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## Notes on *Pseudovelia* HOBERLANDT (Insecta: Heteroptera: Veliidae) from Thailand, with description of a new species

C. Hecher\*

### Abstract

The apterous morph of *Pseudovelia feuerborni* (LUNDBLAD, 1933), the macropterous morph of *P. pusilla* HECHER, 1997, and one new species, *Pseudovelia ullrichi* sp.n., are described from Thailand. New records of *P. feuerborni*, *P. pusilla*, and *P. sexualis* are added. A key to the species of *Pseudovelia* occurring in Thailand is provided.

**Key words:** Veliidae, *Pseudovelia*, new species, key, Thailand.

### Zusammenfassung

Die aptere Form von *Pseudovelia feuerborni* (LUNDBLAD, 1933), die makroptere Form von *P. pusilla* HECHER, 1997, und eine neue Art, *Pseudovelia ullrichi* sp.n., werden aus Thailand beschrieben. Von *P. feuerborni*, *P. pusilla* und *P. sexualis* werden neue Fundorte angegeben. Für die in Thailand vorkommenden *Pseudovelia*-Arten wird ein Bestimmungsschlüssel angeführt.

### Introduction

Until now, three described species of *Pseudovelia* HOBERLANDT, 1950, are known to occur in Thailand: *Pseudovelia sexualis* (PAIVA, 1917) is described from Thale (= Lake) Sap (Phatthalung Province) and reported from Kanchanaburi (Kanchanaburi Province) by ANDERSEN (1983), *P. buccula* ANDERSEN, 1983, is described from Doi Pha Nhom Pok and Fang (Chiang Mai Province), and *P. feuerborni* (LUNDBLAD, 1933) is reported from Pang Makhom Pom and Kaeng Pan Tao (Chiang Mai Province) (ANDERSEN 1983). The apterous morph of *Pseudovelia pusilla* HECHER, 1997, was described from Vietnam. Apterous and macropterous specimens of this species were collected by Dr. Wolfgang G. Ullrich and by Dr. Herbert Zettel from the provinces Chiang Mai, Mae Hong Son, and Phetchabun. A large series of a new species was sent to me by Dr. Wolfgang G. Ullrich and is described below.

### Material and methods

The examined material is deposited in the following institutions:

- CUL      Collection Wolfgang G. Ullrich, Lübeck, Germany  
             (now in the Smithsonian Institution, Washington, U.S.A.)
- NHMW   Natural History Museum, Vienna, Austria

\* Mag. Christine Hecher, Natural History Museum Vienna, International Research Institute of Entomology, Burgring 7, A-1010 Vienna, Austria; Email: [ch.hecher@a1.net](mailto:ch.hecher@a1.net)

NRM Naturhistoriska Riksmuseum, Swedish Museum of Natural History, Stockholm, Sweden

ZMUC Zoological Museum, University of Copenhagen, Copenhagen, Denmark

Abbreviations for wing morphs: apt. = apterous, macr. = macropterous, deal. = dealate (macropterous with apical part of wings broken off by autotomy).

Measurements are taken from at least four males and four females of each morph and each locality or of all specimens, if less than four are available.

### Key to the species of *Pseudovelgia* occurring in Thailand

- 1 Eyes densely setose, ventral arolia of tarsi leaf-like (ANDERSEN 1983: figs. 2, 6).  
..... *P. sexualis*
- Eyes not setose except for two ocular setae, ventral arolia of tarsi bristle-like. .... **2**
- 2 Ventral lobe of head produced caudad, surpassing anterior margin of prosternum (Fig. 3). .... **3**
- Ventral lobe of head not produced caudad (Fig. 2). .... **4**
- 3 ♂♂: Metatarsus longer than metatibia; metatarsal segment 1 curved and about two times as long as metatarsal segment 2; ventral depression of genital segment 8 with four tufts of hairs (ANDERSEN 1983: figs. 24 - 26). ♀♀: Metatarsus about 3/5 as long as metatibia, metatarsal segment 1 more than two thirds as long as segment 2.  
..... *P. buccula*
- ♂♂: Metatarsus shorter than metatibia; metatarsal segment 1 not curved and about two thirds as long as metatarsal segment 2; ventral depression of genital segment 8 divided into two parts by median ridge, with hairs along anterior and lateral margin, and along median ridge (HECHER 1997: figs. 7, 10). ♀♀: Metatarsus about 1/2 as long as metatibia, metatarsal segment 1 about 1/2 as long as segment 2.  
..... *P. pusilla*
- 4 ♂♂, ♀♀: Metatarsal segment 1 about half as long as segment 2. .... *P. ullrichi* sp.n.
- ♂♂, ♀♀: Metatarsal segment 1 about three thirds as long as segment 2. .... *P. feuerborni*

### *Pseudovelgia feuerborni* (LUNDBLAD, 1933) (Figs. 2, 4, 8, 9, 11, 12)

*Microvelgia feuerborni* LUNDBLAD, 1933: 333-336.

*Pseudovelgia* (s.str.) *feuerborni*: ANDERSEN 1983: 265-266.

**Material examined.** Holotype ♂ (macr.) [Java\ Thienemann] [FL 26a 21\ XI] [Typus] [*Microvelgia feuerborni* Ldbl.\ det. O. Lundblad] [50\69] [204\ 82] (RKS). Thailand: 4 ♂♂ (apt.), 4 ♂♂ (deal.), 8 ♀♀ (apt.), 1 ♀ (deal.) [17 VII 1997 Thailand\ Chiang Mai: ca. 10 km E Samoeng:] [N 018°51'40.2" \ Samoeng river\ E 098°38'49.5"] [Dr. Wolfgang G.\ ULLRICH\ collection] (CUL, NHMW), 282 ♂♂ (apt.), 9 ♂♂ (macr.), 19 ♂♂ (deal.), 254 ♀♀ (apt.), 78 ♀♀ (macr.), 12 ♀♀ (deal.) [11 VIII 1998 Thaild.\ Mae Hong Son\ Mae Nam Cottage] [N 019°19'59.0" \ in Pai River\ E 097°57'13.0"] [among floating\ debris\ Dr. W. Ullrich leg.] [Dr. Wolfgang G.\ ULLRICH\ collection] (CUL, NHMW), 45 ♂♂ (apt.), 2 ♂♂ (deal.), 80 ♀♀ (apt.) [11 VIII 1998 Thaild.\ Mae Hong Son\ Mae Nam Cottage] [N 019°19'59.0" \ Dr. W. Ullrich leg. \ E 097°57'13.0"] [in Pai River\ among floating\ debris] [Dr. Wolfgang G.\ ULLRICH\ collection] (CUL, NHMW).

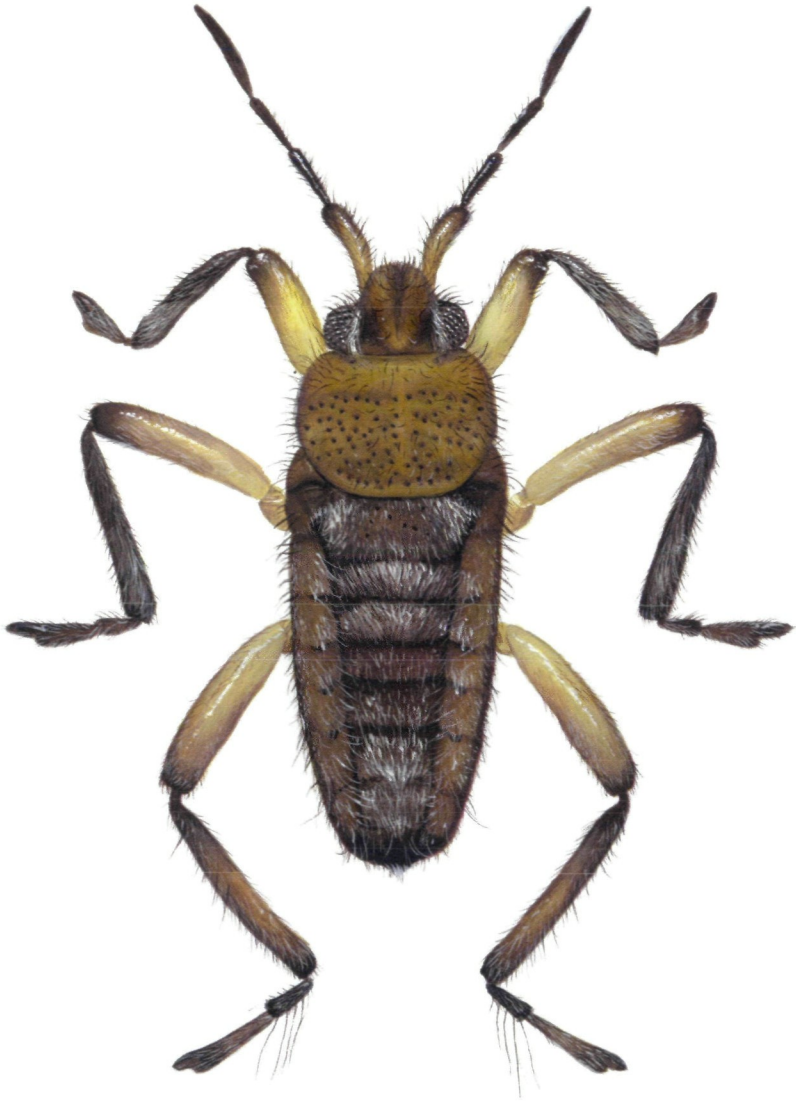
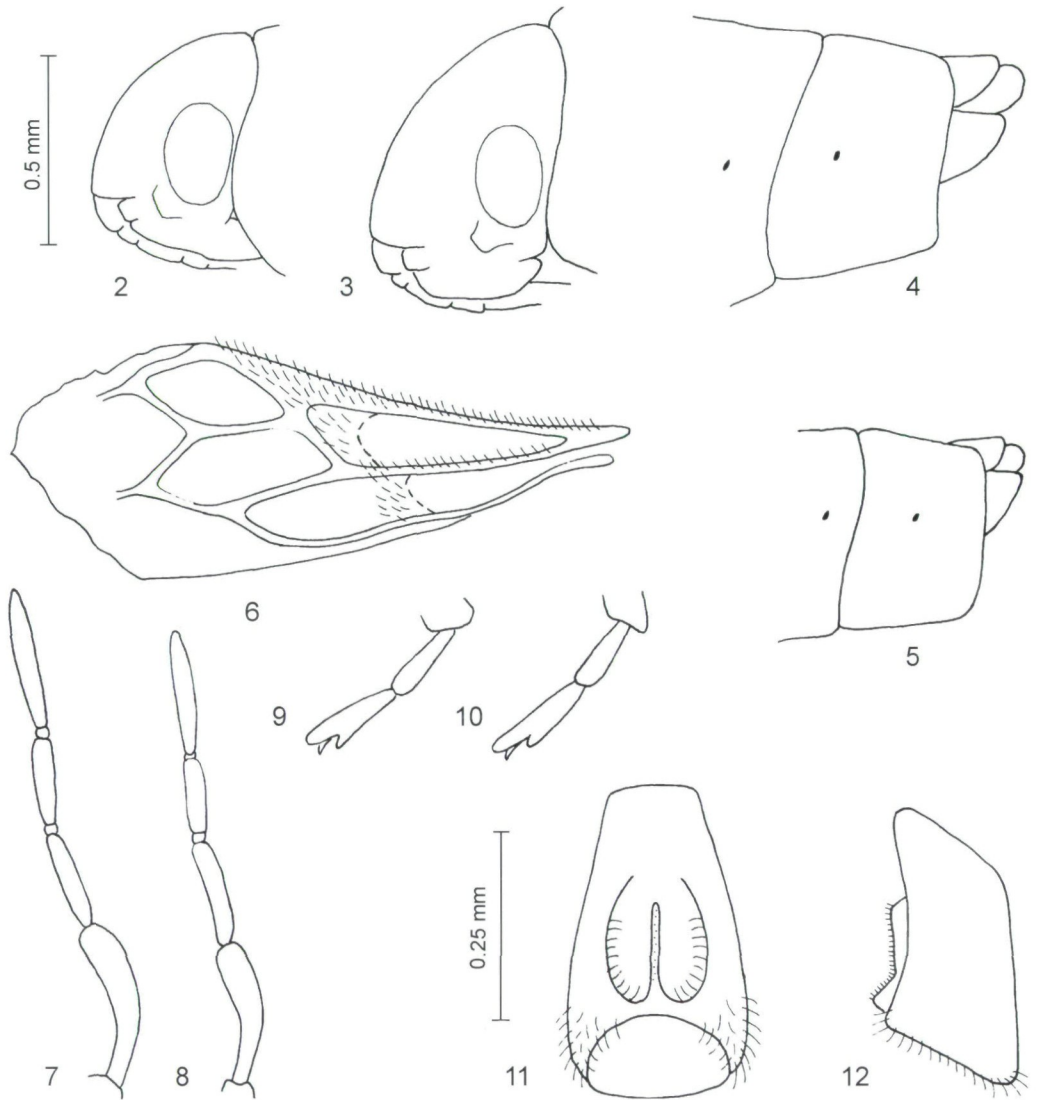


Fig. 1: *Pseudovelgia ullrichi* sp.n., paratype, apt. ♂. Illustration by Matthias Buch.

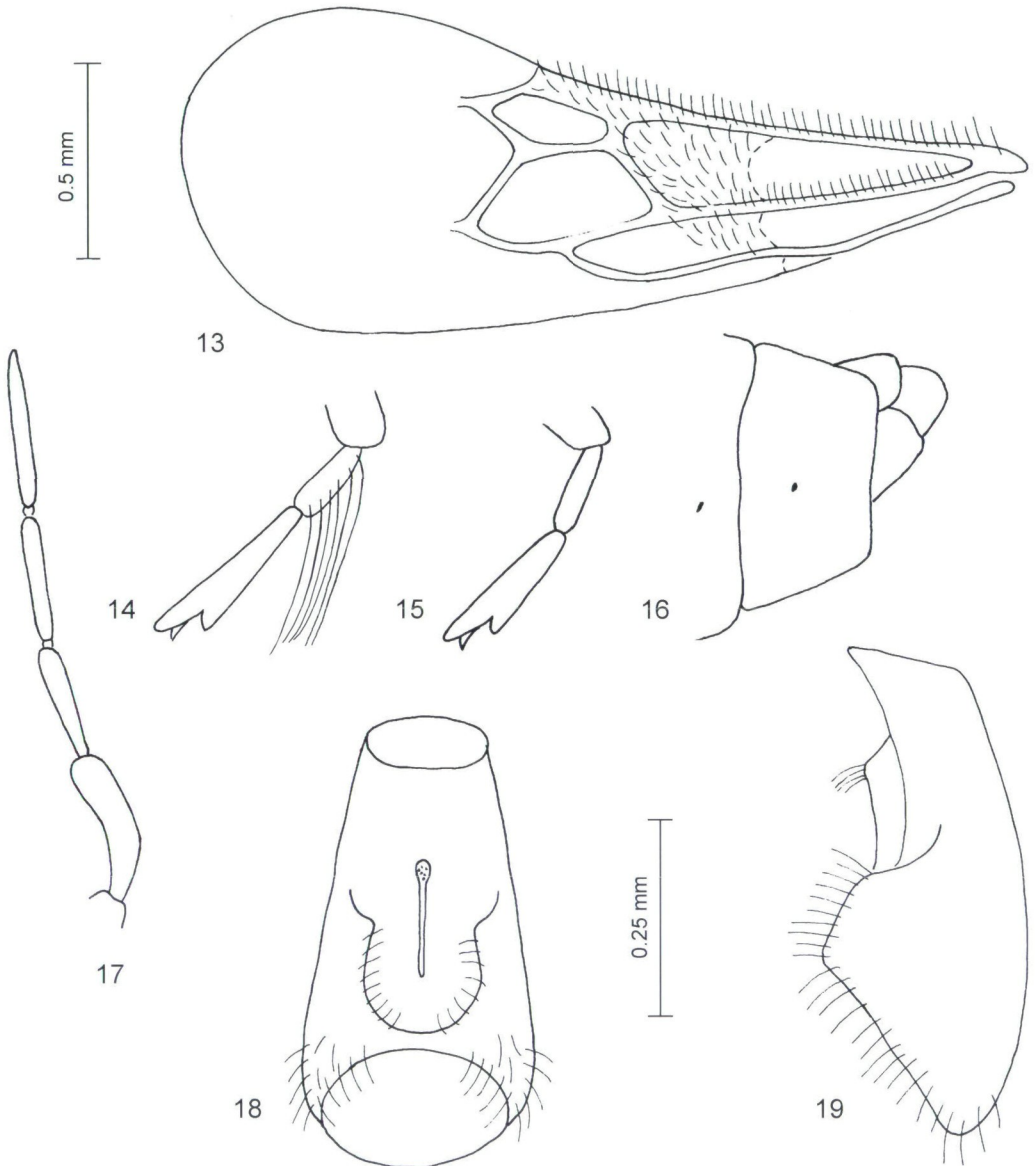
**Description of the apterous morph.** Size. Length 1.97 - 2.07 mm (♂♂), 2.70 - 2.87 mm (♀♀), length of tergites 1 - 7 / 8 to width of tergite 4 as 1 : 0.29 - 0.33 (♂♂), 1 : 0.20 - 0.24 (♀♀), maximum width (in ♂♂ across suture between metanotum and laterotergite 1, in ♀♀ across laterotergites 1) 0.72 - 0.77 mm (♂♂), 0.90 - 1.00 mm (♀♀), width of pronotum 0.67 - 0.70 mm (♂♂), 0.73 - 0.83 mm (♀♀), width of head 0.45 - 0.48 mm (♂♂), 0.57 - 0.60 mm (♀♀), female conspicuously larger than male.

**Apterous male.** Colour. Head dark brown to blackish, in some specimens with posterior margin of vertex slightly lighter; antenna dark brown, in some specimens with base of segment 1 slightly lighter. Pronotum dark brown, with transverse stripe near anterior



Figs. 2 - 12: (2, 3) ventral lobe of head: (2) *Pseudovelia feuerborni*, (3) *P. pusilla*; (4, 5) abdominal end of ♀♀: (4) *P. feuerborni*, (5) *P. pusilla*; (6) forewing of *P. pusilla*; (7, 8) antenna: (7) *P. pusilla*, (8) *P. feuerborni*; (9, 10) metatarsus of male: (9) *P. feuerborni*, (10) *P. pusilla*; (11, 12) male genital segment 8 of *P. feuerborni*: (11) ventral view, (12) lateral view.

margin lighter brown or reddish brown, in some specimens not extending onto lateral portions; in many specimens also median line of various length and/or lateral edge of pronotum, in some specimens also posterior margin, light brown or reddish brown; black, irregularly distributed pores on pronotum except on transverse stripe and median line. Metanotum dark brown. Legs with apical parts of femora, entire tibiae and tarsal segments dark brown, remaining parts yellow, in some specimens middle part of metatibia lighter brown to yellowish. Tergites, laterotergite 1, and medial parts of laterotergites



Figs. 13 - 19: *Pseudovelia ullrichi* sp.n.: (13) forewing; (14, 15) metatarsus: (14) male, (15) female; (16) abdominal end of ♀♀; (17) antenna; (18, 19) male genital segment 8: (18) ventral view, (19) lateral view.

2 - 7 dark brown, lateral parts in most specimens lighter brown. Ventral surface of thorax and abdomen dark brown to blackish, stripe on lateral margins of sternites lighter brown, in some specimens reddish brown.

Pilosity. Entire body surface covered with short, decumbent, silvery hairs. Long, erect hairs scattered on vertex, antenna, pronotum, metanotum, and legs, tergites, latero-

tergites, and sternites without long erect hairs. Stout, silvery hairs forming stripes on vertex along margin of eyes, and covering lateral and caudal parts of tergite 1, almost entire tergites 2, 3, 6, and 7, as well as medial parts of laterotergites 2 - 4, in some specimens also of laterotergite 5. Metatarsal segment 1 with row of erect hairs over entire length. Eyes naked except for two ocular setae.

**Structural characters.** Ventral lobe of head not produced caudad (Fig. 2). Antenna 0.55 - 0.57 times as long as body, relative lengths of segments 1 - 4 as 1.3 - 1.4 : 1 : 0.8 - 0.9 : 1.2 - 1.3, segment 4 shorter than segment 1 (Fig. 8). Pronotum 0.69 - 0.74 times as long as wide. Grasping comb on protibia 0.53 - 0.56 times as long as tibia. Metatibia obviously curved, metatarsus 0.54 - 0.60 times as long as metatibia, first metatarsal segment 0.70 - 0.84 times as long as segment 2 (Fig. 9). Tergites and sternites partly fused. Tergite 1 medially flattened, with postero-medial indentation. Second tergite 0.90 - 1.00 times as wide as head. Laterotergites slightly raised.

**Genital segments.** Ventral depression of segment 8 close to posterior margin of segment, divided into two parts by slender median ridge furnished with short hairs, longer hairs along lateral margin of depression (Figs. 11, 12, ANDERSEN 1983: fig. 41).

**Apterous female.** Colour as in apterous male.

**Pilosity.** Short decumbent, silvery hairs, long, erect hairs, and pilosity of eyes as in apterous male, but additionally erect hairs on laterotergites 1 - 3 and on sternites. Silvery hairs on vertex as in apterous male, on tergites and laterotergites less hirsute, covering only lateral parts of tergite 1 and scattered on tergites 2, 3, 6, and 7, as well as on laterotergites 3 and 4, in some specimens also on laterotergite 6. Metatarsal segment 1 without row of erect hairs.

**Structural characters.** Ventral lobe of head as in apterous males. Antenna 0.50 - 0.54 times as long as body, relative lengths of segments 1 - 4 as 1.3 - 1.5 : 1 : 0.8 - 0.9 : 1.0 - 1.2. Pronotum as in apterous males. Protibia without grasping comb; metatibia not curved, metatarsus 0.49 - 0.52 times as long as metatibia, first metatarsal segment 0.73 - 0.82 times as long as segment 2. Structure of tergites and sternites as in apterous males. Second tergite 0.93 - 1.05 times as wide as head. Laterotergites more strongly raised than in apterous males.

**Genital segments.** Proctiger and gonocoxa 1 entirely covered with short, dense, erect hairs; genital structure as figured by ANDERSEN (1983: figs. 43, 44) and in Fig. 4.

**Comparative notes.** LUNDBLAD (1933) referred to the resemblance of *P. sexualis* and *P. feuerborni*, but these two species can easily be distinguished by the hairy eyes and the leaflike arolia of the tarsi in *P. sexualis*, and by the genital segments of males and females (ANDERSEN 1983). *Pseudovelia feuerborni* has also some similarities with *P. pusilla*, e.g. the structure of the male genital segment 8, but differs obviously from this species by the ventral lobe of the head, which is not produced in *P. feuerborni*.

**Distribution.** Thailand, West Malaysia, Singapore, Java.

**Discussion.** The record of a female of *P. feuerborni* from the Philippines by ANDERSEN (1983) refers to an undescribed species. From Loei Province, one apterous male [Thailand Loei\ Kaeng Hai\ 5 III 1994\ Nam San Khe], one apterous female and one larva [WDS 1035] [Thailand: Loei: Kaeng Hai: Nam San Khe: 9 III 1994, W.D. Shepard] are

deposited in the collection of NHMW. These specimens differ in some diagnostic characters from *P. feuerborni*. Further material of this part of Thailand will be necessary to decide whether they represent a variation of *P. feuerborni* or an undescribed species.

The macropterous and dealate specimens collected by Ullrich are largely corresponding with the descriptions of this morph given by LUNDBLAD (1933) and ANDERSEN (1983). The measurements of the antenna are like those listed by LUNDBLAD (1933: 334), but differ from the redescription provided by ANDERSEN (1983: 266).

### *Pseudovelgia pusilla* HECHER, 1997 (Figs. 3, 5, 6, 7, 10)

*Pseudovelgia pusilla* HECHER, 1997: 45-49.

**Material examined.** Holotype ♂ (apt.) [S VIETNAM, 28.-30.4.1994\ 12 km N Dalat - Lang Bian\ P. Pacholátko & L. Dembicky leg.] (NHMW). Thailand: 1 ♂ (apt.), 1 ♀ (apt.) [Thailand: Phetchabun Prov.\ Nam Nao NP, Huai Phrom\ Laeng. 24.11.1995\ leg. H. Zettel (22)] [*Pseudovelgia*\ *pusilla* HECHER\ det. H. Zettel 2000] (NHMW), 2 ♀♀ (deal.) [Thailand: Chiang Mai Prov.\ Chiang Dao, Ben Yang Thung\ Pong, 500 m, 8.11.1995\ leg. H. Zettel (10)] [*Pseudovelgia*\ *pusilla* HECHER\ det. H. Zettel 2000] (NHMW), 4 ♂♂ (apt.), 1 ♂ (macr.) [17 VII 1997 Thailand\ Chiang Mai: ca.\ 10 km E Samoeng:] [N 018°51'40.2''\ Samoeng river\ E 098°38'49.5''] [Dr. Wolfgang G.\ ULLRICH\ collection] [*Pseudovelgia*\ *pusilla* HECHER\ det. H. Zettel 2001] (CUL, NHMW), 1 ♂ (macr.), 1 ♀ (apt.) [17 VII 1997 Thailand\ Chiang Mai: ca.\ 10 km E Samoeng:] [N 018°51'40.2''\ Samoeng river\ E 098°38'49.5''] [Dr. Wolfgang G.\ ULLRICH\ collection] (CUL, NHMW), 2 ♂♂ (apt.), 3 ♀♀ (apt.) [18 VII 1997 Thailand\ Chiang Mai: ca.\ 10 km E Samoeng:] [N 018°51'40.2''\ River\ E 098°38'49.5''] [Dr. Wolfgang G.\ ULLRICH\ collection] (CUL, NHMW), 1 ♂ (apt.), 1 ♀ (apt.) [11 VIII 1998 Thailand\ Mae Hong Son\ Mae Nam Cottage] [N 019°19'59.0''\ in Pai River\ E 097°57'13.0''] [among floating\ debris\ Dr. W. Ullrich leg.] [Dr. Wolfgang G.\ ULLRICH\ collection] (CUL, NHMW), 1 ♀ (apt.) [1 I 1998 Thailand\ Chiang-Mai: ca.\ 10 km E Samoeng:] [N 018°51'40.2''\ River\ E 098°38'49.5''] (CUL, NHMW), 3 ♂♂ (apt.), 2 ♀♀ (apt.) [2 I 1998 Thailand\ Chiang Mai: ca.\ 10 km E Samoeng:] [N 018°51'40.2''\ River\ E 098°38'49.5''] [*Pseudovelgia*\ *pusilla* HECHER\ det. H. Zettel 2000] (CUL, NHMW), 1 ♂ (apt.) [11 IV 2000 Thailand\ Chiang Mai: ca.\ 10 km E Samoeng:] [N 018°51'40.2''\ Samoeng river\ E 098°38'49.5''] [Dr. Wolfgang G.\ ULLRICH\ collection] [*Pseudovelgia*\ *pusilla* HECHER\ det. H. Zettel 2000] (CUL, NHMW), 1 ♂ (apt.), 1 ♀ (apt.) [22 IV 2000 Thailand\ Chiang Mai: ca.\ 10 km E Samoeng:] [N 018°51'40.2''\ Samoeng river\ E 098°38'49.5''] [Dr. Wolfgang G.\ ULLRICH\ collection] [*Pseudovelgia*\ *pusilla* HECHER\ det. H. Zettel 2001] (CUL, NHMW).

**Description of the macropterous morph.** Size. Length 2.16 - 2.18 mm (♂♂), 2.58 - 2.68 mm (♀♀), maximum width (across pronotum) 0.92 - 0.94 mm (♂♂), 1.13 - 1.18 mm (♀♀), width of head 0.48 - 0.50 mm (♂♂), 0.60 mm (♀♀).

**Macropterous male.** Colour. Head dark brown to blackish, posterior margin of vertex slightly lighter, ventral lobe of head yellow; antenna dark brown, basal part of segment 1 in some specimens lighter. Pronotum dark brown, with transverse stripe near anterior margin and short median line yellowish; black, irregularly distributed pores on pronotum except on transverse stripe and median line. Legs with apical parts of femora, entire tibiae and tarsal segments dark brown, remaining parts yellow. Laterotergites 2 - 7 with medial parts dark brown to blackish, lateral parts light brown to reddish brown. Ventral surface of thorax and abdomen black, stripe on lateral margins of sternites reddish brown. Forewing dark brown, with two elongate white stripes on basal cells.

Pilosity. Entire body surface covered with short, decumbent, silvery hairs. Long, erect hairs scattered on vertex, antenna, pronotum, and legs, obviously dense on posterior apex of pronotum; wings also with long, erect hairs on basal half, except on white areas. Stout, silvery hairs forming stripes on vertex along margin of eyes. Metatarsal segment 1 without additional erect hairs. Eyes naked except for two ocular setae.



Structural characters. Ventral lobe of head produced caudad (Fig. 3). Antenna 0.55 - 0.57 times as long as body, relative lengths of segments 1 - 4 as 1.4 - 1.7 : 1 : 1.0 : 1.5 (Fig. 7). Pronotum 0.83 - 0.85 times as long as wide. Grasping comb on protibia 0.60 - 0.61 times as long as tibia. Metatarsus 0.48 - 0.51 times as long as metatibia, first metatarsal segment 0.68 - 0.76 times as long as segment 2 (Fig. 10). Laterotergites slightly raised. Wings surpassing apex of abdomen.

Genital segments as in HECHER (1997: Fig. 10).

**Macropterous female.** Colour as in macropterous male, one female with anterior part of pronotum lighter brown.

Pilosity similar to macropterous male, but long erect hairs obviously dense on anterior edges of pronotum, on lateral area of metanotum, on laterotergite 1, and on posterior margin of tergite 8 and sternite 7. In dealate specimens, conspicuous median stripe without any hairs on posterior part of tergite 7 and anterior part of tergite 8 visible.

Structural characters. Ventral lobe of head and pronotum as in macropterous male. Antenna 0.51 - 0.55 times as long as body, relative lengths of segments 1 - 4 as 1.5 : 1 : 1.0 : 1.4. Protibia without grasping comb. Metatarsus 0.50 times as long as metatibia, first metatarsal segment 0.61 - 0.61 times as long as segment 2. Laterotergites slightly raised. Wings broken off by autotomy (Fig. 6).

Genital segments as in HECHER (1997: fig. 8) and in Fig. 5.

**Comparative notes.** As reported in HECHER (1997), *P. pusilla* is closely related to *P. buccula* because of the structure of the ventral lobe of head, but males and females can easily be distinguished by the measurements of the metatibia and the metatarsus, and the males differ also in the structure of the genital segment 8.

**Distribution.** Vietnam, Thailand.

**Discussion.** Some of the apterous females differ from the description of this morph (HECHER 1997) because their maximum width does not run across **tergite 4/abdominal segment 4**, but across the metanotum or across the suture between the metanotum and the laterotergite 1. The laterotergites 2 - 7 are strongly raised in these specimens. This character is not varying in additional material from Vietnam deposited in NHMW.

### *Pseudovelgia ullrichi* sp.n. (Figs. 1, 13 - 19)

**Type material.** Holotype. ♂ (apt.) [11 VIII 1998 Thaild.\ Mae Hong Son\ Mae Nam Cottage] [N 019°19'59.0" in Pai River\ E 097°57'13.0"] [among floating\ debris\ Dr. W. Ullrich leg.] [Dr. Wolfgang G.\ ULLRICH\ collection] (CUL). Paratypes. 32 ♂♂ (apt.), 5 ♂♂ (macr.), 78 ♀♀ (apt.), 7 ♀♀ (macr.) same data as holotype (CUL, NHMW), 11 ♂♂ (apt.), 22 ♀♀ (apt.), 5 ♀♀ (macr.), 1 ♀ (deal.) [11 VIII 1998 Thaild.\ Mae Hong Son\ Mae Nam Cottage] [N 019°19'59.0" Dr. W. Ullrich leg. \ E 097°57'13.0"] [in Pai River\ among floating\ debris] [Dr. Wolfgang G.\ ULLRICH\ collection] (CUL, NHMW).

**Description.** Size. Length 2.33 - 2.40 mm (♂♂ apt.), 2.43 - 2.57 mm (♂♂ macr.), 2.77 - 2.87 mm (♀♀ apt.), 2.80 - 2.87 mm (♀♀ macr./deal.), length of tergites 1 - 7 / 8 to width of tergite 4 as 1 : 0.24 - 0.26 (♂♂ apt.), 1 : 0.21 - 0.24 (♀♀ apt.), maximum width (in apterous ♂♂ across suture between metanotum and laterotergite 1 or in some specimens across **tergite 4??**, in apterous ♀♀ across laterotergites 1) 0.80 - 0.83 mm (♂♂ apt.), 0.93 -



0.97 mm (♀♀ apt.), width of pronotum 0.75 - 0.80 mm (♂♂ apt.), 1.07 - 1.10 mm (♂♂ macr.), 0.80 - 0.83 mm (♀♀ apt.), 1.20 - 1.23 mm (♀♀ macr./deal.), width of head 0.53 - 0.57 mm (♂♂), 0.60 - 0.63 mm (♀♀).

**Apterous male** (Fig. 1). Colour. Head light brown, sometimes dark brown, with two blackish spots on vertex; antenna dark brown to blackish, usually with basal half of segment 1 yellow to light brown. Pronotum light brown, in some specimens dark brown with transverse stripe near anterior margin light brown; black, irregularly distributed pores on pronotum except on anterior portion. Metanotum light brown, in some specimens dorsally or entirely dark brown. Legs with apical parts of femora, entire tibiae and tarsal segments dark brown, remaining parts yellow to light brown, in some specimens middle part of metatibia lighter brown to yellow. Tergites dark brown to blackish, tergite 1 in some specimens with median patch reddish brown or light brown; lateral portion of laterotergite 1 and entire laterotergites 2 - 7 light brown to reddish brown, dorsal portion of laterotergite 1 and sutures between laterotergites 2 - 7 dark brown to blackish, in some specimens medial parts of laterotergites 3 - 7 or all laterotergites entirely dark brown. Ventral surface of thorax and abdomen black, stripe on lateral margins of sternites light brown to reddish brown.

Pilosity. Entire body surface covered with short, decumbent, silvery hairs. Long, erect hairs on head, antenna, pronotum, metanotum, legs, tergites, laterotergites, and sternites. Stout, silvery hairs forming stripes on vertex along margin of eyes, and covering lateral and caudal parts of tergite 1, almost entire tergites 2, 3, 6, and 7, caudal part of tergite 5, caudal margin of laterotergite 1, and caudolateral parts of laterotergites 2 - 6. Metatibia with obviously dense hairs. Metatarsal segment 1 with row of 5 - 6 very long, erect hairs over entire length. Eyes naked except for two ocular setae.

Structural characters. Ventral lobe of head not produced caudad. Antenna 0.51 - 0.56 times as long as body, relative lengths of segments 1 - 4 as 1.2 - 1.4 : 1 : 1.0 - 1.1 : 1.5 - 1.7, segment 4 obviously longest (Fig. 17). Pronotum 0.62 - 0.65 times as long as wide. Grasping comb on protibia 0.51 - 0.55 times as long as tibia. Metatarsus 0.71 - 0.75 times as long as metatibia, second metatarsal segment obviously long, first segment 0.40 - 0.51 times as long as segment 2 (Fig. 14). Tergites and sternites partly fused. Second tergite 0.82 - 0.91 times as wide as head. Laterotergites raised.

Genital segments. Ventral depression of segment 8 large, divided into two parts by median ridge, posterior part of depression laterally bounded by elevations with bristles (Figs. 18, 19). Proctiger and pygophore with short erect hairs.

**Macropterous male.** Colour of head as in apterous male, if head dark brown, posterior margin lighter. Pronotum dark brown with transverse stripe near anterior margin and with median line reaching apex of pronotum light brown; black, irregularly distributed pores on pronotum except on transverse stripe and median line. Colour of legs as in apterous male. Tergites covered by wings. Lateral parts of laterotergites 2 - 7 brown to reddish brown, medial parts and laterotergite 1 covered by wings. Colour of ventral surface as in apterous male. Wings dark brown, with two elongate white stripes on basal cells, veins slightly darker.

Pilosity as in apterous male except for body parts covered by wings.

Structural characters. Antenna 0.48 - 0.53 times as long as body, relative lengths of segments 1 - 4 as 1.3 : 1 : 0.9 - 1.0 : 1.4 - 1.6, segment 4 longest, but not as obviously

as in apterous male. Pronotum 0.82 - 0.88 times as long as wide. Grasping comb on protibia 0.51 - 0.52 times as long as tibia. Metatarsus 0.69 - 0.73 times as long as metatibia, second metatarsal segment obviously long, first segment 0.44 - 0.51 times as long as segment 2. Laterotergites raised. Wings reaching or slightly surpassing apex of abdomen. Genital segments as in apterous male.

**Apterous female.** Colour and pilosity as in apterous male, but metatarsal segment 1 without row of long, erect hairs, and stout, silvery hairs on tergites 5, 6, and 7 less dense, on tergite 5 in some specimens missing at all.

Structural characters. Antenna 0.49 - 0.50 times as long as body, relative lengths of segments 1 - 4 as 1.3 - 1.4 : 1 : 1.0 : 1.4 - 1.5. Pronotum 0.61 - 0.69 times as long as wide. Protibia without grasping comb. Metatarsus 0.53 - 0.54 times as long as metatibia, first metatarsal segment 0.50 - 0.51 times as long as second. Tergites and sternites partly fused. Second tergite 0.95 - 1.00 times as wide as head. Laterotergites raised.

Genital segments. Proctiger and gonocoxa 1 covered with short, dense, erect hairs; genital structures as in Fig. 16.

**Macropterous female.** Colour as in macropterous male; lateral angles of pronotum in some specimens light brown. Pilosity as in macropterous male.

Structural characters. Antenna 0.47 - 0.50 times as long as body, relative lengths of segments 1 - 4 as 1.3 - 1.4 : 1 : 0.9 - 1.0 : 1.4 - 1.6. Pronotum 0.84 - 0.88 times as long as wide. Protibia without grasping comb. Metatarsus 0.54 - 0.60 times as long as metatibia, first metatarsal segment 0.50 - 0.54 times as long as segment 2. Laterotergites raised. Wings reaching apex of abdomen or slightly shorter; one female dealate. Genital segments as in apterous female.

**Etymology.** This new species is named in honour of Dr. Wolfgang G. Ullrich, who collected the large amount of specimens, and kindly left it to me for studying.

**Comparative notes.** *Pseudovelvia ullrichi* sp.n. has some similarities with *P. feuerborni*, but can easily be distinguished by the pilosity and length of the male metatarsus and the structure of the male genital segment 8. Also *Pseudovelvia pyrokrene* NIESER, 1995, from Sulawesi shows some similar characters as *P. ullrichi* sp.n. and *P. feuerborni*, but differs in the pilosity and structure of the male and female metatarsus, the antenna, the pronotum, and the pilosity of the male mesotibia.

**Distribution.** Thailand.

### *Pseudovelvia sexualis* (PAIVA, 1917)

*Microvelia* (*Kirkaldya*) *sexualis* PAIVA, 1917: 77-79.

*Microvelia crassipes* LUNDBLAD, 1933: 331-333.

*Pseudovelvia* (s.str.) *sexualis*: ANDERSEN 1983: 256-259.

**Material examined.** Holotype ♂ (apt.) [*Typus*: \ *Microvelia crassipes* Lundbl. ♂. \ Sumatra, \ Toba-sjön vid. \ Balige. \ 2.4.1929.] (NRM). Thailand: 4 ♂♂ (apt.) [Thailand: Nong Khai Prov. \ Nong Khai, Maekhong \ at Holiday Inn Hotel] \ 28.11. \ 1995, leg. H. Zettel (33)] [*Pseudovelvia sexualis* (PAIVA) \ det. H. Zettel 1995] (NHMW), 2 ♀♀ (apt.) [17 VII 1997 Thailand \ Chiang Mai: ca. \ 10 km E Samoeng:] [N 018°51'40.2" \ Samoeng river \ E 098°38'49.5"] [Dr. Wolfgang G. ULLRICH \ collection] (CUL, NHMW).

## ***Pseudovelgia buccula* ANDERSEN, 1983**

*Pseudovelgia* (s.str.) *buccula* ANDERSEN 1983: 260-262.

**Material examined.** Holotype ♂ (apt.) [THAILAND: Chiang Mai Province\ Doi Pha Hom Pok, NW of Fang\ 1550-1750 m 22.x.1981\ Zool. Museum Copenhagen leg.] (ZMUC), paratype ♀ (apt.) [THAILAND: NW\ Chiangmai: Fang\ 500 m. IV-12-19-'58] [T.C. Maa\ Collector\ No. 372] (ZMUC).

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