary palps. Perhaps *F. gustawi* is related to *F. clymene* Wheeler and *F. phaethusa* Wheeler from Baltic amber. Both these species have short 5-jointed maxillary palps, but differ from *F. gustawi* by the more robust bodies similar to recent *Formica rufa* group.

Earlier [Dlussky, 1967a, 1967b] I considered the specimen PIN # 364/739 as typical of *Formica flori* Mayr.

ETYMOLOGY. The species is named in honor of Gustaw Mayr in recognition of his pioneering work on the fossil ants of Baltic amber.

Hypoponera atavia (Mayr, 1868), **comb.n.**
Figs. 19–22.

Ponera atavia Mayr, 1868: 72, Taf. IV, Fig. 66–69 (female, male) (part.); Wheeler, 1915: 38–40, fig. 9 (worker); Taylor, 1964: 138; Bolton, 1995: .360; Dlussky, 1997: 61.

MATERIAL EXAMINED. Lectotype (present designation), female NHMW # 1984/31/254 with label: "ST Ponera atavia MAYR, 1868. Eozän, Baltischer Bernstein, Kollection HANDLIRSCH, Syntype zu MAYR 1868". Completely preserved specimen with wings deformed and gastral apex and part of head obscured with a white film. The piece of amber is pasted to glass plate together with Mayr's handwritten label "Von der jetzt an Europa, Algirer und N. America leb. P. contracta kaum zu untersch." that is, " Hardly differs from P. contracta now in Europe, Algeria and North America". Late Eocene; Baltic amber.

FEMALE (lectotype). BL about 3.5 mm. Head subrectangular, longer than wide, with rounded occipital corners and straight occipital margin. Eyes small, rounded, shifted far forward. Mandibles triangular, dentition not visible. Maxillary palp short. Antennae 12-jointed. Scape short, not reaching occipital margin. Funicular joints 2–5 thicker than long, four apical funicular joints enlarged and forming a club. AL 1.2 mm. Scutum strongly curved anteriorly and flattened dorsally in side view. Propodeum angulate in side view; with declivity nearly as long as dorsum. Legs short and thick. Middle and hind tibiae both with single pectinate spurs. Petiole about as high as propodeum, with high and thick scale whose upper margin forming rounded acute angle in side view. Lower petiolar surface, although partially obscured by organic debris, in side view showing subpetiolar process as

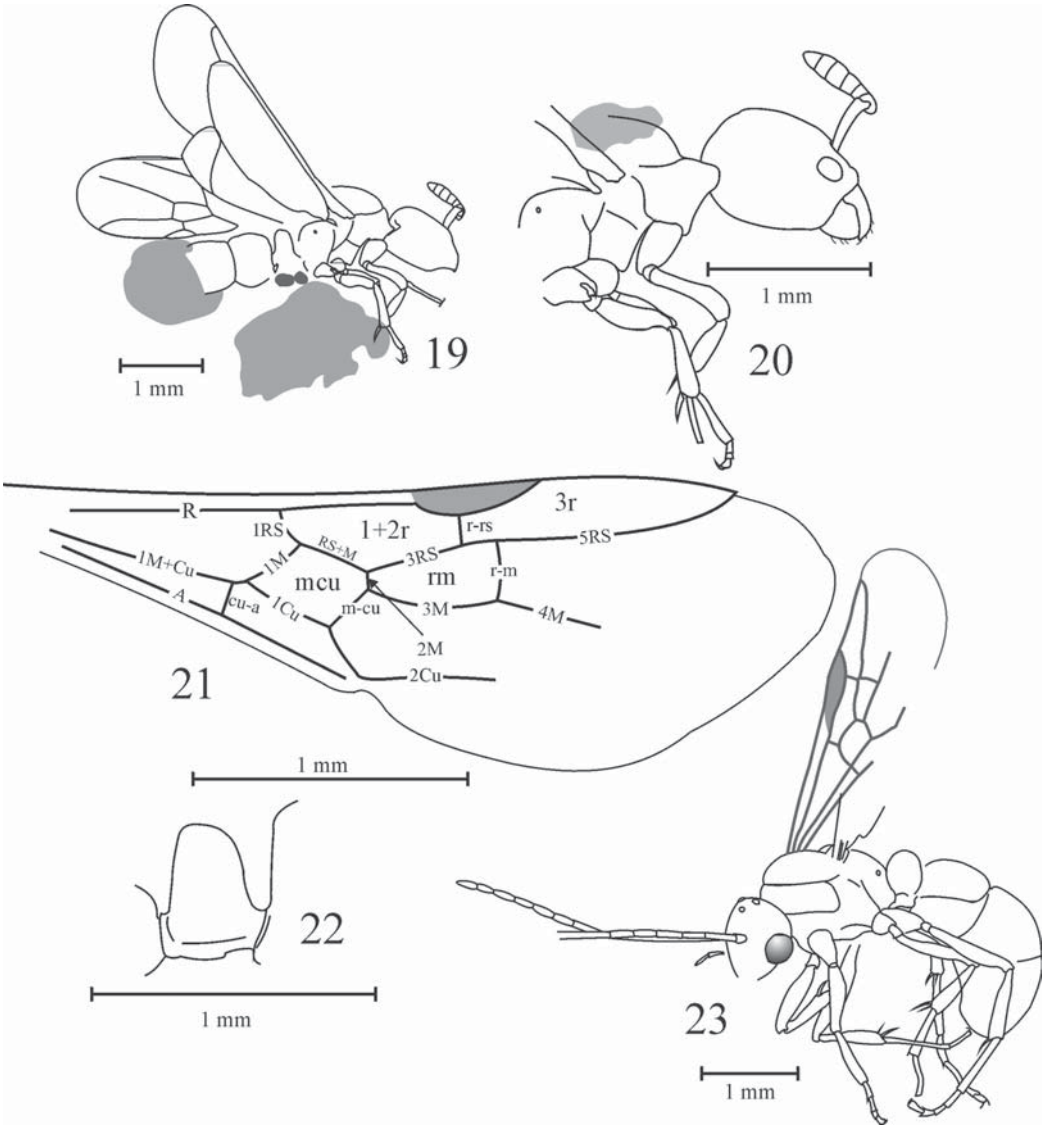

Fig. 19–23. *Hypoponera atavia* (Mayr) (= *Ponera atavia* Mayr), female, lectotype NHMW # 1984/31/254 (19–22) and *Pachycondyla baltica* sp.n., male, holotype NHMW # 1984/31/255, (paralectotype of *Ponera atavia* Mayr) (23), total view of the inclusion (19, 23), head and part of mesosoma (20), fore wing (21), petiole in side view (22).

Рис. 19–23. *Hypoponera atavia* (Mayr) (= *Ponera atavia* Mayr), самка, лектотип NHMW № 1984/31/254 (19–22) и *Pachycondyla baltica* sp.n., самец, голотип NHMW № 1984/31/255, (паралектотип *Ponera atavia* Mayr) (23), общий вид инклюза (19, 23), голова и часть мезосомы (20), переднее крыло (21), петиолюс в профиль (22).

simple lobe with small ledge in the middle, lacking acute posteroventral angle and anterior fenestra or thin spot. Gaster cylindrical, with distinct constriction between III and IV abdominal segments.

FWL 3.3 mm. Fore wing with closed cells 1+2*r*, 3*r, rm* and *mcu*. Cell 3*r* long, in most part with parallel sides. Cells *rm* and *mcu* pentagonal. 2*M* very short but distinct. Distance between junctions of crossveins *r-m* and *r-rs* with RS about as long as *r-rs*. 1*M* twice as long as 1*RS*. Crossvein *cu-a* meeting M+Cu basad of junction of 1*M* and 1*Cu* for about vein thickness.

Whole body lightly shagreened, feebly shining, with dense decumbent pubescence, with some hairs approaching suberect position.

GEOLOGICAL AND GEOGRAPHICAL DISTRIBUTION. Late Eocene, Baltic amber.

DISCUSSION AND SYNONYMY. The most abundant ponerine species in the Baltic amber had been described by Mayr [1868] as *Ponera atavia* based on 8 females and 5 males. Two of them (a female and a male) are kept in the collection of NHMW, the others deposited in Königsberg collections were evidently lost during the World War II.

Mayr considered female of his new species from Baltic amber as not differing from European *Ponera contracta* Latreille (= *Ponera coarctata* Latr.)[1] and made formal de-

[1] He wrote [S.72]: " Diese Art, besonders aber das Weibchen, stimmt mit der jetzt lebenden europäischen *Ponera contracta* Ltr. so sehr überein, dass ich nicht im Stande bin, ein erhebliches Merkmal anzugeben, wodurch beide Arten von einander zu trennen würden, obschon ich andererseits nicht behaupten möchte, dass beide gar nicht von einander abweichen.".

scription using characters of sculpture and pubescence that are similar in many species of *Ponera* Latreille and *Hypoponera* Santschi. He also pointed that the male of new species have parapsidal furrows, which is absent in recent Ponera, but present in some recent species of *Pachycondyla* F. Smith. However this character absent on drawing of male in his paper (Taf. IV, fig. 68), but the presence of pigidial thorn (character of genus *Ponera*) was shown.

Later Wheeler [1915] found two females and 22 males of this species in collection of GIK, but made no re-description. He has also described a worker of *Ponera atavia*, and found it different from the extant *Ponera coarctata*. Taylor [1964] in his review of fossil species described in the genus *Ponera* concluded, that *Ponera atavia* should be really referred in the genus, but gave no evidence of this statement.

Study of Mayr's syntypes at NHMW has revealed them to belong to different genera, *Pachycondyla* F. Smith (male), and *Hypoponera* Sant. (female). The female formally agrees with the description and so it is designated here as a lectotype. Subpetiolar process of this female is a simple lobe lacking an acute posteroventral angle and anterior fenestra or thin spot in side view, so it cannot be placed to genus *Ponera* and must be attributed to *Hypoponera*. Noteworthy is that the female on Mayr's figure 66 has different wing venation similar to extant *P. coarctata* and most likely belongs to other species *Ponera* or *Hypoponera*. In fact, figures in this work are reconstruction rather than drawing of real specimens, and so he might use *Ponera coarctata* as a model.

Wheeler's worker described and figured as *Ponera atavia* also has subpetiolar process as a simple lobe and so agrees with *Hypoponera*. It has similar forms of propodeum and petiole, and most probably it is really conspecific with the female lectotype. Additionally, female lectotype has rather small eyes: in living *Hypoponera* this character usually correlate with eyes reduction in workers, and Wheeler's worker does have eyes reduced.

The male syntype of *Ponera atavia* represents a new species of *Pachycondyla*, which is described below.

Several more Ponerinae males are found in MZ PAN, and one of them agrees with Mayr's description of *P. atavia* male. However its wing venation is specifically different from that of lectotype female of *H. atavia*.

Pachycondyla baltica Dlussky, **sp.n.**
Fig. 23.

Ponera atavia Mayr, 1868: 72.(part.)

MATERIAL EXAMINED. Holotype, male (paralectotype of *Ponera atavia* Mayr), NHMW # 1984/31/255 with label "ST Ponera atavia MAYR, 1868. Eozän, Baltischer Bernstein, Kollection HANDLIRSCH, Syntype zu MAYR 1868". Completely preserved inclusion with some body parts obscured by white film.

MALE (holotype). BL about 3.5 mm. Head suboval, without distinct occipital corners; occipital margin convex. Eyes large, oval, convex. Ocelli rather large, forming obtuse triangle. Frontal carinae and lobes absent. Antennae 13-jointed, filiform, reaching III abdominal segment. Scape short, a little longer than thick; second joint shortest, nearly as long as thick; third joint longest, about as long as first and second joints together; following joints gradually shortened toward apex. Maxillary palp short, hardly extending beyond mouth cavity. Clypeus with longitudinal medial keel. Mandibles triangular. Anterior part of clypeus and masticatory margin of mandibles not visible. AL 1.3 mm. Mesosoma robust and rather high. Pronotum transverse. Scutum strongly convex anteriorly, flat dorsally. Parapsidal furrows absent. Propodeum obtuse angulate in side view; propodeal declivity nearly as long as propodeal dorsum. Middle and hind tibiae with two spurs, each with shorter spur simple, and longer one either dentate (on middle tibia) or pectinate. Petiole nearly as high as propodeum, scale thick and high, with upper margin rounded in side view. Gaster with distinct constriction between III and IV abdominal segments.

FWL 3.5 mm. Fore wing with closed cells 1+2*r,* 3*r, rm* and *mcu*. Cell *rm* tetragonal. Crossvein *r-m* twice as long as 2*M*. Crossveins *r-m* and *r-rs* meeting *RS* at one point, so looking as one crossvein. Cell *mcu* pentagonal. 1*M* more than twice as long as 1*RS*. Crossvein cu-a reaching *M+Cu* at junction of 1*M* and 1*Cu*.

Erect hairs seen only on head occipital margin and on gastral apex. Head and mesosoma shagreened, lacking decumbent pubescence. Gaster weakly shining with fine shallow sculpture and rather dense decumbent pubescence.

GEOLOGICAL AND GEOGRAPHICAL DISTRIBUTION. Late Eocene, Baltic amber.

DISCUSSION AND SYNONYMY. Besides *P. atavia*, Mayr [1868] has described two other species of *Ponera*: *P. succinea* Mayr (based on three females) and *P. gracilicornis* Mayr (one female). Types of the last two species were located in Königsberg collections and probably lost during the World War II. All descriptions were made formally, drawings of *P. succinea* and *P. gracilicornis* were absent, and body sizes (*P. atavia* 3.6–4 mm, *P. succinea* 5–7 mm, *P. gracilicornis* 10.5 mm) were the only distinction between species specified in the descriptions. Upon study of one of Mayr's syntypes of *Ponera succinea* and other 18 females of the same species in the collection of Geological Institute of Königsberg, Wheeler [1915] has re-described this species as *Euponera (Trachymesopus) succinea* (Mayr). At present *Trachymesopus* Em. is a junior synonym of *Pachycondyla* F. Smith. Wheeler failed to locate the type of *P. gracilicornis*. I also have not found this species in collections of PIN and MZ PAN, however include it [Dlussky, 1997] into the genus *Pachycondyla* basing on size (there are no males of *Ponera* and *Hypoponera* more than 5 mm).

The male syntype of *Ponera atavia* in the collection of NHMW is really a male of *Pachycondyla* F. Smith, as it has middle and hind tibiae with two spurs each (*Ponera* and *Hypoponera* have only one pectinate spur). It has nothing to do with the Mayr's figure, nor to his description (parapsidal furrows are absent). It cannot be the male of *P. gracilicornis*, because conspecific Ponerinae males and females are usually of the same size. Equally, it cannot be the male of *P. succinea*, because its wing venation differs from the female venation as presented by Wheeler [1915, fig. 8 c]. I prefer to describe male syntype of *Ponera atavia* as a new species of *Pachycondyla*, but not as a male of *P. succinea*. I have seen two female *Pachycodyla* in MZ PAN (# 15953) and PIN (# 364/552) that formally agree with Wheeler's description of *P. succinea*, but clearly belong to different species.

ETYMOLOGY. The species is named after Baltic amber.

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