

New fossil dermestid beetles (Coleoptera: Dermestidae) from the Baltic amber – III

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Abstract. New representatives of dermestid beetles are described from the Late Eocene to Early Oligocene inclusions of the Baltic amber, i. e. *Anthrenus (Nathrenus) kerneggeri* sp. nov., *Attagenus balticus* sp. nov., *A. obesus* sp. nov., *Evorinea amberica* sp. nov. and *Phradonoma americum* sp. nov.

Taxonomy, new species, description, fossil, Coleoptera, Dermestidae, Tertiary, Eocene, Oligocene, Baltic amber

INTRODUCTION

Family Dermestidae is a diverse group with number of cosmopolitan species comprising about 1300 species in recent fauna (Háva 2003, 2008, Lawrence & Slipinski 2005). Fossil record of dermestid beetles is well known especially from Cenozoic era of Baltic and Dominican ambers, but also from lacustrine deposits of Europe and North America (Carpenter 1992, Wappler 2003). An attribution of the Late Triassic genera from Queensland (Australia) to the family Dermestidae based on elytra structure are considered as family uncertain assignments (see Carpenter 1992).

The present study follows of the preceding papers on fossil dermestid beetles from Dominican and Baltic ambers (Háva & Prokop 2004, 2006, Háva et al. 2006a, b). Baltic amber is the world most well-known source of amber inclusions dated from Late Eocene to Early Oligocene between 35 to 45 Ma (Ross 1998).

MATERIAL AND METHODS

Material of insect inclusions is preserved in polished pieces of transparent amber protected against weathering and damage by embedding in the synthetic resin (GTS / 2-component resin) or at least covered with lacquer. Standard techniques of observation by stereomicroscope (Olympus SZX 9) and digital photography (Olympus 5060) were used. The integumental structures are named according to Harris (1979).

Because the size of the beetles or their body parts can be useful in species recognition, the following measurements were made: total length (TL) – linear distance from anterior margin of head to apex of elytra, elytral width (EW) – maximal linear transverse distance.

Material examined for this study is housed in the following museums and private collections abbreviated by acronyms: JHAC – Jiří Háva, Private Entomological Laboratory and Collection, Únětice u Prahy, Czech Republic; FKHC – Friedrich Kernegger, private collection, Hamburg, Germany; GPIH – Geologisch-Paläontologisches Institut der Universität Hamburg, Germany.

Additional photographs of the all presently described species are available also on the internet web sites: Dermestidae World (Coleoptera), World Wide Web electronic publication (see Háva 2008).

SYSTEMATIC PALAEONTOLOGY

Anthrenus (Nathrenus) kerneggeri sp. nov.

(Figs 1, 2, 10)

TYPE MATERIAL (holotype). Baltic amber inclusion No. 144/2001, Jantarnyj, Kaliningrad District, Russia. Holotype deposited in GPIH. Holotype specimen is provided with a red, printed label with text as follows: "HOLOTYPE, *Anthrenus (Nathrenus) kerneggeri* sp. nov., J. Háva, J. Prokop & A. Herrmann det. 2005".

DESCRIPTION OF HOLOTYPE. Measurements (mm): TL 1.9 EW 1.3. Body black, oval (Fig. 1). Dorsal surface covered by black and white scales (Fig. 1). Individual scales setiform, very narrow. Antennae black, 11 antennomerae; antennal club 3 antennomerae, black, compact, terminal segment regularly rounded. Eyes, large, with entire median margin and with microsetae. Frontal median ocellus presented. Pronotum covered with white scales and medially with black scales (Fig. 10). Elytra covered by black and white scales; black scales forming three transverse band, combined medially, epipleuron with white scales. Ventral surface covered only with white scales (Fig. 2). Prosternum only with white scales. Metasternum with only white scales, without a large patch of black scales at lateral margins. Abdominal sternites not bearing larger spots of black scales at antero-lateral margins. Sternites I–IV without one large spot of black scales in the middle. Legs dark-brown to black with white setation and white scales. Genitalia not visible.

DISCUSSION. The new *Anthrenus* species belongs to the subgenus *Nathrenus* Casey, 1900. The subgenus *Nathrenus* differs from other subgenera by the following characters: antennae 11 antennomerae, eyes with median margin complete. The new species habitually similar to the three known fossil species (*A. (N.) electron* Háva, Prokop et Kadej, 2006, *A. (N.) groehni* Háva, Prokop et Herrmann, 2006 and *A. (N.) ambericus* Háva, Prokop et Herrmann, 2006). It differs from them by the combination of the characters provided in the following key:

- 1(6) dorsal surfaces covered by bicolorous scales; each elytron with patches.
- 2(3) abdominal sternites not bearing small spots of black scales at antero-lateral margins; elytra covered by black and white scales; black scales forming three transverse band, combined medially. *A. (N.) kerneggeri* sp. nov.
- 2(3) abdominal sternites bearing small spots of black scales at antero-lateral margins.
- 4(5) elytra covered by black and white scales; black scales forming transverse band and apical spot.
..... *A. (N.) electron* Háva, Prokop et Kadej, 2006
- 5(4) elytra covered by black scales with small circular patches of yellow scales.
..... *A. (N.) groehni* Háva, Prokop et Herrmann, 2006
- 6(1) dorsal surfaces covered by unicolorous scales; each elytron without patches.
..... *A. (N.) ambericus* Háva, Prokop et Herrmann, 2006

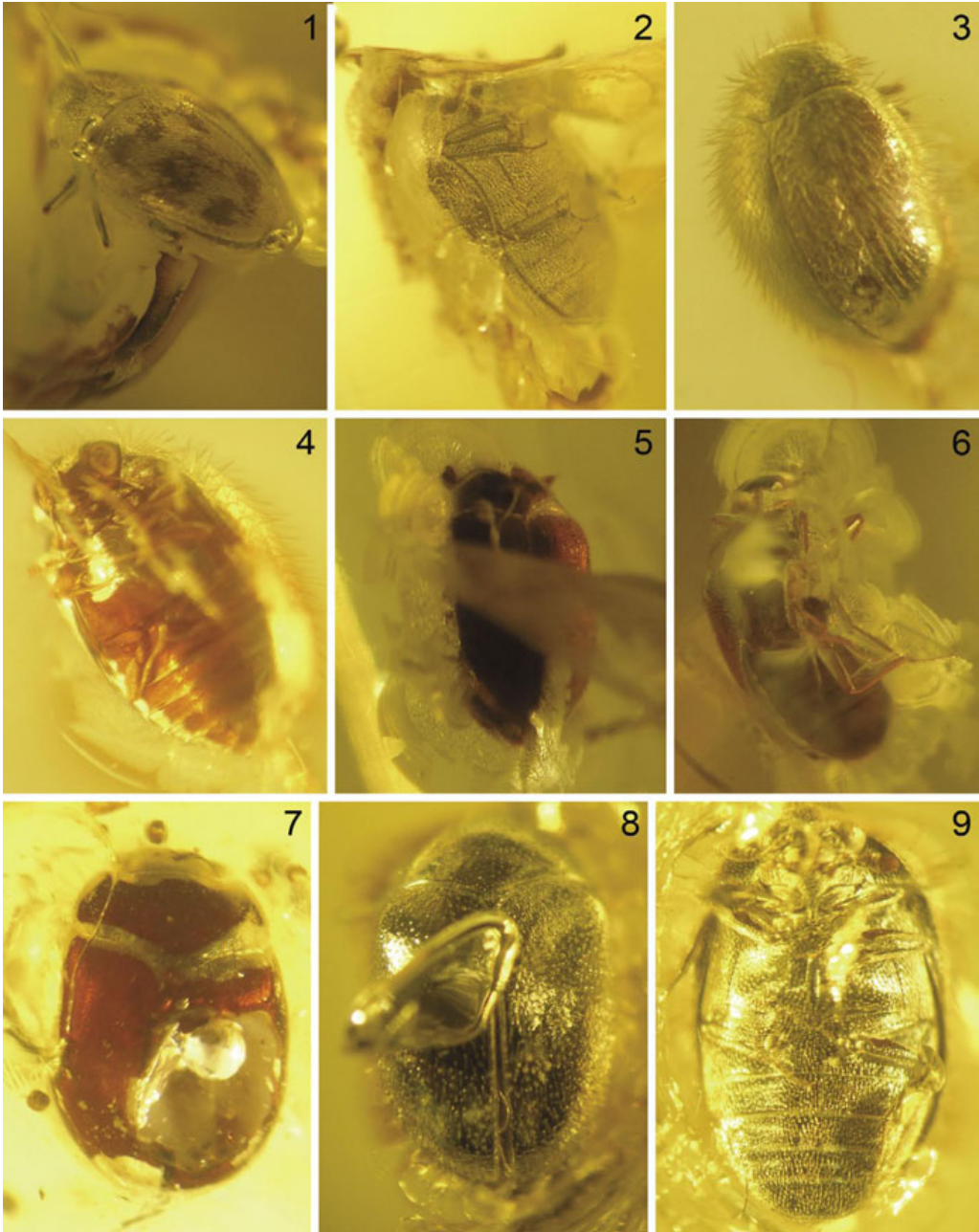
ETYMOLOGY. Patronymic, dedicated to Friedrich Kernegger (Hamburg, Germany).

Evorinea amberica sp. nov.

(Figs 3, 4, 11)

TYPE MATERIAL (holotype). Baltic amber inclusion No. 131/2002, Jantarnyj, Kaliningrad District; Holotype deposited in (GPIH); Holotype specimen is provided with a red, printed label with text as follows: "HOLOTYPE, *Evorinea amberica* sp. nov., J. Háva, J. Prokop & A. Herrmann det. 2005".

DESCRIPTION OF HOLOTYPE. Male. Measurements (mm): TL 1.3 EW 0.8. Head and pronotum dark brown, elytra dark brown, body oval, convex (Figs 3–4). Head dark brown finely punctate with long black erected pubescence. Palpi entirely brown. Frontal median ocellus presented. Antennae 11 antennomerae, antennal club with 2 antennomerae, brown (Fig. 11). Pronotum finely punctate like head with long black erected pubescence; posterior margin without carinae. Scutellum trian-



Figs 1–9. 1, 2 *Anthrenus (Nathrenus) kerneggeri* sp. nov., holotype, 1 – habitus, dorsal view, 2 – habitus, ventral view. 3, 4 *Evorinea amberica* sp. nov., holotype, 3 – habitus, dorsal view, 4 – habitus, ventral view. 5, 6 *Attagenus balticus* sp. nov., holotype, 5 – habitus, dorsal view, 6 – habitus, ventral view. 7 *Attagenus obesus* sp. nov., holotype, habitus, dorsal view. 8, 9 *Phradonoma americum* sp. nov., holotype, 8 – habitus, dorsal view, 9 – habitus, ventral view.

gular finely punctate as pronotum, with short black pubescence. Elytra finely punctate; cuticle unicolorous, dark brown; pubescence black, long, erect. Apex of each elytron with long blackish pubescence. Epipleuron brown with short pubescence. Legs brown with black pubescence. Meso-metasternum with short black pubescence. Posterior margin of metasternum without a small median emargination. Abdominal sternites with short black pubescence. Pygidium brown. Genitalia not visible.

DISCUSSION. The new species belongs to the genus *Evorinea* Beal, 1961 (subfamily Trinodinae: Trinodini) according to characters mentioned by Háva (2004); the genus *Evorinea* contains 10 recent species those differ from new species by the form of antennae.

ETYMOLOGY. The species named after the English word amber.

***Attagenus balticus* sp. nov.**

(Figs 5, 6, 12)

TYPE MATERIAL (holotype). Baltic amber inclusion No. 44/1998, Jantarnyj, Kaliningrad District, Russia; Holotype deposited in (GPIH); Holotype specimen is provided with a red, printed label with text as follows: "HOLOTYPE, *Attagenus balticus* sp. nov., J. Háva, J. Prokop & A. Herrmann det. 2005".

DESCRIPTION OF HOLOTYPE. Measurements (mm): TL 2.5 EW 1.6. Body brown, matt, suboval (Fig. 5). Head dark-brown, finely punctate with very short brown suberected pubescence. Palpi entirely brown. Frontal median ocellus presented. Antennae 11 antennomerae, brown, antennal club 3 antennomerae, dark brown (Fig. 12), terminal segment long. Pronotum dark-brown, finely punctate like head with short black suberected pubescence. Scutellum triangular finely punctate as pronotum, with short black pubescence. Elytra with unicolorous brown cuticle, finely punctate with short subrecumbed pubescence. Apex of each elytron with very short brownish setation. Epipleuron brown, finely punctate, reaching first visible abdominal sternite. Legs entirely light-brown with short brown setation; tibiae without thorns along shaft. Habitus ventral view (Fig. 6). Prosternum not forming a "collar", therefore mouthparts free. Prosternal process narrow. Prosternum coarsely punctate on the disc and foveate on lateral parts. Mesosternum finely punctate as disc of prosternum. Metepisternum foveate punctate, with short brown pubescence. Metasternum finely punctate on the disc and foveate on lateral parts, with short brown pubescence. Abdominal sternites finely punctate, with short subrecumbed brown pubescence. Genitalia not visible.

DISCUSSION. The new species belongs to the genus and monotypical subgenus *Attagenus* Latreille, 1802 from the subfamily Attageninae, tribe Attagenini according to characters mentioned by Háva (2004). The new species differs from others known recent species by the form of antennae and form of body. From the Baltic amber known only one recently described species *Attagenus hoffeinsorum* Háva, Prokop et Herrmann, 2006, new species differs from it by the characters mentioned in the following key.

ETYMOLOGY. The species named after the Baltic amber.

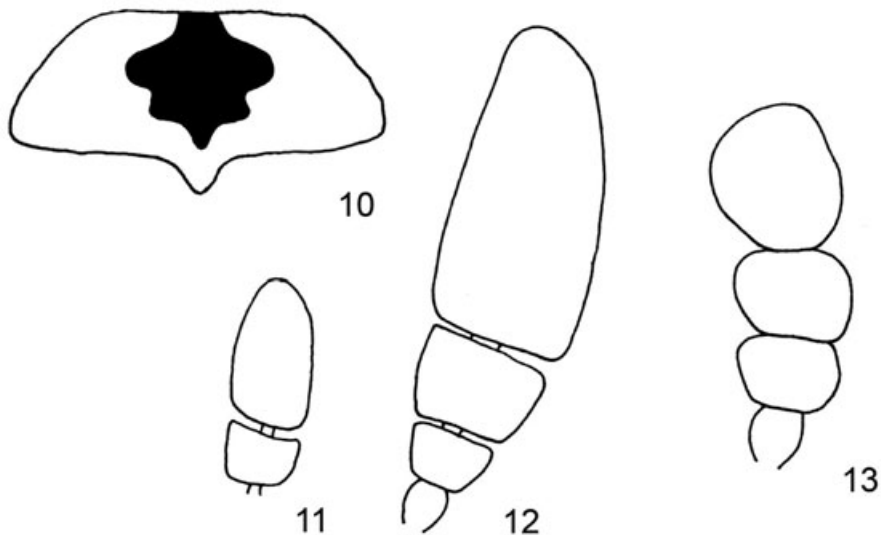
***Attagenus obesus* sp. nov.**

(Figs 8, 13)

TYPE MATERIAL (holotype). Baltic amber inclusion No. 109/1998, Jantarnyj, Kaliningrad District, Russia; Holotype deposited in (GPIH); Holotype specimen is provided with a red, printed label with text as follows: "HOLOTYPE, *Attagenus obesus* sp. nov., J. Háva, J. Prokop & A. Herrmann det. 2005".

DESCRIPTION OF HOLOTYPE. Measurements (mm): TL 2.5 EW 1.7. Body brown, shiny, oval. Head brown, finely punctate with very short black suberected setation. Palpi entirely brown. Frontal median ocellus presented. Antennae 11 antennomerae, yellow, antennal club 3 antennomerae (Fig. 13); terminal segment very small, circular. Pronotum brown, finely punctate like head with very short black suberected setation. Scutellum triangular finely punctate as pronotum, with very short black pubescence. Elytra with unicolorous brown cuticle, finely punctate with very short, black, subrecumbed pubescence. Apex of each elytron with very short blackish pubescence. Epipleuron not reaching first visible abdominal sternite. Legs brown with short black pubescence; tibiae without thorns along shaft. Habitus ventral view. Prosternum not forming a “collar”, therefore mouthparts free. Prosternal process narrow. Prosternum finely punctate. Mesosternum finely punctate as disc of prosternum. Metepisternum foveate punctate, with short black pubescence. Metasternum finely punctate on the disc and foveate on lateral parts, with short black pubescence. Abdominal sternites finely punctate, with short subrecumbed black pubescence. Genitalia not visible.

DISCUSSION. The new species belongs to the genus and monotypical subgenus *Attagenus* Latreille, 1802 from the subfamily Attageninae, tribe Attagenini according to combination of characters proposed by Háva (2004). The new species differs from others known recent species by the form of antennae and body structures. Only one described species from the Baltic amber i.e., *Attagenus hoffeinsorum* Háva, Prokop et Herrmann, 2006 differs from *A. obesus* sp. nov. by the characters mentioned in the following key.



Figs 10–13. 10 – *Anthrenus (Nathrenus) kerneggeri* sp. nov., holotype, pronotum. 11 – *Evorinea americana* sp. nov., holotype, antennal club. 12 – *Attagenus balticus* sp. nov., holotype, antennal club. 13 – *Attagenus obesus* sp. nov., holotype, antennal club.

Key to the identification of fossil species of *Attagenus* Latreille, 1802 from the Baltic amber

- 1(4) elytral epipleuron not reaching first visible abdominal sternite.
2(3) antennae yellow, terminal antennal segment very small, circular (Fig. 13); body oval, cuticle brown, shiny.
..... *A. obesus* sp. nov.
3(2) antennae black, terminal antennal segment oval; body suboval, cuticle black, matt.
..... *A. hoffeinsorum* Háva, Prokop et Herrmann, 2006
4(1) elytral epipleuron reaching first visible abdominal sternite; antennae brown, terminal antennal antennomere long (Fig. 12); body suboval, cuticle brown, matt. *A. balticus* sp. nov.

ETYMOLOGY. Latin adjective *obesus* = plump, according to a form of the body shape.

Phradonoma ambericum sp. nov. (Figs 8, 9)

TYPE MATERIAL (holotype). Baltic amber inclusion No. 151/2001, Jantarnyj, Kaliningrad District, Russia; Holotype deposited in (GPIH). Holotype specimen is provided with a red, printed label with text as follows: "HOLOTYPE, *Phradonoma, ambericum* sp. nov., J. Háva, J. Prokop & A. Herrmann det. 2005".

DESCRIPTION OF HOLOTYPE. Measurements (mm): TL 2.4 EW 1.5. Body black, shiny, covered with black long erected pubescence (Fig. 8). Head black, finely punctate with distinct erected setation. Palpi entirely brown. Frontal median ocellus presented. Antennae with 11 antennomeres, black, antennal club 3 antennomeres, terminal antennomere oval (Fig. 9). Antennal cavity open. Pronotum finely punctate like head with long black erected pubescence. Scutellum triangular finely punctate as pronotum, with very short black pubescence. Elytra coarsely punctate near scutellum, finely punctate on other parts; cuticle unicolorous, black, with black erected long pubescence. Apex of each elytron with long pubescence. Epipleuron black, with long black pubescence. Ventral surfaces as in (Fig. 9). Prosteronum forming a "collar" under which mouthparts fit when head is retracted, with coarsely punctures. Epipleuron reaching of anterior $\frac{1}{2}$ episternum. Mesosternum and metasternum covered with black very short recumbent pubescence. Metasternum at lateral part near epipleuron with foveate-reticulate punctures. Abdominal sternites finely punctate, covered with black very short recumbent pubescens. Legs black, with short black setation; anterior tibiae with spines along shaft. Genitalia not visible.

DISCUSSION. The present described species belongs to the genus *Phradonoma* Jacquelin du Val, 1859 according to the number of antennomeres and short spines along shaft on anterior tibiae. The genus *Phradonoma* attributed within the genera Group II according to the genera keys proposed by Háva (2004). The genus comprises 40 recent species and our species belongs into „*P. villosulum* species group“ defined by Háva (2006) differing by the form of antennae.

ETYMOLOGY. The species named after English word amber.

Attagenus hoffeinsorum Háva, Prokop et Herrmann, 2006

MATERIAL EXAMINED. Five inclusions in Baltic amber, Nos. 37/1992, (FKHC); 278/1994, (FKHC); 44/2003, (FKHC); 103/2003, (FKHC); 109/2003, (JHAC); Jantarnyj, Kaliningrad District, Russia.

REMARKS. The species known according to the type series, from Poland mentioned by Háva et al. (2006), additional specimens from Baltic amber is clearly attributable to this species.

Anthrenus (Nathrenus) ambericus Háva, Prokop et Herrmann, 2006

MATERIAL EXAMINED. One inclusion in Baltic amber No. 45/2000 (FKHC), Jantarnyj, Kaliningrad District, Russia.

REMARKS. Additional specimen from the Baltic amber is clearly attributable to this species.

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