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## The parasitic flat bark beetles (Coleoptera: Passandridae) of Laos

by Daniel Burckhardt & Isabelle Zürcher

**Abstract.** The fauna of parasitic flat bark beetles (Passandridae) from Laos is discussed comprising 18 species based on literature records (9 spp.) and recently collected material (16 spp.). Eight species are recorded for the first time from Laos, including *Ancistria cephalorygma* sp.nov. which is described and illustrated. An additional *Ancistria* sp. is not formally described due to insufficient material. *Ancistria cornuta* is recorded for the first time from outside Laos, i.e. from China.

**Key words.** Coleoptera – Passandridae – Laos – taxonomy – general distribution

### Introduction

The family of parasitic flat bark beetles, the passandrids comprises 109 described species in nine genera of predominantly tropical distribution. Larvae live, as far as known, as ectoparasites of wood-inhabiting insects such as weevils, longhorn beetles, bark or ambrosia beetles, and hymenopterans (BURCKHARDT & ŚLIPIŃSKI 2010). Adult size varies significantly within some species, which makes species identification sometimes difficult. The most recent monograph of the family is by BURCKHARDT & ŚLIPIŃSKI (2003), who analysed the phylogenetic and biogeographical relationships, provided illustrated identification keys and summarised the available information on the distribution for all species.

Nine passandrid species were previously recorded from Laos (*Ancistria*: 2 spp.; *Nicolebertia*: 1 sp.; *Passandra*: 6 spp.) (BURCKHARDT & ŚLIPIŃSKI 2003), and one of them, i.e. *Ancistria cornuta* Burckhardt et Ślipiński, was, up to now, only known from this country. During a number of expeditions undertaken by the Naturhistorisches Museum Basel and dedicated to the exploration of the beetle fauna of Laos, an interesting collection of passandrids was assembled. The present paper summarises previously published and new information on the parasitic flat bark beetles from Laos.

### Material and Methods

The bulk of material from Laos listed here is deposited in the Naturhistorisches Museum Basel, Switzerland (NHMB), additional specimens were examined from the National Museum, Prague (NMP). A single specimen from China was examined from the Staatliches Museum für Naturkunde Stuttgart, Germany (SMNS). The checklist is arranged alphabetically. The general distribution is taken from BURCKHARDT & ŚLIPIŃSKI (2003) who also provided information on synonymy. Species marked with an asterisk are recorded for the first time from Laos.

In the description of *Ancistria cephalorygma* sp.nov. the morphological terminology follows BURCKHARDT & ŚLIPIŃSKI (1995). Measurements of 3 ♂ and 3 ♀ were taken as described by BURCKHARDT & ŚLIPIŃSKI (1995).

### Checklist

- \* *Ancistria apicalis* **Reitter, 1889**. General distribution: China (Sichuan), Japan, Vietnam. Laos: 1 ♂, Houa Phan province, Phou Pane Mountain, 20°12.328'N 104°00.621'E, 1750 m, 17.v–3.vi.2007 (V. Kubáň & M. Brancucci); 1 ♀, Houa Phan province, Phou Pane Mountain, 20°13'09–19"N 103°59'54"–104°00'03"E, 1480–1550 m, 1–16.vi.2009 (Z. Kraus); 1 ♂, Xieng Khouang province, 30 km NE of Phonsavan, Phou Sane Mountain, 19°37–38'N 103°20–21'E, 1400–1700 m, 10–30.v.2009 (D. Hauck).
  - \* *Ancistria bouchardi* **Grouvelle, 1913a**. General distribution: Indonesia (Sumatra). Laos: 1 ♀, Xieng Khouang province, 30 km NE Phonsavan, Ban Na Lam→Phou Sane Mountain, 19°37–38'N 103°20–21'E, 1300–1700 m, 10–30.v.2009 (M. Geiser).
  - \* *Ancistria cephalorygma* **sp.nov.** General distribution: Laos: 3 ♂, 3 ♀, Xieng Khouang province, 30 km NE Phonsavan, Ban Na Lam→Phou Sane Mountain, 19°37–38'N 103°20–21'E, 1300–1700 m, 10–30.v.2009 (M. Geiser).
- Ancistria cornuta* **Burckhardt et Ślipiński, 1995**. General distribution: China: 1 ♂, South Yunnan, Xishuangbanna, 20 km NW Jinghong, vicinity of Man Dian, Nabanhe National Nature Reserve, 22°07.80'N 100°40.05'E, 740 m, 6.vi.2008, rubber plantation, in flight intercept trap (cross window trap) attached at 4 m above ground on a *Hevea brasiliensis* tree (A. Weigel) (SMNS). Laos: no further locality information (BURCKHARDT & ŚLIPIŃSKI 1995); 1 ♂, 1 ♀, Xieng Khouang province, 30 km NE Phonsavan, Ban Na Lam→Phou Sane Mountain, 19°37–38'N 103°20–21'E, 1300–1700 m, 10–30.v.2009 (M. Geiser).
- \* *Ancistria emarginata* **Grouvelle, 1913b**. General distribution: China (Sichuan), Taiwan. Laos: 2, Phongsaly province, Phongsaly environs, 21°41–42'N 102°06–08'E, about 1500 m, 28.v–20.vi.2003 (V. Kubáň, M. Brancucci & P. Pacholátko); 1 ♂, Xieng Khouang province, 30 km NE Phonsavan, Ban Na Lam→Phou Sane Mountain, 19°37–38'N 103°20–21'E, 1300–1700 m, 10–30.v.2009 (M. Geiser).
  - \* *Ancistria nepalensis* **Burckhardt et Ślipiński, 1995**. General distribution: Nepal. Laos: 1 ♀, Houa Phan province, Phou Pane Mountain, 20°13'09–19"N 103°59'54"–104°00'03"E, 1480–1550 m, 9–16.vi.2009 (D. Hauck).
  - \* *Ancistria pilosa* **Burckhardt et Ślipiński, 1995**. General distribution: Taiwan. Laos: 1 ♂, Xieng Khouang province, 30 km NE Phonsavan, Ban Na Lam→Phou Sane Mountain, 19°37–38'N 103°20–21'E, 1300–1700 m, 10–30.v.2009 (M. Geiser).
- Ancistria retusa* (**Fabricius, 1801**). General distribution: Australia (Queensland, Victoria, possibly Tasmania), possibly Brazil, Brunei, Cameroon, China (Hainan), India (Assam, Tamil Nadu), Indonesia (Java, Sumatra, Sulawesi, Kepulauan Tukangbesi, Moluccas, Aru Island, Irian Jaya), Malaysia (Sabah, Sarawak), Papua New Guinea, Philippines (Mindoro, Negros, Mindanao, Luzon, Calapan, Palawan), Singapore, South Africa, Sri Lanka, Taiwan, Thailand, Vietnam, Zaire, Zimbabwe. Laos: no further locality information (BURCKHARDT & ŚLIPIŃSKI 1995); 1 ♂, Phongsaly province, Phongsaly environs, 21°41–42'N 102°06–08'E, about 1500 m,

28.v–20.vi.2003 (V. Kubáň, M. Brancucci & P. Pacholátko); 1 ♂, 2 ♀, Louangnamtha province, Namtha→Muang Sing, 21°09'N 101°19'E, 900–1200 m, 5–31.v.1997 (V. Kubáň); 1 ♂, 1 ♀, Oudomxai province, 17 km NEE of Oudom Xai, 20°45'N 102°09'E, about 1100 m, 1–9.v.2002 (V. Kubáň); 1 ♀, Xieng Khouang province, 30 km NE of Phonsavan, Phou Sane Mountain, ~19°37–38'N 103°20'E, about 1400–1500 m, 10–30.v.2009 (Z. Kraus); 1 ♂, Bolikhamxai province, 8 km NE of Ban Nape, 18°21'N 105°08'E, about 600 m, 1–18.v.2001 (P. Pacholátko); 4 ♂, 1 ♀, Khammouan province, Ban Khoun Ngeun, 18°07'N 104°29'E, about 200 m, 24.iv–31.v.2001 (P. Pacholátko); 2 ♂, 3 ♀, Salavan province, Xe Xap National Park, about 15 km NE of Ta-oy, Ban Doub environs, 16°08'N 106°40–43'E, 400–1000 m, 25–31.v.2012 (M. Brancucci, M. Geiser, K. Phanthavong & S. Xayalath).

**Ancistria new species.** General distribution: Laos: 1 ♂, Khammouan province, Ban Khoun Ngeun, 200 m, 18°07'N 104°29'E, 24–29.iv.2001 (P. Pacholátko).

**Comments.** The single male resembles in general body structure, including the genitalia, *A. lewisi* Reitter, 1889, known from Japan. It differs in the admedian lines which are almost straight rather than strongly curved anteriorly. The specimen probably belongs to an undescribed species but more material, in particular female, is required for a formal description.

\* ***Aulonosoma insignis* (Grouvelle, 1891).** General distribution: Burma, Bhutan, China (Sichuan), India (Karnataka, Uttar Pradesh, West Bengal), Indonesia (Java), Nepal, Vietnam. Laos: 1, Phongsaly province, 4 km E of Ban Boun Neua, 21°38'N 101°57'E, about 1100 m, 20.vi.2003 (V. Kubáň, M. Brancucci & P. Pacholátko); 1, Phongsaly province, Phongsaly environs, 21°41–42'N 102°06–08'E, about 1500 m, 28.v–20.vi.2003 (V. Kubáň, M. Brancucci & P. Pacholátko); 2, Louangnamtha province, Louang Namtha, 21°00'N 101°25'E, 600 m, 4.v.1997 (V. Kubáň); 1, Houa Phan province, Phou Pane Mountain, about 20°13'N 104°00'E, 1350–1500 m, 1–16.vi.2009 (M. Brancucci); 1, Xieng Khouang province, 30 km NE of Phonsavan, Ban Na Lam→Phou Sane Mountain, 19°37–38'N 103°20–21'E, 1300–1700 m, 10–30.v.2009 (M. Geiser).

\* ***Aulonosoma tenebrioides* Motschulsky, 1858.** General distribution: India, Indonesia (Sumatra, Sulawesi, Timor), Nepal, New Guinea, Philippines, Sri Lanka, Taiwan, Thailand and Vietnam; probably introduced into Comoros, Kenya and Tanzania; doubtfully recorded from Germany, Great Britain and Italy; Switzerland: Basel intercepted at customs with goods from India (NHMB). Laos: 2, Udomxai Province, Pak Beng, 19°53'N 101°07'E, 450 m, 18–27.v.2001 (J. Kolibáč); 1, Vientiane Province, Vang-Vieng, 18°55'N 102°26'E, 300 m, 10–15.v., 1–6.vi.2001 (J. Kolibáč).

***Nicolebertia feae* (Grouvelle, 1892).** General distribution: Burma, Thailand. Laos: no further locality information (BURCKHARDT & ŚLIPÍŃSKI 2003).

***Passandra elongatula* Grouvelle, 1874.** General distribution: Bhutan, Indonesia (Java, Molukkas, Sumatra), Malaysia (Malacca, Perak), Philippines. Laos: Vientiane (BURCKHARDT & ŚLIPÍŃSKI 2003).

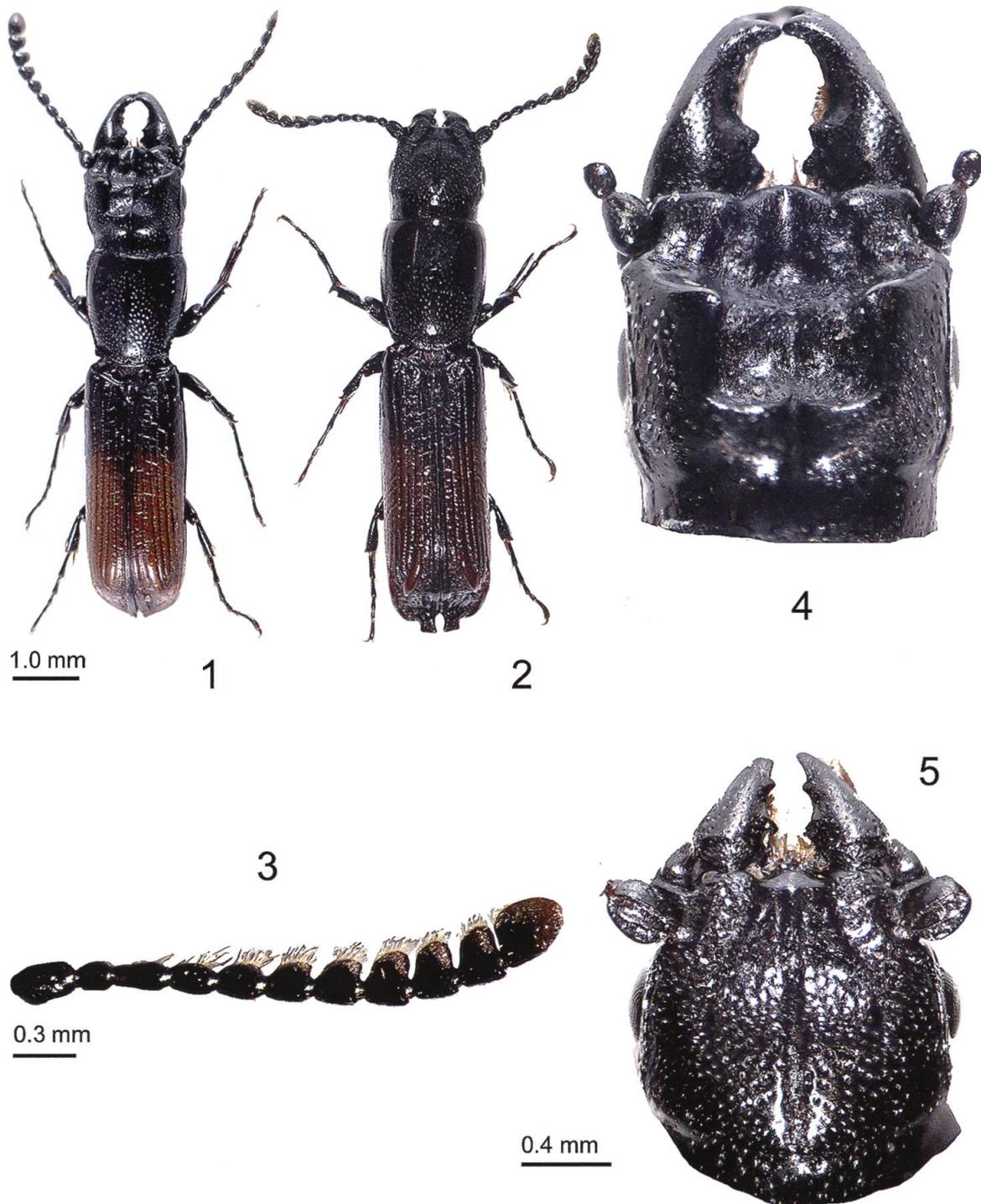
***Passandra harmandi* (Grouvelle, 1887).** General distribution: Cambodia, Indonesia (Sumatra), Malaysia, Thailand, Vietnam. Laos: no further locality information (ŠLIPÍŇSKI 1987); 1, Bolikhamxai province, 70 km NEE Vientiane, 18°16'N 103°11'E, 150m, 27–30.iv.1997 (V. Kubáň); 6, Khammouan province, Ban Khoun Ngeun, 18°07'N 104°29'E, about 200m, 24.iv–31.v.2001 (V. Kubáň & P. Pacholátko); 1, Sekong province, ca. 12 km S Sekong Tad Faek waterfalls, 15°14.7'N 106°45.1'E, 118 m, 8–12.v.2010, at light (J. Hájek) (NMP).

***Passandra heros* (Fabricius, 1801).** General distribution: Australia (New South Wales, Northern Territory, Queensland), Burma, China, India, Indonesia (Aru Island, Halmahera, Irian Jaya, Java, Moluccas, Seram, Sulawesi, Sumatra), Malaysia (Malay Peninsula, Sabah), Papua New Guinea, Philippines (Mindanao, Mindoro, Palawan), Sri Lanka, Taiwan, Thailand, Vietnam. Laos: no further locality information (BURCKHARDT & ŠLIPÍŇSKI 2003); 1, Louangnamtha province, Louang Namtha, 21°00'N 101°25'E, 600 m, 31.v.1997 (V. Kubáň); 1, Vientiane province, Vang-Vieng, 18°55'N 102°26'E, 300 m, 10.v–6.vi.2001 (J. Kolibáč); 1, Xieng Khouang province, about 10 km W of Phonsavan, 1070 m, 19°30'02"N 103°06'47"E, 3.vii.2010 (M. Brancucci & M. Geiser); 1, Bolikhamxai province, 70 km NEE of Vientiane, 18°16'N 103°11'E, 150 m, 27–30.iv.1997 (V. Kubáň); 23, Khammouan province, Ban Khoun Ngeun, 18°07'N 104°29'E, about 200 m, 24.iv–31.v.2001 (P. Pacholátko); 2, Salavan province, Xe Xap National Park, about 15 km NE of Ta-oy, Ban Doub environs, 16°08'N 106°40–43'E, 400–1000 m, 25–31.v.2012 (M. Brancucci, M. Geiser, K. Phanthavong & S. Xayalath); 1, Champasak province, Ban Nong Panouan environs, 770–800 m, 15°02'N 106°31–34', 10–17.vi.2010 (M. Brancucci, M. Geiser & D. Hauck).

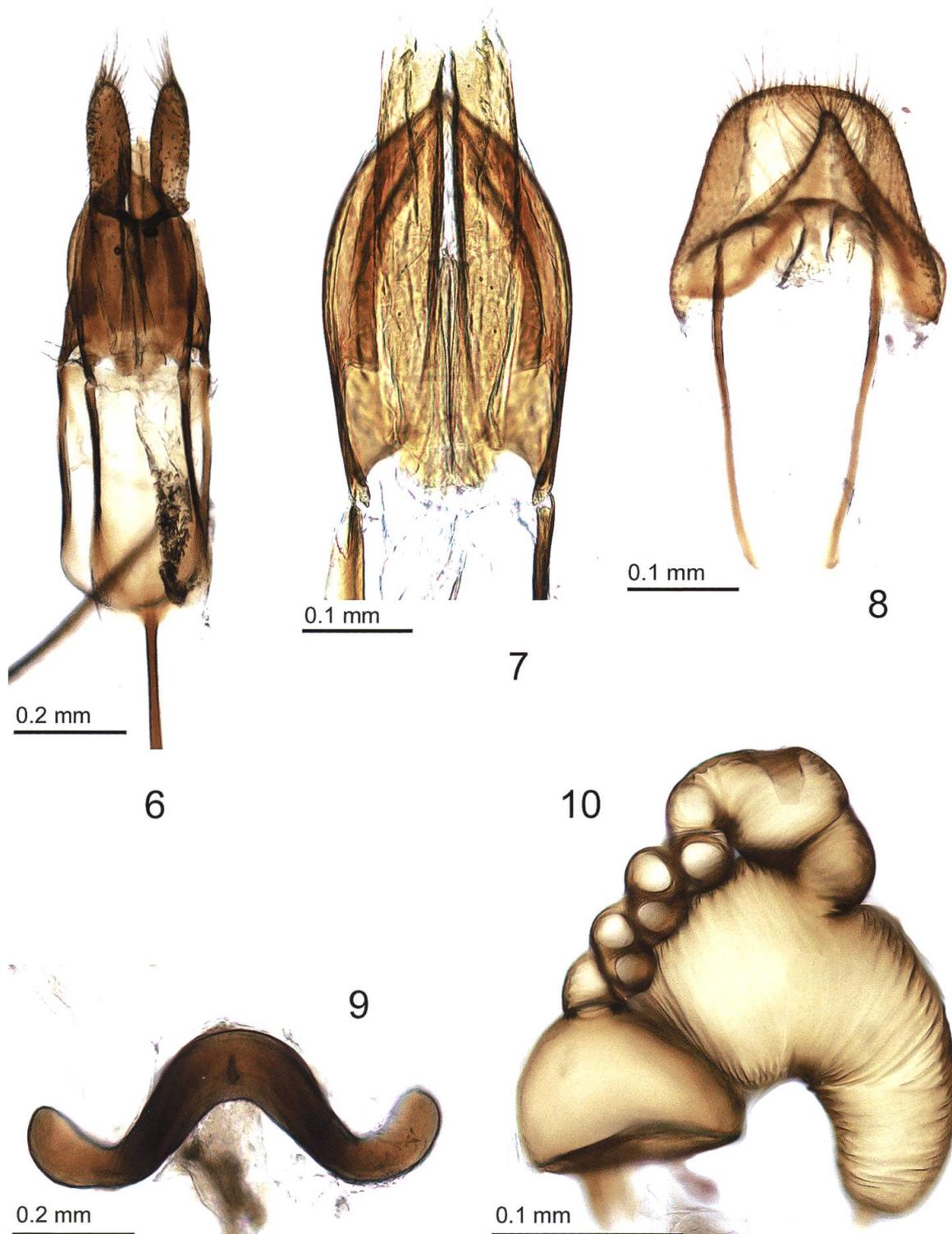
***Passandra rufipennis* (Fabricius, 1801).** General distribution: Burma, Borneo, Indonesia (Sumatra). Laos: no further locality information (BURCKHARDT & ŠLIPÍŇSKI 2003); 2, Louangnamtha province, Louang Namtha, 21°00'N 101°25'E, 600 m, 31.v.1997 (V. Kubáň); 1, Bolikhamxai province, 70 km NEE Vientiane, 18°16'N 103°11'E, 150 m, 27–30.iv.1997 (V. Kubáň); 1, Sekong province, ca. 12 km S Sekong Tad Faek waterfalls, 15°14.7'N 106°45.1'E, 118 m, 8–12.v.2010, at light (J. Hájek) (NMP).

***Passandra tenuicornis* (Grouvelle, 1913b).** General distribution: Indonesia (Moluccas), Taiwan, Thailand, Vietnam. Laos: no further locality information (ŠLIPÍŇSKI 1987); 1, Louangphrabang, Thong Khan, 19°35'N 101°58'E, about 750 m, 11–21.v.2002 (V. Kubáň); 5, Houa Phan province, Phou Pane Mountain, 20°13'09–19"N 103°59'54"–104°00'03"E, 1480–1550 m, 1–16.vi.2009 (Z. Kraus); 1, Houa Phan province, Ban Saluei → Phou Pane Mountain, 20°11–13'N 103°59'–104°01'E, 1300–1900 m, 9–17.vi.2009 (M. Geiser).

***Passandra trigemina* (Newman, 1839).** General distribution: Burma, India, Indonesia (Aru Island, Irian Jaya, Java, Lombok, Moluccas, Seram, Sulawesi, Sumatra), Malaysia (Malay Peninsula, Sabah), New Guinea, Philippines, Sri Lanka, Thailand. Laos: no further locality information (BURCKHARDT & ŠLIPÍŇSKI 2003); 2, Khammouan province, Ban Khoun Ngeun, 18°07'N 104°29'E, about 200 m, 19–31.v.2001 (P. Pacholátko).



**Figs 1–5.** *Ancistria cephalorygma* sp.nov.: 1, 2 – habitus (1 – ♂; 2 – ♀); 3 – antenna; head, dorsal view (4 – ♂; 5 – ♀)



**Figs 6–10.** *Ancistria cephalorygma* sp.nov., ♂ and ♀ genitalia: 6 – median lobe and parameres; 7 – median lobe, apical piece; 8 – sternite and tergite 8; 9 – ostium bursae; 10 – spermatheca.

## Taxonomy

*Ancistria cephalorygma* sp.nov.

Figs 1–10

**Type material.** Holotype ♂, "LAOS-NE, Xieng Khouang prov., 19°37–8'N 103°20–1'E, 30km NE Phonsavan: Ban Na Lam→Phou Sane Mt., 1300–1700 m, 10.–30.v.2009, M. Geiser leg.", "NHMB Basel, NMPC Prague, Laos 2009 Expedition: M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň", "*Ancistria cephalorygma* sp. n., holotype, det. D. Burckhardt, 2012" (NHMB, dry mounted). – Paratypes 2 ♂, 3 ♀, same data as holotype.

**Description.** Length 6.8–7.8 (7.43±0.40) mm. Sexually dimorphic. Dark brown to black, apical two-thirds of elytra fuscous, contrasting with the rest of the body; surface shiny. Head in male (Fig. 1) 0.9–1.0 (0.91±0.07) times as long as wide, covered in moderately coarse punctation; median line fully developed, strongly grooved at base, less distinct elsewhere; in dorsal view, head strongly excavated in the middle, depression matt, delimited by well-defined rim basally and laterally, rim produced into strong, inward-directed tooth on either side; admedian lines and admedian lobes not developed; lateral frontal processes and frontoclypeal depression indistinct; frontoclypeus flattened; mandibles very long, forward-directed, inner margin bearing two small teeth in basal third, apexes with large forward and inward-directed tooth, surface finely punctate; in female (Fig. 5) 0.9–1.1 (1.00±0.07) times as long as wide, covered in moderately coarse, strigose punctation; median line fully developed, deeply grooved; admedian lines short, deep, strongly curved, admedian lobes short, indistinctly truncate apically; lateral frontal processes flattened, their joint width 1.3–2.0 (1.67±0.33) times that of frontoclypeal depression; mandibles short, inner margin bearing two teeth, finely punctate, except for base which bears irregular striation. Eye large, temple length/eye diameter ratio 0.5–0.8 (0.54±0.10). Antenna (Fig. 3) with segment 1 bearing one shallow and one deep groove, segment 2 subglobular, segment 3 clavate, segment 4 oval, segments 5–11 flattened, asymmetrical, forming indistinct club, becoming progressively larger towards the apex, segment 11 slightly longer than wide. Pronotum 1.0–1.3 (1.17±0.10) times as long as wide, entirely bordered at base, weakly narrowed in basal half; punctation slightly finer than on head, sparser along a narrow longitudinal stripe medially, and laterally. Mesotibia 1.2–1.4 (1.23±0.09) times as long as first tarsomere of mid-legs. Elytra in male 2.4–2.7 (2.57±0.15) times as long as wide, 2.2–2.3 (2.26±0.02) times as long as pronotum, with short, irregular transverse furrows; costa 3 inflated subapically, costae 4–6 merging together at level of inflated portion of costa 3; interval 3 longer than intervals 4 to 6 which progressively increase in length apically; costae 7 and 8 merging subapically, forming a low lateral rim which fuses with the apical margin; apex moderately emarginate, with narrow V-shaped incision at suture and pointed sutural tooth; in female 2.7–2.9 (2.76±0.15) times as long as wide, 2.0–2.2 (2.12±0.10) times as long as pronotum, similar to male but costa 3 and fused costae 7 and 8 more strongly inflated, hind margin bearing an almost rectangular outgrowth, apex lacking sutural incision and tooth. Genitalia as in Figs 6–10.

**Etymology.** From Greek  $\eta\ \kappa\epsilon\phi\alpha\lambda\eta'$  = head, and  $\tau\omicron\ \omicron\rho\upsilon\gamma\mu\alpha$  = hole, referring to the strongly excavated male head.

**Differential diagnosis.** *Ancistria cephalorygma* differs from other described *Ancistria* spp. in the combination of following characters: Mandibles long, forward-directed;

frontoclypeus flattened; pronotum less than 1.4 times as long as wide. It resembles *A. beccarii* Grouvelle and *A. cornuta* in the short pronotum. It differs from the former in the much longer and forward-directed mandibles, the slightly smaller body size (<8.0 mm, rather than >8.0 mm) and the larger head length/width ratio (0.9–1.0 rather than 0.8–0.9), and from the latter in the absence of a frontoclypeal horn-shaped process.

**Taxonomic notes.** A strongly excavated head, as in the males of *A. cephalorygma*, is also present in the males of *A. foraminifrons* and *A. tenera* where, however, the excavation is much smaller than in the first species. At present females of the two latter species are unknown. It may be that the two species also display a strong sexual dimorphism in the anterior region of the head.

### Discussion and conclusions

**Biogeography.** Nine passandrid species were previously reported from Laos (BURCKHARDT & ŚLIPIŃSKI 2003), although a locality was given only for *Passandra elongatula*. In the recently collected material, 16 species are represented. Two previously recorded species were not found, i.e. *Nicolebertia feae* and *Passandra elongatula*. Eight described species are reported here for the first time from Laos, one species is described as new and another new species is not formally described due to insufficient material. The last two species are known to date only from Laos. *Ancistria cornuta* was previously known only from Laos but is reported here from China as well.

*Ancistria retusa*, *Aulonosima insignis*, *A. tenebrioides*, *Passandra heros* and *P. trigemina* are widely distributed throughout tropical Asia and their occurrence in Laos is not surprising. However, little biogeographical information can be derived either from them, or from the occurrence of *Ancistria cephalorygma* and *Ancistria* sp. that are both recorded from a single locality only, and from *Nicolebertia feae* for which no locality data for Laos are available. Eight of the remaining species are represented from the north of Laos, only occurring also in China and/or in Taiwan (some also in Vietnam and Japan) (4 spp.), in Nepal (1 sp.) or are more or less widely distributed in South-east Asia (3 spp.). One species collected in the centre and south is distributed throughout South-east Asia, and one species was found in the north, centre and south, and occurs elsewhere in South-east Asia. Passandrids seem too widespread to reflect regional biogeographical patterns within Laos. The available material is also far too scarce to support a meaningful analysis.

**Sexual dimorphism.** Several *Ancistria* spp. display sexual dimorphism. Variation between the sexes may be observed at the elytral tip (e.g. in *A. alternans* or *A. apicalis*) or the subapical elytral costae (e.g. in *A. beccarii* and *A. retusa*) (BURCKHARDT & ŚLIPIŃSKI 2003). A very spectacular sexual dimorphism of the head is described here for the first time in passandrids for *A. cephalorygma*. Its strongly excavated male head resembles that of *A. foraminifrons* and *A. tenera*, which are currently known only from males. It is postulated here that the females of the latter two species lack the strongly excavated head. *A. pilosa* also exhibits some differences in the extent of the frontoclypeal depression: larger in males, smaller in females. In *A. cornuta*, the frontoclypeal horn is larger in males than in females.

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