

***Prostomis elburica* Fleischer upranked to valid species, and additional distributional data of Palaearctic and Oriental species of *Prostomis* Latreille (Insecta: Coleoptera: Prostomidae)**

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Abstract

Prostomis elburica Fleischer, 1919 (Coleoptera: Prostomidae) from the Hyrcanian mixed forests ecoregion along the Caspian Sea is upranked from synonym of *Prostomis mandibularis* (Fabricius, 1801) to valid species. Distributional data of other Palaearctic and Oriental species of *Prostomis* Latreille, 1825 are added. The shape of the jugular processes is the main diagnostic species character, other characters as shape of the mandibles, and shape of the aedeagus are variable and discussed. It would be desirable to confirm or reject the species concept based on morphology by genetical studies.

Zusammenfassung

Prostomis elburica Fleischer, 1919 (Coleoptera: Prostomidae) aus der Hyrcanischen Mischwald-Ökoregion längs des Kaspischen Meeres wird vom Synonym von *Prostomis mandibularis* (Fabricius, 1801) zur validen Art hochgestuft. Verbreitungsangaben anderer Paläarktischer und Orientalischer Arten von *Prostomis* Latreille, 1825 werden angefügt. Die Form der Jugularfortsätze wird als wichtigstes diagnostisches Artkennzeichen angesehen, andere Merkmale wie Form der Mandibeln und Form des Aedeagus sind variabel und werden diskutiert. Es wäre wünschenswert, dieses morphologische Artkonzept durch genetische Untersuchungen zu bestätigen oder zu ändern.

Key words: Coleoptera, Prostomidae, taxonomy, distribution, species characters

Introduction

The Palaearctic, Oriental, and Australian species of the genus *Prostomis* Latreille, 1825 were studied by SCHAWALLER (1991, 1992, 1993, 1994, 2003). In these publications the shape of the jugular processes on the

ventral side of the head was recognised for the first time as an important diagnostic species character, exhibiting a certain variability. All species possess a uniform external shape. Previous references about *Prostomis* were cited, and a checklist of the world species was provided. Recently, the species from Japan were revised (ITO & YOSHITOMI 2016), and five additional Oriental species from Sulawesi, Laos and Taiwan were described by ITO & YOSHITOMI (2017a, 2017b). In the meantime, newly collected specimens have been accumulated by the present author, and are presented below.

The genus *Prostomis* Latreille, 1825 contains about 30 species, distributed almost worldwide in the Nearctic, Palaearctic, Oriental, Papuan, Pacific and African Cape Regions (Fig. 1). This distribution pattern points to a considerable evolutionary age for the genus. However, the only known fossils of *Prostomis* are known from Eocene Baltic amber (SCHAWALLER 2003). All species, adults syntopically together with larvae, live in red-rotten wood.

Acronyms of depositories:

CJRP	Collection Jan Růžička, Prague, Czech Republic
NHMW	Naturhistorisches Museum, Wien, Austria
NME	Naturkundemuseum, Erfurt, Germany
NMPC	National Museum (Natural History), Prague, Czech Republic
SMNS	Staatliches Museum für Naturkunde, Stuttgart, Germany

Species characters

ITO & YOSHITOMI (2016, 2017a, 2017b) used not only the shape of the jugular processes as diagnostic character, but also the shape of the mandibles, the shape of the aedeagus, and even the body length. For example *P. okinawaensis* Ito & Yoshitomi, 2017 is said to be similar to *P. latoris* Reitter, 1889 in the shape of the

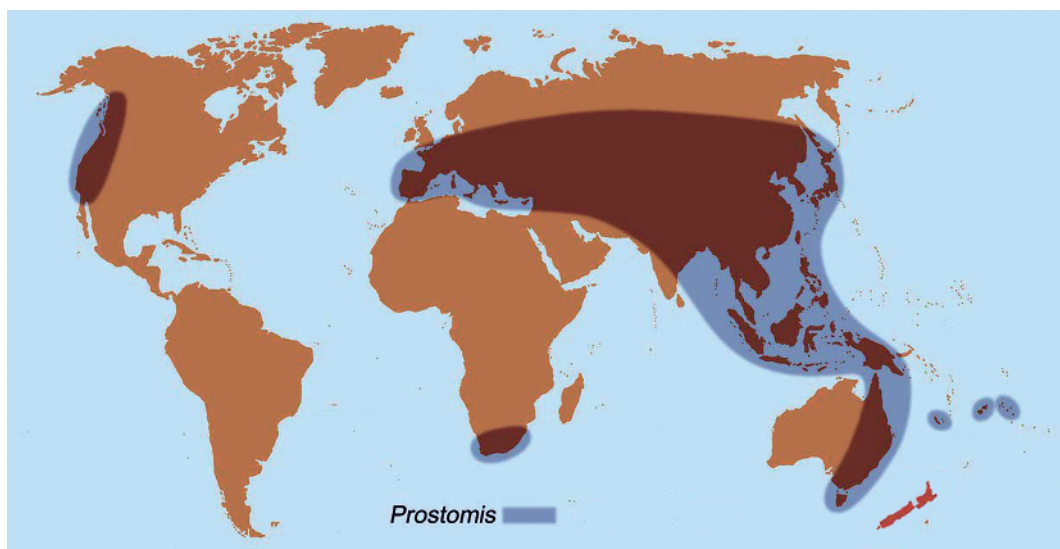


Fig. 1. Almost worldwide distribution of species of the genus *Prostomis*.

jugular processes and of the mandibles, but differs only in the lateral margin of mandibles more weakly swollen, parameres shorter, and body size smaller. These differences seem to be doubtful as diagnostic species characters, because a certain infraspecific variability should be considered, particularly in island populations. Furthermore, the minute aedeagus of *Prostomis* is only weakly sclerotised, and the shape and length of the parameres as well the length of setae may vary to a certain extent. As already shown by SCHAWALLER (1991), even the jugular processes are not absolutely identical in a single population (compare Figs. 5, 6). Hence, it would be very desirable to confirm or reject this species concept based on morphology using genetic techniques.

Taxonomy and distribution

Prostomis cameronica Schawaller, 1992

(Fig. 2)

Examined specimens. W Malaysia, Cameron Highlands, Tanah Rata, 26.I.2009, leg. P. Kočárek, 5 ex. NMPC, 2 ex. SMNS.

Remarks. The above listed specimens are relatively large (body length 8.5–10.0 mm), whereas the types from the same locality measured only 6.0–8.5 mm.

However, the shapes of the jugular processes of these larger specimens (Fig. 2) are identical to those of the smaller types. Body length does not seem to be a diagnostic species character within the genus (see section above about species characters).

Distribution. W Malaysia.

Prostomis edithae Schawaller, 1991

(Figs. 3–6)

Examined specimens. Bhutan, Paro Distr., Chivle La, 3000 m, 21.VI.1988, leg. C. Holzschuh, 1 ex. NME. – Myanmar, Kachin State, 35 km NW Putao, way to Hponkan Razi, 3500 m, 13.VIII.2006, leg. C. Reuter, 17 ex. NHMW, 4 ex. SMNS. – N Vietnam, Lao Cai Prov., Hoang Lien NP, Tram Ton, 1800–2050 m, 15.V.2015, leg. A. Weigel, 1 ex. NME. – China, Yunnan, Zhongdian County, Bitai Hai Lake area, 29 km ESE Zhongdian, 3540 m, 1.VI.2005, leg. D. Wrase, 2 ex. SMNS. – China, Yunnan, Haba Xueshan, 2 km S Haba, 3000 m, 18.VI.2007, leg. J. Hájek & J. Růžička, 9 ex. CJRP, 5 ex. NMPC, 2 ex. SMNS. – China, Yunnan, Haba Xueshan, 1.3–2.0 km S Haba, 2830–3000 m, 17.–20.VI.2007, leg. J. Hájek & J. Růžička, 6 ex. NMPC. – China, Sichuan, Moxi, Hailuoguo valley, above Cableway Station, 3100 m, 18.–21.VI.2014,

leg. J. Hájek & J. Růžička, 2 ex. NMPC. – China, Gansu, Lazikou valley, 2120–2510 m, 28.VI.2005, leg. J. Hájek, D. Král & J. Růžička, 1 ex. NMPC. **Distribution.** Nepal, China (Gansu, Sichuan, Yunnan), Vietnam (SCHAWALLER 2003); Bhutan, Myanmar (new records).

***Prostomis elburica* Fleischer, 1919 n. stat.**

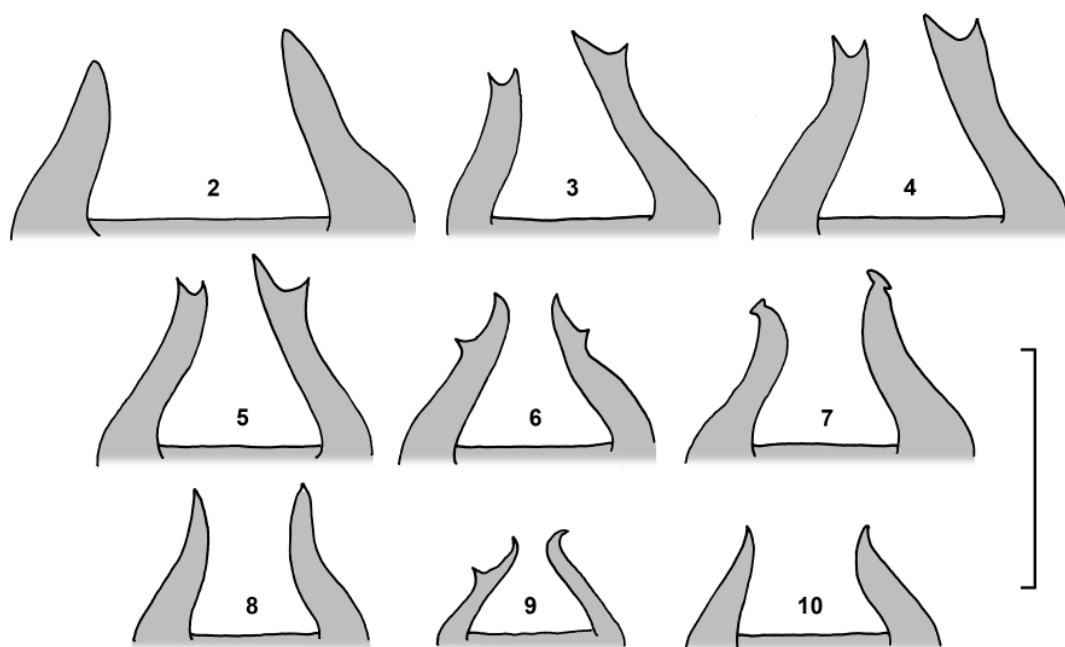
(Fig. 7)

Examined specimens. Azerbaijan, Talysh, Aurora, 6.IV.1980, leg. S. Axientiev, 3 ex. SMNS (previously identified as *mandibularis* by the author). – Azerbaijan, Nabran, 30 km W Khachmas, 21.–22.IV.1987, leg. S. Golovatch & Y. Eskov, 1 ex. SMNS (previously identified as *mandibularis* by the author). – Azerbaijan, W Astara, Istisu Çay, Bandasar, 70 m, 21.VI.2006, leg. Walther, 2 ex. NME. – S Russia, Dagestan, forest at

Samur river delta into the Caspian Sea, 7.–8.VII.1991, leg. W. Schawaller, 1 ex. SMNS (previously identified as *mandibularis* by the author). – N Iran, Sheykh Mahalleh, 160 m, 28.VI.–3.VII.1977, Expedition National Museum Prague, 13 ex. NMPC.

Remarks. *Prostomis elburica* Fleischer, 1919 was synonymised with the European *P. mandibularis* Fabricius, 1801 by SCHAWALLER (1991), because some small differences in the shape of the jugular processes were regarded as infraspecific variation. However, after examination of more specimens from the Hyrcanian mixed forests ecoregion along the Caspian Sea, these differences seem to be stable and therefore, *Prostomis elburica* is here revalidated. In *P. mandibularis* both tips of the jugular processes are acute or at most slightly knob-like (Fig. 8), whereas in *P. elburica*, both tips are hook-like (Fig. 7). These two species, with disjunct distribution, may be sister species.

Distribution. Caucasus (Dagestan, Azerbaijan), N Iran.



Figs. 2–10. Jugular processes of species of *Prostomis* in ventral view. **2.** *P. cameronica* from W Malaysia, Tanah Rata, NMPC. **3.** *P. edithae* from Yunnan, Bitai Hai Lake, SMNS. **4.** *P. edithae* from Vietnam, Hoang Lien NP, NME. **5.** *P. edithae* from Yunnan, Haba, NMPC. **6.** *P. edithae* from Yunnan, Haba, NMPC. **7.** *P. elburica* from Dagestan, Samur Delta, SMNS. **8.** *P. mandibularis* from Austria, SMNS. **9.** *P. susanna*e from W Malaysia, Tanah Rata, NMPC. **10.** *Prostomis* sp. from India, Utteranchal Pradesh, SMNS. Scale line: 1.0 mm.

***Prostomis kinabaluca* Schawaller, 1992**

Examined specimens. W Java, Puncak Pass, 17 km of Cipanas, 1250–1600 m, 8.–10.X.2002, leg. L. Bolm, 31 ex. SMNS.

Distribution. Borneo, Sumatra, Java.

***Prostomis mandibularis* (Fabricius, 1801)**

(Fig. 8)

Examined specimens. Greece, S Peloponnes, Taigetos Mts., 11 km E Saidóna, 1500 m, 28.IX.2004, leg. U. Bense, 3 ex. SMNS. – Greece, SE Peloponnes, northern Párnonas Mts., 1100 m, 26.IX.2004, leg. U. Bense, 1 ex. SMNS – Slovenia, Soca Valley, Trenta, 570 m, 17.VII.2018, leg. A. Weigel, 4 ex. NME.

Distribution. Europe (excluding Madeira, Canary Islands, Great Britain, northern Europe).

***Prostomis susannae* Schawaller, 1991**

(Fig. 9)

Examined specimens. W Malaysia, Cameron Highlands, Tanah Rata, 26.I.2009, leg. P. Kočárek, 1 ex. NMPC.

Remarks. The above listed specimen has the same shape of the jugular processes as material from Nepal. This species was already recorded from W Malaysia (Genting Highland) by SCHAWALLER (2003). *P. susannae* is a smaller species (body length 5–6 mm) and obviously occurs syntopically with the larger *P. cameronica* (see above).

Distribution. Nepal, W Malaysia.

***Prostomis* sp.**

(Fig. 10)

Examined specimen. N India, Utteranchal State, 30 km N Bageshwar, W Lohrharket, 1800–1900 m, 24.VI.2003, leg. Z. Kejval & M. Trýzna, 1 ex. SMNS.

Remarks. The single specimen has the jugular processes with acute tips and without external teeth (Fig. 10), thus differing from *Prostomis susannae* Schawaller, 1991 from adjacent central and western Nepal

(compare figures in SCHAWALLER 1991). However, this single specimen may only show infraspecific variation, and may not be a different species. Additional specimens from this area are desirable to resolve this problem.

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