Zootaxa 5631 (2): 380–386
https://www.mapress.com/zt/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

https://doi.org/10.11646/zootaxa.5631.2.10
http://zoobank.org/urn:lsid:zoobank.org:pub:F9FDAE21-8552-489B-981E-DEB601BC334F

A new bark-gnawing beetle (Coleoptera: Cleroidea: Trogossitidae) from Baltic amber

VITALII ALEKSEEV[1], MADELINE V. PANKOWSKI[2] & ANDRIS BUKEJS[3]
[1]*Immanuel Kant Baltic Federal University, Nevskogo 14, Kaliningrad 236016, Russia.*
alekseew0802@yahoo.com; https://orcid.org/0000-0003-4390-5443
[2]*Rockville, Maryland 20853, USA.*
madelinepankowski@gmail.com; https://orcid.org/0000-0002-9430-0121
[3]*Institute of Life Sciences and Technologies, Daugavpils University, Vienības 13, Daugavpils LV-5401, Latvia.*
carabidae@inbox.lv; https://orcid.org/0000-0001-7165-3023

Abstract

A new extinct representative of the tribe Trogossitini, *Ligaschonus succiniripae* **gen. et sp. nov.**, is described, diagnosed, and illustrated based on a well-preserved specimen from Eocene Baltic amber. The extinct beetle is compared with related extant genera of the tribe Trogossitini, from which the inclusion in Baltic amber can be distinguished by a unique combination of a comparatively small body size, elliptically convex eyes, tiny but distinct anterior pronotal angles, a pronotum narrowed at the base, finely and regularly punctate elytra without carinae, small spines along the outer margin of tibiae, and the absence of median longitudinal groove or a pair of distinctly projecting horns in frons. This represents only the second trogossitid species described from Baltic amber and the third bark-gnawing beetle from all fossil resins.

Key words: Cenozoic, Paleogene, paleodiversity, paleoentomology, fossil resin, new species, new genus

Introduction

The extant family Trogossitidae (*sensu* Gimmel *et al*. 2019), commonly known as bark-gnawing beetles, includes four subfamilies (Calityinae, Egoliinae, Larinotinae, and Trogossitinae) with approximately 400 species in 25 genera distributed worldwide (Kolibáč 2013; Li *et al*. 2021; Kolibáč *et al*. 2021). Numerous cleroid fossils classified within the former broadly defined Trogossitidae, that is, the present Lophocateridae, Peltidae, and Trogossitidae, have been reported from different *Lagerstätten* (Schmied *et al*. 2009, 2011; Peris *et al*. 2014; Kolibáč & Peris 2021; Lyubarsky *et al*. 2021; Yu *et al*. 2021; Kolibáč *et al*. 2021). However, only two fossil trogossitids *sensu stricto* have previously been described from amber: *Microtrogossita qizhihaoi* Li et Cai in Li *et al*. 2021 from mid-Cretaceous Burmese amber and *Seidlitzella hoffeinsorum* Kolibáč et Alekseev, 2017 from late Eocene Baltic amber (Kolibáč & Alekseev 2017; Li *et al.* 2021).

Baltic amber comprises various fossil resins with distinct chemical properties and mineralogical names. About 98% of it is *succinite*; other fossil resins (or carbonaceous materials resembling fossil resins, with proper mineralogical names) in the Baltic Sea region include *gedanite* (about 2%) and much rarer *glessite*, *stantienite*, *bekkerite*, and *kranzite* (e.g. Savkevich 1970; Vávra 2009; Fuhrmann 2010; Lambert *et al*. 2015; Gröhn & Kobbert 2017). Succinite from the Sambian Peninsula, belonging to the chemical resin class Ia (Anderson *et al*. 1992), is the fossilized and polymerized conifer resin dating from the second half of the Eocene epoch, with an initial origination in Central-North Europe. This amber is well known for preserving an incredibly wide range of bioinclusions from mixed forest habitats. The most probable plant source for this type of fossil resin is an extinct member of the genus *Pinus*, a diverse and variable taxon of conifers living in the Northern Hemisphere today; however, other potential resin producers have been hypothesized (see, e.g., Wolfe *et al.* 2009 and references herein). The highest concentration of Baltic amber in the Sambian Peninsula is situated in the *Blaue Erde* layer (36.8–35.6 Ma), a coastal lagoon horizon belonging to the Priabonian Prussian Formation. The evident terrestrial origin of each conifer resin (including the precursor of Baltic amber), the high concentration of Baltic amber in shallow marine sediments (0.1–

 Accepted by R. Gerstmeier: 27 Mar. 2025; published: 2 May 2025

4.5 kg/m^3), and the existence of geographically distinct deposits of Eocene succinites in Europe (such as Rovno and Bitterfeld ambers) complicate the precise determination of the location and timing of the amber forests, as well as the exact mechanisms that transported the pre-amber resin to marine sediments (see discussion in, e.g., Bukejs *et al*. 2019 and Alekseev *et al*. 2024). In spite of these and other uncertainties, some of which may never be resolved, research on the insect paleodiversity found in Baltic amber is promising and ongoing.

In the present paper, a new extinct Cenozoic taxon, *Ligaschonus succiniripae* **gen.** et **sp. nov.**, is described, diagnosed, and illustrated from Eocene Baltic amber. It is only the second trogossitid species described from Baltic amber and the third bark-gnawing beetle species recorded from all fossil resins.

Material and methods

The paleontological material examined in the present study (the holotype) is deposited in the collection of the Kaliningrad Regional Amber Museum (Russia) [acronym KRAM, prefix KAM]. The amber piece with the inclusion was found by a local collector in the Kaliningrad region and purchased by the Kaliningrad Regional Amber Museum in 2024.

The amber piece was polished manually with emery papers of different grit sizes, allowing improved views of the included specimen, and not subjected to any supplementary fixation. Measurements of the holotype were made using an ocular micrometer in a stereoscopic microscope MBS-9. Photographic documentation was performed using a Canon EOS 4000D camera mounted on Leica 10445930 microscope. Extended depth of field at high magnifications was achieved by combining multiple images from a range of focal planes using Helicon Focus v.8.2.2 software, and the resulting images were edited to create figures using Adobe Photoshop 7.0.

The following references were used for the taxonomic placement and comparison with extant and extinct taxa and congeners that are presumed to be phylogenetically allied with the fossil material: Wollaston (1862), Barron (1971), Kolibáč (2005, 2013), Kolibáč & Leschen (2010), Kolibáč & Alekseev (2017), Li *et al*. (2021), and Kolibáč *et al*. (2021).

Systematic paleontology

Family Trogossitidae Latreille, 1802

Subfamily Trogossitinae Latreille, 1802

Tribe Trogossitini Latreille, 1802

Genus *Ligaschonus* gen. nov.

Type species: *Ligaschonus succiniripae* **sp. nov**., designated herein

Taxonomic assignment. The specimen examined shows a combination of characters corresponding to the subfamily Trogossitinae within the family Trogossitidae, namely: (1) elongate body, (2) asymmetrical antennal club with sensorial fields, (3) all pairs of legs with ultimate tarsomeres as long as all of the previous tarsomeres combined, (4) presence of bisetose empodium situated between simple tarsal claws, and (5) externally closed procoxal cavities.

Differential diagnosis. According to Kolibáč (2013), the tribe Trogossitini included 13 extant genera. However, a molecularly based phylogenetic study by Gimmel *et al*. (2019) proposed a merger of the tribe Gymnochilini with Trogossitini, resulting in eight genera being placed into Trogossitini that previously had been included in Gymnochilini. The specimen under study belongs to the tribe Trogossitini *sensu* Kolibáč (2013) based on the combination of the following characters: (1) eyes laterally situated, rather flat, only single pair of eyes present; (2) body surface without long hairs, scales or thick setae; (3) elytra without carinae, with regular rows of comparatively fine punctures ordered in striae; (4) pronotum without projected anteriad anterior angles; and (5) frontoclypeal suture absent. The combination of the above-mentioned five characters distinguishes the studied Baltic amber trogossitid beetle from ex-representatives of Gymnochilini, i.e., the genera *Anacypta* Illiger, *Gymnocheilis* Dejean, *Kolibacia*

Leschen et Lackner, *Leperina* Erichson, *Narcisa* Pascoe, *Phanodesta* Reitter, *Seidlitzella* Jakobson, and *Xenoglena* Reitter.

Despite the apparent similarity, we conclude that the studied fossil cannot be attributed to any Trogossitini genera, and thus we propose a new genus for this fossil beetle. *Ligaschonus* **gen. nov.** clearly differs from *Nemozoma* Latreille and *Temnoscheila* Westwood in lacking conspicuous sharp longitudinal groove in frons; differs from *Airora* Reitter, *Alindria* Erichson, *Corticotomus* Sharp, *Dupontiella* Spinola, and *Euschaefferia* Leng in the pronotum narrowed at base and about as long as wide (not subparallel and elongate, not distinctly cordate) as well as the weakly convex and not cylindrical elytra; differs from *Elestora* Pascoe and *Melambia* Erichson in not possessing conspicuously carinate elytra; and differs from *Eupycnus* Sharp and *Tenebroides* Piller et Mitterpacher in the constricted-at-base pronotum (in contrast to subparallel or distinctly cordate pronotum of the mentioned genera) and the body including head and pronotum distinctly elongate. *Ligaschonus* **gen. nov.** bears some similiarity to the extant endemic genus of the Canary Islands, *Leipaspis* Wollaston (non-grooved frons, elongate body shape, posteriorly narrowed pronotum, and generally non-costate elytra), but differs based on its smaller body size (about 5 mm vs. 8.5–9.5 mm in *Leipaspis*), tiny but distinct anterior pronotal angles (not extended in *Leipaspis*), protibia with little spines along the outer edge (reduced in *Leipaspis*), finer elytral punctation, developed metathoracic wings, and a small but distinct scutellar shield (in contrast to wingless *Leipaspis* having scutellar shield indistinct). The new genus shares the elytral structure with *Temnoscheila* Westwood, a heterogenous and especially diverse taxon in the New World with more than 100 described species (Kolibáč 2013); however, *Ligaschonus* **gen. nov.** can be easily distinguished from *Temnoscheila* by the frons without longitudinal median groove, by the smaller body size (9.0–26.0 mm in *Temnoscheila*), and by the form of eyes (flat, not exceeding contour of cranium in *Temnoscheila*).

Ligaschonus **gen. nov.** represents the second known member of the tribe Trogossitini in Baltic amber. The first one, *Seidlitzella hoffeinsorum* Kolibáč et Alekseev, 2017, originally described within Gymnochilini (Kolibáč & Alekseev 2017), can be easily distinguished from the new taxon by the larger body size (9.7–10.5 mm long), the distinctly more flattened body, the carinate elytra with two rows of rounded punctures occurring between each pair of carinae, the projecting and acuminate anterior pronotal angles, and the protibia with four small spines along the outer side, etc. Additionally, *Ligaschonus* **gen. nov.** can be distinguished from the Cretaceous *Microtrogossita qizhihaoi* Li et Cai in Li *et al.* 2021, which has the general appearance of an aberrant Latridiidae, by the following characters: (1) presence of spines along outer margin of tibiae (absent in *Microtrogossita*), (2) fine sculpture of dorsal and ventral surfaces (deeply punctate and sparsely setose in *Microtrogossita*), (3) 11-segmented antennae (10-segmented in *Microtrogossita*), (4) distinctly asymmetrical antennal club (weakly asymmetrical in *Microtrogossita*), (5) antennal grooves present (absent in *Microtrogossita*), (6) finely faceted eyes (coarsely faceted ones in *Microtrogossita*), and (7) larger body size (in contrast to 1.93 mm of the *Microtrogossita* body length).

Etymology. The name of the new genus, *ligaschonus*, is derived from *lygašonys* (or *ligusones*), a caste of Prussian pagan priests that performed funeral rituals centuries ago "guaranteeing passage from this to the next world" (Balsys 2016). The name evokes the amber's role in carrying this beetle from its Eocene world to ours today. The gender is masculine.

Description. The new genus is monotypic. Therefore, the generic description considerably overlaps that of the type species.

Note on the presumed paleoecology of the fossil. Adults of most Trogossitini hunt for xylophagous insects (e.g., Curculionidae: Scolytinae; Bostrichidae; and Ptinidae) on branches and logs while larvae dwell and hunt beneath bark or in galleries of xylophagous insects like bark beetles (Kolibáč 2013). Several ex-Gymnochiline genera are active species that fly, run, and even jump swiftly around fallen logs in forest clearings (Kolibáč & Leschen 2010), whereas larvae and adults of cylindrical species live in galleries of small Scolytinae. For the fossil species, a similar biology, i.e., an active predatory lifestyle and dendrophilous mode of life, can be assumed. The comparatively narrow and elongate body shape suggests a probable association of the extinct bark-gnawing beetle with wood galleries of scolytine as well anobiine beetles and other wood-boring inhabitants.

Ligaschonus succiniripae **sp. nov.**
(Figs 1–2)

Type material. Holotype: No. KAM 9137 [KRAM]; "*Holotype / *Ligaschonus* / *succiniripae* / gen. et sp. nov. / Alekseev, Pankowski / et Bukejs des. 2025" [red handwritten label]; adult, sex unknown. A complete beetle is included in a transparent, yellowish, amber piece shaped like a trapezoidal prism with dimensions of 21×9 mm and a maximum thickness of 7 mm. Organic syninclusions: several small fragments of wood dust, one of which is located above the elytra of the beetle. Amber matrix also contains numerous gas bubbles of different sizes.

Locus typicus. Yantarny village (formerly Palmnicken), Sambian (Samland) Peninsula, Kaliningrad Region, western Russia.

Stratum typicum. Baltic amber, most probable from the Eocene amber-bearing layers of *Blaue Erde* (Blue Earth) within the Prussian Formation; estimated age: late Eocene.

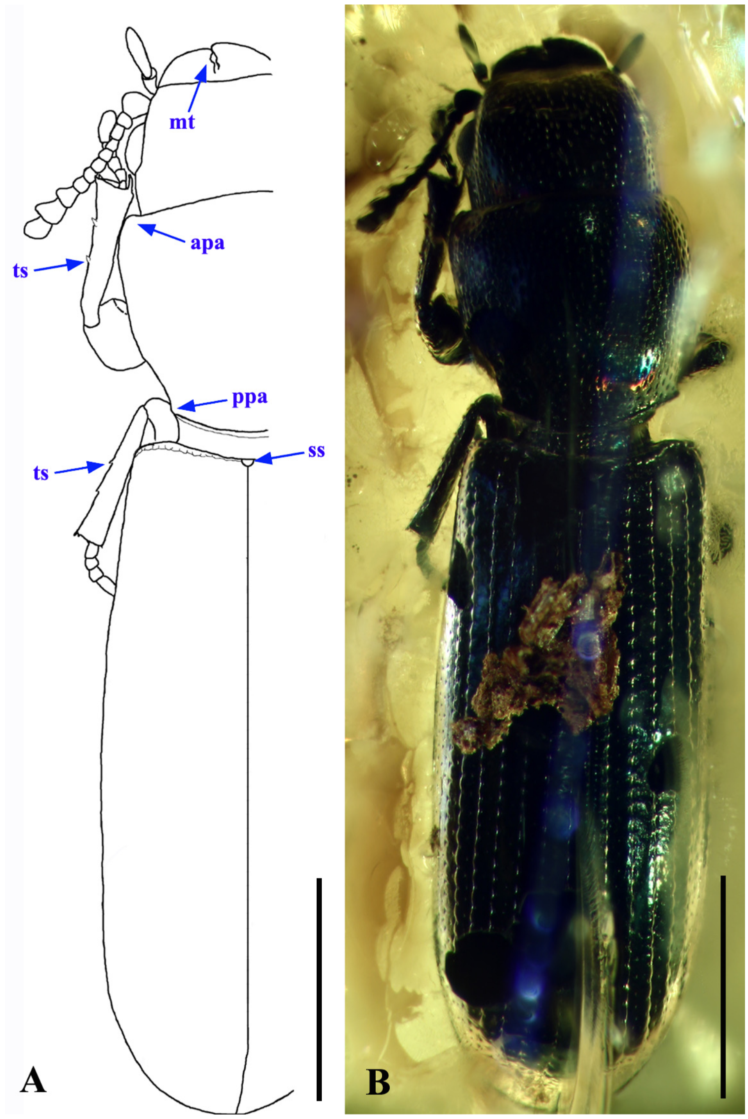

FIGURE 1. *Ligaschonus succiniripae* **gen. et sp. nov.**, holotype, No. KAM 9137 [KRAM], habitus in dorsal view. **A**, schematic drawing. **B**, microphotograph. Scale bars = 1 mm. Abbreviations: apa—anterior pronotal angles; mt—mandibular teeth; ppa—posterior pronotal angles; ss—scutellar shield; ts—tibial spines along outer edge.

Description. *Measurements*: body length (from anterior tip of mandibles to elytral apex along midline) 4.98 mm, body maximum width across both elytra (at middle) 1.25 mm; head length 0.75 mm, head width (basally) 0.88 mm, head width (between mid-length of eyes) 0.75 mm; pronotal length 1.1 mm, pronotal maximum width (anteriorly) 1.1 mm, pronotal minimum width (at base) 0.8 mm; elytral length 3.13 mm, elytral width (at humeri) 1.13 mm.

Habitus. Body elongate, 3.9× as long as wide, flattened dorsally and ventrally; body uniformly black or black-brown (as preserved); integument glabrous, punctate, without visible pubescence, scales, or setae.

Head. Prognathous, slightly narrower than pronotum, weakly convex, punctate. Frons simple, without longitudinal median groove and without horn-like processes, with straight anterior margin. Frontoclypeal suture absent. Punctation of frons round, separated by distance of about 1.0× as long as puncture diameter; punctation of vertex elongate, oval, dense, punctures separated by distance of about 0.5× as long as puncture diameter. Compound eyes moderately sized, finely faceted, complete (not emarginated), situated laterally, round in lateral view, elliptical in dorsal view (ellipse with eccentricity 0.57), without interfacetal setae. Mandibles large, with two apical teeth. Maxillary palpi long, with penultimate palpomere cylindrical, 0.5× as long as terminal palpomere; terminal maxillary palpomere spindle-shaped, 3.0× as long as wide at middle. Antennae inserted under lateral margin of frons; antennal insertions not visible from above. Antennal grooves well-developed. Antennae extending to one-quarter of pronotum, 11-segmented, with asymmetrical, loose, 3-segmented antennal club; all three segments of antennal club with sensorial fields at inner side; antennomeres 7–10 with erect long sparse hairs. Scape robust, much larger than pedicel; antennomeres 3–8 subequal in size, weakly conical; antennomeres 9–10 subtriangular; antennomere 11 rounded.

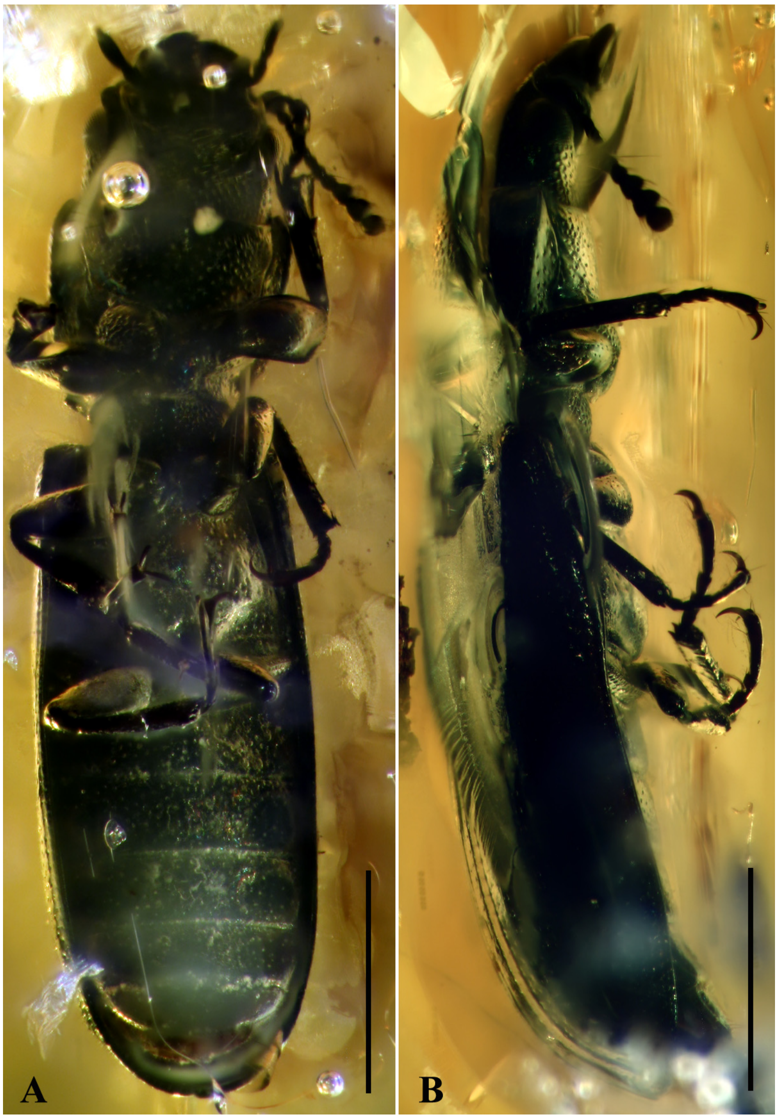

FIGURE 2. *Ligaschonus succiniripae* **gen. et sp. nov.**, holotype, No. KAM 9137 [KRAM]. **A**, habitus, ventral view. **B**, habitus, right lateral view. Scale bars = 1 mm.

Thorax. Pronotum narrowed at base, not cordate, about as long as maximum wide, with fine lateral carina and distinct basal margination, anteriorly wider than head and posteriorly narrower than combined elytral base. Pronotal anterior edge slightly arcuate; posterior edge arcuate. Pronotal disc evenly convex. Anterior pronotal angles not projected, distinct, obtuse, rounded. Posterior pronotal angles triangular, pointed. Pronotal punctation as in vertex, elongate, oval, dense; punctures separated by distance of about 0.5× as long as puncture diameter. Notosternal suture between prohypomeron and prosternum well discernible. Prosternum in front of coxae about 2.0× as long as length of procoxal cavity, convex, punctate; punctures round, medially sparse and laterally denser. Prosternal process extending behind coxae, subparallel, with widely rounded apex. Procoxal cavities externally closed. Scutellar shield small, rounded, about as long as wide.

Elytra. Elongate, subparallel with maximum width at middle, about 2.5× as long as wide, flattened, without carinae, punctate-striate. Each elytron with at least six regular rows of larger strial punctures at disc and irregular rows of finer punctures in interspaces between striae; lateral elytral punctation irregular. Interspaces between striae weakly convex. Epipleura narrow, reaching abdominal ventrite 1, widest at humeri. Mesoventrite convex, densely punctate, punctures separated by distance of about 0.3× as long as puncture diameter, along middle with longitudinal narrow impunctate stripe. Mesocoxal cavities narrowly separated. Metaventrite convex, rather sparsely punctate; punctures irregular, separated by distance of about 1.0–4.0× as long as puncture diameter. Metathoracic wings present (distal parts are exposed).

Legs. Procoxa transverse; mesocoxa subglobose, projecting; metacoxa strongly transverse. Femora finely punctate; profemora subclavate, with flattened and smooth anterior edge for reception of protibiae; meso- and metafemora slightly widened from base to middle. All tibiae flattened, widened apically, rugosely punctate in dorsal view, with two apical spurs; length ratio of protibial spurs 4:3, longer spur is weakly curved; spurs of meso- and metatibiae straight, equal in shape and length. Protibia with two spines in outer apical angle and two spines along outer edge (in anterior quarter and in middle of the tibial length); mesotibia with two small spines along outer edge; metatibia lacks distinct spines along outer edge. Tarsal formula 5–5–5, but seemingly 4–4–4 because tarsomere 1 is minute and retracted into apex of tibia. Tarsomere 5 longest, in all legs as long as all previous tarsomeres together, bearing small bisetose empodium between tarsal claws. Claws simple (without denticles), acute, curved, long (about 0.3× as long as tarsomere 5).

Abdomen. With five ventrites; finely punctate, punctures separated by distance of about 1.0–3.0× as long as puncture diameter. Relative length ratios of ventrites 1–5 equal to 7:7:6:5:5 (measured medially).

Differential diagnosis. As stated above, for the new genus.

Derivatio nominis. The specific epithet *succiniripae*, used as a noun in the genitive case, is a compound word derived from the Latin *ripa succini* (amber coast) and meaning “of the amber coast.” The name refers to the poetic name of the southeastern Baltic seacoast.

Remarks. Mesocoxal cavities state (open/close) is not visible in examined specimen due to position of its legs (open mesocoxal cavities are characteristic for Trogossitini).

Acknowledgements

We thank Dr. David Peris (Barcelona, Spain) and Dr. Jiří Kolibáč (Brno, Czechia) for their valuable comments, constructive critique, and corrections to an earlier version of this manuscript. We also are grateful to Dr. Roland Gerstmeier (München, Germany) for his assistance throughout the publishing process.

References

Alekseev, V.I., Bukejs, A. & Pollock, D.A. (2024) The first fossil of a tenebrionoid taxonomic enigma: *Agnathus* Germar (Coleoptera: Pyrochroidae: Agnathinae) in Bitterfeld amber, with remarks about age and geographic origin of the fossil. *Historical Biology*, 37 (3), 714–719.
https://doi.org/10.1080/08912963.2024.2327082

Anderson, K.B., Winans, R.E. & Botto, R.E. (1992) The nature and fate of natural resins in the biosphere—II. Identification, classification, and nomenclature of resinites. *Organic Geochemistry*, 18 (6), 829–841.
https://doi.org/10.1016/0146-6380(92)90051-X

Balsys, R. (2016) Paganism of Prussian: sacred caste tulissones, ligaschones. *Visnyk of the Lviv University. Series History*, 52, 72–92.

Barron, J.R. (1971) A revision of the Trogositidae of America North of Mexico (Coleoptera: Cleroidea). *Memoirs of the Entomological Society of Canada*, 75, 1–143.
https://doi.org/10.4039/entm10375fv

Bukejs, A., Alekseev, V.I. & Pollock, D.A. (2019) Waidelotinae, a new subfamily of Pyrochroidae (Coleoptera: Tenebrionoidea) from Baltic amber of the Sambian peninsula and the interpretation of Sambian amber stratigraphy, age and location. *Zootaxa*, 4664 (2), 261–273.

https://doi.org/10.11646/zootaxa.4664.2.8
Fuhrmann, R.F. (2010) Die Bitterfelder Bernsteinarten. *Mauritiana, Altenburg*, 21, 1–46.
Gimmel, M.L., Bocakova, M., Gunter, N.L. & Leschen, R.A.B. (2019) Comprehensive phylogeny of the Cleroidea (Coleoptera: Cucujiformia). *Systematic Entomology*, 44, 527–558.
https://doi.org/10.1111/syen.12338
Gröhn, K. & Kobbert, M.J. (2017) *Pflanzen seit der Saurierzeit eingeschlossen in Bernstein*. Wachholtz, Kiel/Hamburg, 240 pp.
Kolibáč, J. (2005) A review of the Trogositidae. Part 1: Morphology of the genera (Coleoptera, Cleroidea). *Entomologica Basiliensia et Collectionis Frey*, 27, 39–159.
Kolibáč, J. (2013) Trogossitidae: a review of the beetle family, with a catalogue and keys. *ZooKeys*, 366, 1–194.
https://doi.org/10.3897/zookeys.366.6172
Kolibáč, J. & Alekseev, V. (2017) *Seidlitzella hoffeinsorum* sp. nov., the first representative of the beetle tribe Gymnochilini (Coleoptera: Trogossitidae) from Baltic amber. *Earth and Environmental Science Transactions of the Royal Society of Edinburgh*, 107, 289–296.
https://doi.org/10.1017/S1755691017000305
Kolibáč, J. & Leschen, R.A.B. (2010) Trogossitidae Fabricius, 1801. *In*: Leschen, R.A.B., Beutel, R.G. & Lawrence, J.F. (Eds.), *Handbook of Zoology. Vol. 2. Coleoptera, Beetles. Morphology and Systematics (Elateroidea, Bostrichiformia, Cucujiformia partim)*. Walter de Gruyter GmbH & Co, Berlin, pp. 241–247.
https://doi.org/10.1515/9783110911213.241
Kolibáč, J. & Peris, D. (2021) A new saproxylic species of Lophocateridae (Coleoptera: Cleroidea) from Upper Cretaceous Kachin amber (Myanmar). *Cretaceous Research*, 117, 104647.
https://doi.org/10.1016/j.cretres.2020.104647
Kolibáč, J., Bocakova, M., Liebherr, J.K., Ramage, T. & Porch, N. (2021) Extinct and extant Pacifc Trogossitidae and the evolution of Cleroidea (Coleoptera) after the Late Triassic biotic crisis. *Zoological Journal of the Linnean Society*, 191, 846–882.
https://doi.org/10.1093/zoolinnean/zlaa064
Lambert, J.B., Santiago-Blay, J.A., Wu, Y. & Levy, A.J. (2015) The history and structure of stantienite (1). *The Bulletin for the History of Chemistry*, 40 (2), 86–94.
Li, Y.-D., Tihelka, E., Leschen, R.A.B., Yu, Y., Ślipiński, A., Pang, H., Huang, D., Kolibáč, J. & Cai, C. (2021) An exquisitely preserved tiny bark-gnawing beetle (Coleoptera: Trogossitidae) from mid-Cretaceous Burmese amber and the phylogeny of Trogossitidae. *Journal of Zoological Systematics and Evolutionary Research*, 59 (8), 1939–1950.
https://doi.org/10.1111/jzs.12515
Lyubarsky, G.Y., Tihelka, E., Cai, C.-Y. & Perkovsky, E.E. (2021) *Zaiwa*: A new genus of the family Lophocateridae from mid-Cretaceous Burmese amber (Coleoptera: Cleroidea). *Palaeoentomology*, 4 (3), 218–222.
https://doi.org/10.11646/palaeoentomology.4.3.7
Peris, D., Kolibáč, J. & Delclòs, X. (2014) *Cretamerus vulloi* gen. et sp. nov., the oldest bark-gnawing beetle (Coleoptera: Trogossitidae) from Cretaceous amber. *Journal of Systematic Palaeontology*, 12, 879–891.
https://doi.org/10.1080/14772019.2013.853108
Savkevich, S.S. (1970) *Amber*. Nedra, Leningrad, 192 pp. [in Russian]
Schmied, H., Wappler, T. & Kolibáč, J. (2009) A new bark-gnawing beetle (Coleoptera, Trogossitidae) from the Middle Eocene of Europe, with a checklist of fossil Trogossitidae. *Zootaxa*, 1993 (1), 17–26.
https://doi.org/10.11646/zootaxa.1993.1.2
Schmied, H., Wappler, T. & Kolibáč, J. (2011) Die Fossilgeschichte der Jagdkäfer (Trogossitidae). *Entomologie heute*, 23, 117–122.
Vávra, N. (2009) The chemistry of amber – facts, findings and opinions. *Annalen des Naturhistorischen Museums in Wien*, Serie A, 111, 445–474.
Wolfe, A.P., Tappert, R., Muehlenbachs, K., Boudreau, M., McKellar, R.C., Basinger, J.F. & Garrett, A. (2009) A new proposal concerning the botanical origin of Baltic amber. *Proceedings of the Royal Society B*, 276, 3403–3412.
https://doi.org/10.1098/rspb.2009.0806
Wollaston, T.V. (1862) X. On the *Euphorbia*-infesting Coleoptera of the Canary Islands. *Transactions of the Entomological Society of London*, Series 3, 1, 136–164.
https://doi.org/10.1111/j.1365-2311.1862.tb00596.x
Yu, Y.L., Leschen, R.A., Ślipiński, A., Ren, D., Wang, S. & Pang, H. (2021) Mesozoic Cleroidea (Coleoptera): first record of mid Cretaceous Lophocateridae from Burmese amber and notes on the disputed genera *Cervicatinius* Tan & Ren (Trogossitidae) and *Forticatinius* Tan & Ren (Artematopodidae). *Cretaceous Research*, 119, 104680.
https://doi.org/10.1016/j.cretres.2020.104680