New species and records of Prostomis Latreille, including the first fossil records from Baltic amber and a checklist of the species (Coleoptera: Prostomidae)

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Abstract

New species and new distributional data of the known species of the genus Prostomis Latreille are presented, and diagnostic characters of some species are figured. New species: Prostomis apoica n. sp. and Prostomis mindanaoica n. sp. from the southern Philippines (Mindanao), Prostomis weigeli n. sp. from western New Guinea (Irian Jaya). Prostomis americanus Crotch, 1874 from northwestern America is considered as a valid species. The genus Prostomis is presented for the first time from Tertiary Baltic amber; the fossils could not be named to species because their aedeagus remains unknown. A checklist of all species with distributional data is compiled and a complete bibliography of taxonomic papers is added.

Keywords: Coleoptera, Prostomidae, Prostomis, new species, fossil record, Baltic amber, checklist, bibliography.

Zusammenfassung


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1 Introduction

The genus *Prostomis* Latreille has a wide range in the Holarctic, Oriental, Papuan-Pacific, Australian and South African regions. 24 valid species have been described till now (see chapter 5 and ARROW 1927, BLACKBURN 1897, 1903, CROTCH 1874, FABRICIUS 1801, FAIRMAIRE 1881, FLEISCHER 1919, GROUVELLE 1896, HETSCHKO 1930, OLLIFF 1884, PASCOE 1860, REITTER 1889, SCHAWALLER 1991, 1992, 1993, 1994, SZALLIES 1994, WATERHOUSE 1877). Besides the structure of the aedeagus, which is unusually small in comparison to the body size, the shape of the jugular processes on the ventral side of the head is considered as an important diagnostic species character, although the biological function of this striking structure which is equal in both sexes is unknown (SCHAWALLER 1993). These processes are surely not just “instruments” for moving forward in red-rotten wood, because in this case they would not have evolved to such modified characters in more or less identical “wood-conditions” worldwide.

Since my previous contributions about this genus (see references) several new specimens from different collections came at hands which are summarised in the present paper. As a result, three new species are described from the southern Philippines (Mindanao) and from western (Indonesian) New Guinea, *Prostomis americanus* Crotch, 1874 is considered as a valid taxon and several new records of known species enlarge our knowledge about their distributional patterns. I take the chance and add a new checklist of the species and a complete bibliography of taxonomic papers (see references). The phylogenetic situation within the genus is still unsatisfactory mainly due to the small number of known diagnostic characters.

The genus *Prostomis* is recorded for the first time from Tertiary Baltic amber, three fossil specimens are presented herein. They could not be named to species because their aedeagus remains unknown.

**Acronyms of depositories**

- BMNH  The Natural History Museum, London/UK (MAX BARCLAY)
- BRIO  Biosystematic Research Institute, Ottawa/Canada (Dr. ALEˇS SMETANA)
Acknowledgements

I would like to thank all colleagues and friends (see list of depositories) for the loan of material under their care. Dr. Wolfgang Weitschat (University Hamburg) kindly arranged the loan of the amber fossils from the private collections G. Herrling (Bramsche/Germany) and F. Kernegger (Hamburg/Germany).

2 New species

2.1 General remarks

The characters of species within Prostomis have been discussed earlier (see for example Schawaller 1993); therefore I describe and figure here only the diagnostic characters (jugular processes, mandibles, aedeagus). A longer description of all the other external characters seems worthless, because they are identical (apart from some variability) in all species worldwide.

2.2 Prostomis apoica n.sp. (Figs. 1–2, 13)

Holotype (♂): Philippines, SE Mindanao, Mt. Apo, Ilomavis, 1400 m, 18.–19.V.1996, leg. L. Bolm, SMNS.
Paratype: Same data as holotype, 1 ex. SMNS.
Etymology: Named after Mt. Apo on Mindanao, where the type series was collected.
Diagnostic characters: Jugular processes (Fig. 2) asymmetrical, left process longer and distinctly swollen shortly before rounded tip, right process with acute tip and without other modifications. Mandibles at the base with earlike dilatation (Fig. 1). Aedeagus see Fig. 13. Body length 7.3–8.0 mm.
Remarks: Differs from Prostomis luzonica Schawaller, 1992, described from Luzon, by completely different jugular processes and aedeagus, and from Prostomis mindanaoica n.sp., described herein also from Mindanao, also by different jugular processes (the aedeagi cannot be compared because the holotype of mindanaoica n.sp. is a female). The type localities of both described species from Mindanao are situated in different, isolated mountain ranges.

2.3 Prostomis mindanaoica n.sp. (Figs.3–4)

Holotype (♀): Philippines, N Mindanao, 30 km W Maramag, 1600 m, 28.–30.XII.1990, leg. L. Bolm, SMNS.
Etymology: Named after the southern Philippine Island Mindanao, where the holotype has been collected.
Diagnostic characters: Jugular processes (Fig. 4) asymmetrical, left process longer and with a hammer-like tip, right process with an acute tip pointing some-
what outwards. Mandibles laterally at the base with earlike dilatation (Fig. 3). Body length 7.2 mm.

Remarks: The shape of the jugular processes differs from those in Prostomis luzonica Schawaller, 1992, described from the Philippines (Luzon), where the left jugular process bears a tip consisting of 3 teeth. Without having intermediate forms

at hand (possibly from the central Philippine islands), I consider this difference as species-specific and not as a gradual infraspecific variation. Thus, the specimen from Minadanao is described as a different species, although only a single female is available and unfortunately the aedeagi cannot be compared.

2.4 Prostomis weigeli n.sp. (Figs. 5–6, 14)

Holotype (♂): Indonesia, Irian Jaya, Fakfak, 2 km E airport, 16.–18.VII.1996, leg. P. SCHÜLE & P. STÜBEN, SMNS.
Paratypes: Indonesia, Irian Jaya, 50 km S Nabire, Pusppenssat, 750 m, 30.–31.XII.1997, leg. A. WEIGEL, 3 ex. NME, 1 ex. SMNS. – Indonesia, Irian Jaya, 50 km S Nabire, Flaga road, Pusppenssat, 18.II.1998, leg. A. WEIGEL, 2 ex. NME.

Etymology: Named after ANDREAS WEIGEL (Wernburg/Germany), one of the collectors of the type series.

Diagnostic characters: Jugular processes (Fig. 6) more or less symmetrical, both tips rounded and pointing forwards, inner side of both processes without teeth but medially with a more or less developed knob-like dilatation, outer side of both processes without teeth and distinctly convex. Mandibles laterally at the base with earlike dilatation (Fig. 5). Aedeagus see Fig. 14. Body length 5.5–7.7 mm.

Remarks: Two other species have been described from New Guinea (Papua), namely Prostomis lawrencei Schawaller, 1993 (occurring probably also in Irian Jaya, see new records below, and Queensland) and Prostomis papuana Schawaller, 1993, having different jugular processes, mandibles and aedeagi.

3 New records of known species

3.1 Prostomis africana Grouvelle, 1896 (Fig. 9)


Remarks: The bigger series now at hand shows that the figure of the jugular processes given in SCHAWALLER (1991) is based on a single small and underdeveloped specimen, for the “new” diagnostic shape of this structure see Fig. 9; the somewhat asymmetrical processes are distinctly bent outwards forming a hook.

3.2 Prostomis americanus Crotch, 1874


Remarks: This species is considered herein as a valid taxon as described by CROTCH (1874) and not as a synonym of the Euro-Caucasian Prostomis mandibularis (Fabricius, 1801) as listed in the Coleopterorum Catalogus (HETSCHKO 1930). It is also different from the eastern Siberian species Prostomis mordax Reitter, 1887. I could not find any reference, where such a synonymy has been established with arguments, thus a formal revalidation seems not necessary. The American species in-
including comparative morphology of the larvae will be treated elsewhere (D. Pollock in litt.). Type locality is Vancouver Island.

3.3 Prostomis beatae Schawaller, 1991

New record: Nepal, Sindhupalchok Distr., Manegero, 2500 m, 13.VI.1989, leg. M. Brancucci, 1 ex. NHMB.

3.4 Prostomis edithae Schawaller, 1991 (Figs. 7–8)

Remarks: For the jugular processes of the new records in Vietnam and Sichuan see Figs.7–8.

3.5 Prostomis katrinae Schawaller, 1991


3.6 Prostomis kinabaluca Schawaller, 1992


Remarks: A few specimens of this newly collected material, particularly from Sumatra, might be transitional forms concerning the jugular processes between P. kinabaluca Schawaller, 1992 (described from Borneo) and P. katrinae Schawaller, 1991 (described from Thailand). In other words: more material from other Oriental localities might show that we face only a single biospecies and not two different taxa.

3.7 Prostomis cf. lawrencei Schawaller, 1993 (Figs. 11–12, 15)


Remarks: These specimens from the western (Indonesian) part of New Guinea coincide with type material of Prostomis lawrencei Schawaller, 1993, from Papua New Guinea and Queensland concerning the jugular processes (Fig. 12), and the aedeagus (Fig. 15), but differ by distinctly dilated mandibles (Fig. 11) (without lateral dilatation in the type material). At the present state of knowledge I consider these differences not as specific.

3.8 Prostomis mandibularis (Fabricius, 1801)


3.9 Prostomis mordax Reitter, 1887

New records: Russia, Kuril Islands, Kunashir Island, 5.VII.1991, leg. S. KURBATOV, 2 ex. SMNS. – Russia, S Sachalin, Tsechehova Mt., 29.VI.1973, leg. KASPARYAN, 1 ex. SMNS. – Rus-
sia, Primorskiy Kray, Przhevalski Mts., 53 km SE Ussuriysk, 250 m, 13.VI.1993, leg. L. ZERCHE, 1 ex. DEI.

3.10 Prostomis morsitans Pascoe, 1860

New record: India, Darjeeling, Gopaldhara, 4720 ft. [= 1450 m], XII.1911, leg. H. STEVENS, 1 ex. BMNH.

3.11 Prostomis pacifica Fairmaire, 1881

New record: Fiji, Viti Levu Island, Lombau, 26 km W Suva, 12.X.1985, leg. G. BORNE-MISSZA, 1 ex. SMNS.

3.12 Prostomis susannae Schawaller, 1991 (Fig. 10)


Remarks: The specimen from Malaysia has the same shape of the jugular processes (Fig. 10) as material from Nepal (type locality).

4 The first fossil records from Baltic Amber

4.1 Prostomis sp. A (Figs. 16–17)

Material: Specimen from the private collection F. KERNEGGER, Hamburg. Amber piece embedded in plastic, fossil in good condition. Body length with mandibles 4.5 mm. For shape of the jugular processes see Fig. 16, left process somewhat thicker than right one. Mandibles with weak dilatations (Fig. 17).

4.2 Prostomis sp. B (Fig. 18)

Material: Specimen from the private collection G. HERRLING, Bramsche, no. 958. Amber piece not embedded, fossil in fair condition, ventral and dorsal side partly with milky cover. Body length with mandibles 5.5 mm. For shape of the jugular processes see Fig. 18, both processes nearly symmetrical. Shape of the mandibles not visible.

4.3 Prostomis sp. C

Material: Specimen from the private collection G. HERRLING, Bramsche, no. 963. Amber piece not embedded, fossil in bad condition, ventral side completely and dorsal side mostly with milky cover. Body length with mandibles 5.3 mm. Shape of the jugular processes and of the mandibles not visible.
4.4 Discussion

The above listed Tertiary fossils of Prostomis can not be named to species, because the structure of the aedeagus remains unknown. It even seems not clear if the fossils represent a single species or different ones. The shapes of the jugular processes of at least 2 specimens are somewhat different. This can be interpreted as either infraspecific variation or as specific difference. Even additional fossil specimens might not solve this problem because it is very unlikely that the aedeagus will be visible without body dissection. The jugular processes of the recent European Prostomis mandibularis are similar in shape but not identical (see fig. 4 in Schawaller 1991); but again, without knowing the aedeagus a distinct separation is impossible.

5 Biology

The species of Prostomis are characteristic elements of old red-rotten trees, where adults and larvae live syntopically. They probably more depend on the conditions of the rotten wood than being adapted to particular tree species. The European Prostomis mandibularis occurs in Picea, Abies, Pinus, Fagus and in other trees. Obviously, beetles and their larvae stay for several generations in such a rotten habitat and are not forced to leave those trees for years. Only after natural or artificial changing of the preferred ecological conditions, beetles spread out by nocturnal flight. Then, they might be caught by interception traps of coleopterologists as well as by sticky amber trees.

6 Checklist of the species of Prostomis with their distribution

africana Grouvelle, 1896 Southern Africa
americanus Crotch, 1874 Northwestern America
apotica n.sp. Philippines: Mindanao
atkinsoni Waterhouse, 1877 Australia: Tasmania
beatae Schawaller, 1991 Himalayas: Nepal
cameronica Schawaller, 1992 Malaysia

Figs. 16–18. Mandible from dorsal (17) and jugular processes from ventral (16–18) in the fossil specimens from Tertiary Baltic amber. – 16–17. Prostomis sp. A from the Kernegger amber collection. 18. Prostomis sp. B from the Herrling amber collection no. 958. – Scale line: 1 mm.
cornuta Waterhouse, 1877  
edithae Schawaller, 1991  
gladiator Blackburn, 1903  
intermedia Blackburn, 1897  
katrinae Schawaller, 1991  
kinabalica Schawaller, 1992  
latoris Reitter, 1889  
lawrencei Schawaller, 1993  
luzonica Schawaller, 1992  
mandibularis (Fabricius, 1801) syn. elburica Fleischer, 1919  
mindanaoica n. sp.  
mordax Reitter, 1887  
morsitans Pascoe, 1860  
novacaledonica Schawaller, 1994  
pacifica Fairmaire, 1881  
papuana Schawaller, 1993  
samoensis Arrow, 1927  
schlegeli Olliff, 1884  
subtilis Szallies, 1994  
susannae Schawaller, 1991  
weigeli n. sp.  

Australia: Victoria, New South Wales, Australian Capital Territory, Queensland  
Himalayas: Nepal; China: Yunnan and Sichuan, Vietnam  
Australia: New South Wales  
Australia: Victoria, New South Wales, Australian Capital Territory, Tasmania  
Thailand  
Borneo, Java, Sumatra  
Japan, Taiwan  
New Guinea, Australia: Queensland  
Philippines: Luzon  
Europe, Crimea, Don, Caucasus, Elburs Mts.  
Philippines: Mindanao  
Eastern Siberia, southern Kuriles, Sachalin, northern Japan  
Himalayas: Nepal and Darjeeling  
New Caledonia  
Fiji: Viti Levu, Vanua Levu, Kadavu  
New Guinea  
Samoa Group  
Sri Lanka  
Southern Turkey  
Himalayas: Nepal; Malaysia  
New Guinea

7 References


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