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日米科学協力研究：太平洋地域の昆虫類の地理的分布と生態
Japan-U. S. Co-operative Science Program: Zoogeography and
Ecology of Pacific Area Insects

VELIIDAE OF THE RYUKYUS (Hemiptera, Heteroptera)

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Little has been known on the Veliidae of the Ryukyu Islands. Fortunately, however, the Binational Co-operative Science Program was scheduled by the governments of Japan and the U. S. A. and two expeditions were sent to the Ryukyus to investigate the insect fauna of the islands in 1963. The survey was very fruitful, and the author could study 3 genera and 10 species of the Ryukyuan Veliidae, which were collected by the members of the expeditions. In the present paper the author reports the result of his study and gives the descriptions of four new species and one new subspecies. The types of new species and subspecies are kept in the collection of the Entomological Laboratory, Kyushu University.

The author was obliged to Dr. Y. Hirashima of Kyushu University, Dr. S. Uéno of the National Science Museum and Dr. K. Morimoto of the Government Forest Experiment Station, for their kind help in getting the material during the course of their collecting trip on the islands. Further he expresses his hearty thanks to Professor T. Takara of the University of the Ryukyus and many gentlemen of the University and the Ryukyu Government for their kind assistance in various ways.

Microvelia diluta Distant, 1909

Microvelia diluta: Lundblad, 1933, pp. 307-315; Usinger, 1946, pp. 97-98; Miyamoto, 1953, pp. 114-133.

Specimens examined: 24♂♂, 19♀♀, *apterous*, 6 nymphs, Izumi, Okinawa I. (new record), 21. x. 1963, on a small water pool for irrigation, S. Miyamoto.

Distribution: Oriental Region and Micronesia.

Microvelia kyushuensis Esaki et Miyamoto, 1955

Microvelia kyushuensis Esaki et Miyamoto, 1955, pp. 181-185.

Specimens examined: 2♀♀, *apterous*, Omotosan, Ishigaki I. (new record), 14. x.

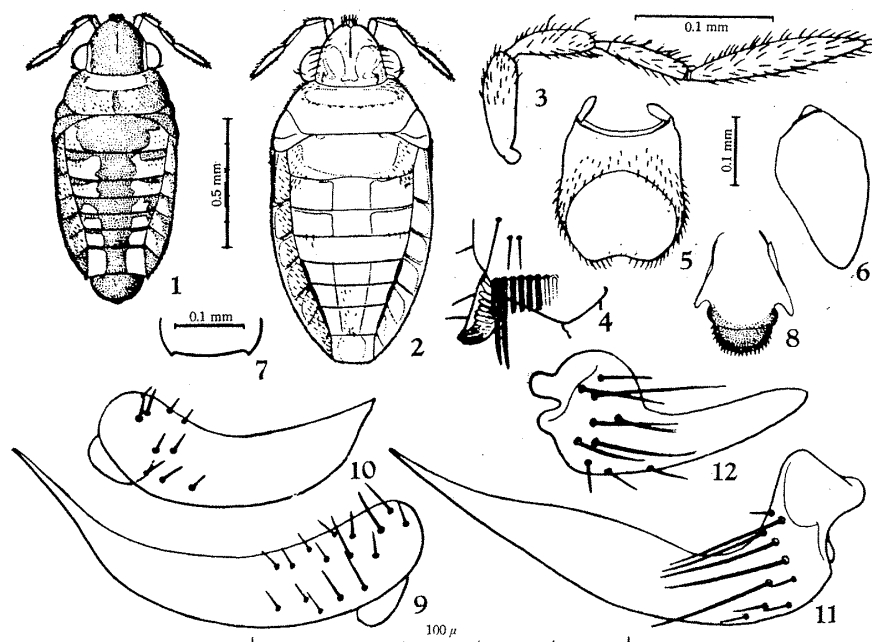
1963, on an almost standing water communicated with a small hill stream, S. Miyamoto.

Distribution: Japan (Honshu and Kyushu) and Ishigaki I.

Microvelia morimotoi sp. nov. (Figs. 1-12)

Size: Apterous males 1.08-1.16 mm. long and 0.48-0.5 mm. wide (the width of metanotum), macropterous males 1.3 mm. long (including hemelytra) and 0.58-0.6 mm. wide across humeri, and apterous females 1.25-1.35 mm. long and 0.62-0.65 mm. wide (width at the 3rd abdominal segment).

Apterous male blackish with grayish blue pruinose areas in patches and legs yellowish, infuscate toward apex. Head blackish, grayish blue along inner margin of eyes, median line and sometimes on base of vertex; eyes dark brown; antennae yellowish in basal segment but dark toward apex; rostrum brownish with apical segment black. Pronotum somewhat bluish gray with a bright brown transverse band that is almost closed at anterior margin of the disc, nearly as wide as vertex and not interrupted in the middle. Abdominal tergites narrowly blackish along basal line and broadly along median line; the 1st tergite broadly blackish. Laterotergites narrowly blackish at base. Genital segments blackish dorsally and brownish ventrally.



Figs. 1-10. *Microvelia morimotoi*, apterous form; 1 & 2 ♂ and ♀, legs omitted; 3, right-hand antenna of ♂; 4, apical portion of right-hand anterior tibia of ♂; 5 & 6, 8th abdominal segment, dorsal and lateral views respectively; 7, apical part of 9th abdominal segment; 8, suranal plate of ♂, with 10th segment; 9 & 10 right- and left-hand parameres. Figs. 11 & 12, *M. kyushuensis*, right- and left-hand parameres respectively.

Body beneath broadly pale in middle. Apterous female somewhat paler than in male, broadly brown on vertex and 1st abdominal tergite and with yellowish brown pronotal band which is wider than vertex; 4th abdominal tergite black and devoid of bluish pruinose areas; laterotergites broadly yellowish brown excepting hinder portion dark. Ventral side of body more widely pale than in male and lateral sides of abdominal sternites yellowish brown.

Body finely pubescent; apical part of head, antennae and legs furnished with longer hairs. Some silvery white hairs along inside of eyes, on lateral and outsides of pronotal band and sides of 1st abdominal tergite, and on lateral parts of body.

Oval (Figs. 1 & 2). Head about two-thirds as long as wide across eyes (21; 36),* a median longitudinal furrow on vertex obscure; eyes rather small, the width one-third as long as interocular space (7:21); antennae (Fig. 3) relatively short and slender, no distinct erect hairs, 1st segment about two-thirds as long and nearly as thick as the 4th, relative lengths of antennal segments: I:II:III:IV=12:9:(1.7):8.5:(0.7):18.5 for male, 13.5:10:(1.8):10:(0.7):21 for female; rostrum reaching apex of anterior coxae.

Pronotum short, a little more than one-third as long as wide (16:41), the disc with a few small punctures along hind margin of the pronotal band. Legs relatively short and slender. Tibial comb of pegs (20 ca) very short and only on anterior legs.

Relative lengths of segments of legs.

	Femur	Tibia	Tarsus ₁	Tarsus ₂
Anterior leg ♂	27	19.5(1.7)†	13.5	
Intermediate leg ♂	31	27	8.5	12
Posterior leg ♂	32	37	8	12
Anterior leg ♀	30	21	17	
Intermediate leg ♀	36	31	10.5	13
Posterior leg ♀	39	44	10	13.5

Abdomen a little less than twice as long as head and pronotum combined together in male but slightly longer in female. Abdominal tergum broad, narrowed behind, 1st tergite the widest and longest, 7th about a half as long as wide (12:21). Connexivum rather narrow, obliquely erect.

Eighth abdominal segment (Figs. 5 & 6) comparatively thin walled, short, shallowly constricted in middle in ventral view, with the dorsal wall slightly concavely sinuate in middle of hind margin. Ninth abdominal segment with broadly truncate hind margin (Fig. 7), sides of which are a little produced; suranal plate (Fig. 8) only sclerotized on apical portion, with distinct lateral lobes; both parameres feebly sclerotized with an acute apex, furnished with some erect bristles near basal part, right-hand one (Fig. 9) gently curved, slightly longer than the left, gradually narrowed toward apex, left-hand paramere (Fig. 10) more suddenly narrowed near apex.

Macropterous male darker and the brown pronotal transverse band narrower than

* The measurements excepting those in size (in mm.) are made to 1/100 mm.

† The figure within brackets shows the length of tibial comb of pegs.

in apterous form. Pronotum about two-thirds as long as wide (39 : 60), produced backwards, the apex rounded, a few feeble punctures only along posterior margin of pronotal band. Hemelytra dark with 7 white markings on each elytron, furnished with distinct hairs along the costal margin before middle.

Holotype, ♂, *apterous*, Shirahama, Iriomote I., 11. x. 1963, *allotype*, ♀, *apterous* Sonai, Iriomote I., 8. x. 1963; paratypes, 3♀♀, the same data with the holotype, 1♂, 10♀♀, *apterous*, 2♂♂, *macropterous*, Sonai, 7-12. x. 1963, S. Miyamoto; all on rice paddy field.

This bug is most allied to *M. kyushuensis* Esaki et Miyamoto but distinguished from the latter by the smaller body, uninterrupted pronotal transverse band, paler legs, partially infuscate 4th, 5th and 7th laterotergites, absence of long erect bristles on antennae, and structure of parameres. In *kyushuensis* both parameres (Figs. 11 & 12) furnished with some much longer and stronger bristles, right-hand paramere strongly curved near base, the remaining nearly straight and a little widened in middle, and the left-hand one with broad base and narrow apical half.

The specific name is dedicated to Dr. K. Morimoto who assisted the present author in collecting Hemipterous material during the survey in the Ryukyu Islands.

Microvelia douglasi Scott, 1874

Microvelia douglasi: Lundblad, 1933, pp. 347-357; Miyamoto and Lee, 1963, pp. 35-36; Miyamoto and Hidaka, 1963, p. 81.

Specimens examined: 5♂♂, 14♀♀, *apterous*, 1♂, 2♀♀, *macropterous*, Yona, Okinawa I. (new record), 18-20. x. 1963, on a slow moving surface of a stream; 4♂♂, 4♀♀, *apterous*, 1♂, 1♀, *macropterous*, 21. x. 1963, on a standing water; 2♂♂, 2♀♀, *apterous*, 1♂, 2♀♀, *macropterous*, Naha, Okinawa I., 30. ix. 1963, on a stagnant water, S. Miyamoto; 6♂♂, 6♀♀, *apterous*, 8♂♂, 7♀♀, *macropterous*, Omotosan, Ishigaki I. (new record), 14. x. 1963, on an almost standing water communicated with a small stream, S. Miyamoto; 1♂, *apterous*, 1♂, 2♀♀, *macropterous*, Maesatoyama, Ishigaki I., 11. x. 1963, on a rice paddy field, Y. Hirashima; 2♂♂, 2♀♀, *apterous*, 2♂♂, 2♀♀, *macropterous*, Shirahama, Iriomote I., 11. x. 1963, on a rice paddy field, 1♀, *macropterous*, 12. x. 1963, on a small stream; 5♂♂, 2♀♀, *apterous*, 3♂♂ 3♀♀, *macropterous*, Sonai, Iriomote I., 6-8. x. 1963, on rice paddy fields; 2♂♂, 2♀♀, *apterous*, Kampira-daki (or Kampire-daki), Iriomote I., 10. x. 1963, on a small water in a crevice of rock near a fall, S. Miyamoto.

Distribution: From Japan through Korea and Formosa to India and to Guam and Samoa.

Microvelia genitalis iriomotensis ssp. nov. (Figs. 13-19)

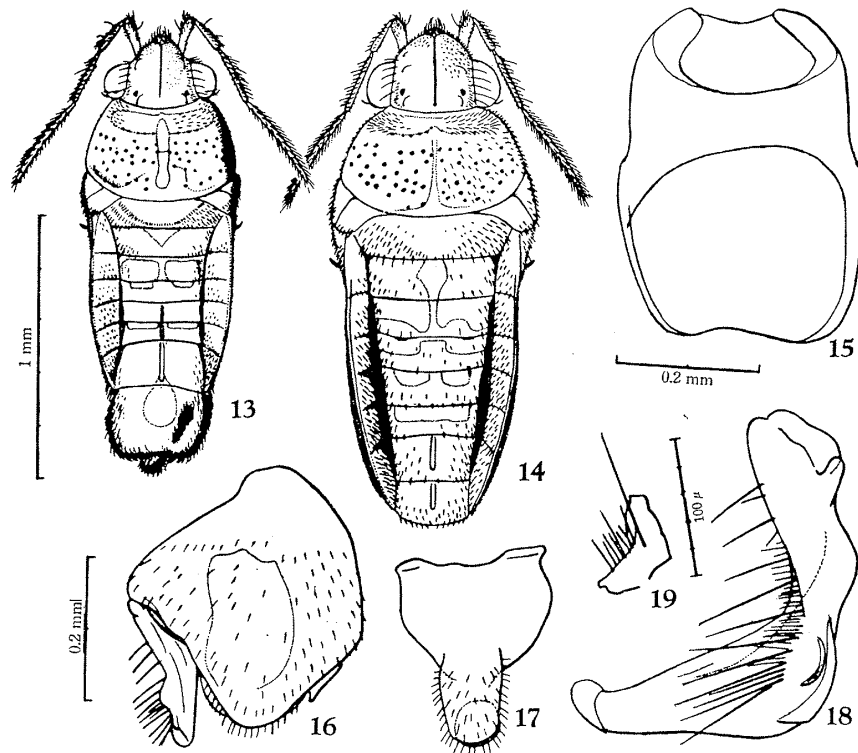
Size: Apterous males 1.6-1.7 mm. long and 0.57-0.63 mm. wide at the metathorax, apterous females 1.7-1.88 mm. long and 0.72-0.8 mm. wide at the metathorax, macropterous male 1.96 mm. long and 0.75 mm. wide between humeri, macropterous females 1.8-1.92 mm. long and 0.77-0.83 mm. wide across humeri.

Apterous form blackish or sometimes brownish with legs yellowish. Median furrow of vertex shining black and nearly reaching the base of vertex. Eyes reddish or

dark brown; antennae dark brown excepting base of 1st segment broadly pale; rostrum yellowish with blackish apical segment. Pronotal transverse band yellow, interrupted by a brownish longitudinal median line, a little wider than basal width of vertex, the band not touched with anterior margin of the disc, that is slightly paler toward base. Apical part of femora, entire tibiae infuscate and tarsi much darker. Dorsal surface of abdomen pruinose and grayish except for brownish anterior half of 1st tergite, blackish sides of the 2nd to 7th tergites, a black median triangular patch on the base of 2nd, a black median fascia of the 3rd, most of the 4th and 6th, whole of the 5th and median polished black striae on the 5th to 7th. Ventral side blackish with underside of head and acetabulae yellow. Genital segments dark brown dorsally, paler ventrally.

Body minutely pubescent, mixed with longer hairs; lateral parts of pronotal transverse band, postero-lateral corners of 1st abdominal tergite and meso- and metapleura furnished with some silvery white hairs.

Somewhat elongate (Figs. 13 & 14). Head about two-thirds as long as wide (28 : 45), median longitudinal furrow narrow but distinct, reaching near base; eyes prominent, the width about a half as long as interocular distance (11.5 : 24); rostrum rel-



Figs. 13-19. *Microvelia genitalis iriomotensis*, apterous form; 13 & 14. ♂ and ♀, legs omitted; 15, ♂ 8th abdominal segment, ventral view; 16, ♂ 9th abdominal segment, ventral view; 17, ♂ suranal plate with 10th segment; 18 & 19 respective parameres of right- and left-hand sides.

atively short, reaching apex of anterior coxae; antennae long or a little longer than half the length of body and slender, 1st antennal segment the thickest but shorter than the 3rd and about a half as long as the 4th; relative lengths of the antennal segments: I : II : III : IV = 18 : 14.5 : (2) : 21 : (0.8) : 36 for male, 19.5 : 15 : (2.3) : 20 : (1) : 37 for female.

Pronotum longer than half the width (36 : 58), broadly rounded on hind margin, the disc punctured except for on pronotal band. Legs rather long with femora very thick in male, moderately thick in female. Tibial comb of pegs short, on each ventral apex of anterior and intermediate tibiae in male.

Relative lengths of segments of legs.

	Femur	Tibia	Tarsus ₁	Tarsus ₂
Anterior leg ♂	42	34(7.3)	19	
Intermediate leg ♂	46	43(12)	10.5	14.5
Posterior leg ♂	52	57	12.5	16
Anterior leg ♀	44	33	20	
Intermediate leg ♀	49	42	11	15.5
Posterior leg ♀	57	62.5	13	16.5

Abdomen about one and half times as long as head and pronotum put together (65 : 105 for male, 72 : 106 for female), lateral portion of abdominal tergum a little concavely sinuate, 7th abdominal tergite distinctly longer than others in male and somewhat longer than the 1st in female. Connexivum moderately broad, suberect in male, almost vertically erect in female.

Eighth abdominal segment (Fig. 15) large, asymmetrical, with large posterior aperture and the hind margin of dorsal wall shallowly concaved. Ninth abdominal segment (Fig. 16) strongly asymmetrical, the right side distinctly produced in middle, suranal plate (Fig. 17) also asymmetrical; right-hand paramere (Fig. 18) well-developed, curved and narrowed in middle, widened beyond middle, furnished with a series of long erect bristles and with obtuse apex; left-hand one (Fig. 19) triangular in lateral view, furnished with a few long erect hairs.

Macropterous form blackish, darker than in apterous form. Pronotum slightly more than two-thirds as long as wide (57 : 75), the disc broadly produced behind and the hind margin rounded. Hemelytra dark, with relatively large white markings and a little surpassing tip of abdomen; posterior apical cell together with the inner area pale sordid brown and opaque; 2 large elongate white markings near base, a small circular one on anterior apical cell, a somewhat elongate one on membrane and 2 obscure, irregular-shaped ones on posterior apical cell.

Holotype, ♂, *apterous*, Shirahama, Iriomote I., 9. x. 1963, on a small stream from a spring, *allotype*, ♀, *apterous* and paratypes, 11 ♂♂, 3 ♀♀, *apterous*, 1 ♂, 10 ♀♀, *macropterous*, 6 nymphs, 9-10. x. 1963, the same habitat as the holotype, S. Miyamoto.

This subspecies is very closely allied to the nominate form from Java, particularly in the same structure of parameres but distinguishable from the latter in broader body, relatively longer tibiae and tarsi in posterior legs, and a little shorter 8th abdo-

minal segment in male. There are also some differences in colour. All the specimens from Iriomote I. have the same characters in colour, shape and other structures and they seem to represent a geographical race of *M. genitalis* Lundblad.

Microvelia uenoi sp. nov. (Figs. 20-26)

Size: For apterous male body length 1.84 mm. and greatest width 0.7 mm. and apterous females 1.77-1.87 mm. long and 0.63-0.7 mm. wide at the metathorax.

Apterous form brownish in general colour. Head somewhat infusate apically, with a median longitudinal furrow slightly darkened; eyes dark brown, antennae infusate excepting most of 1st segment pale; rostrum shining and the apical segment black. Pronotum dark brown, with darker punctures and brownish pronotal transverse band; legs pale basally but dark on tibiae and tarsi. Abdominal tergum and body beneath dark brown except for the basal abdominal tergite, connexivum and sides of abdominal sternites brownish.

Body covered with pubescence and distinct hairs, the latter on apex of head, vertex inside eyes, anterior half of pronotum, sides of thoracic segments, legs and on abdominal segments. In female some long hairs on hinder portion of 7th abdominal latero-tergites. A few erect hairs on antennae and pale shining hairs broadly on the sides of pronotal band.

Body elongate ellipsoid in male (Fig. 20), sharply constricted in middle in female (Fig. 21). Head shorter than wide (37 : 50), produced between eyes, with a pair of distinct circular pits near base of vertex, with a median longitudinal furrow rather faint; eyes relatively small, about a quarter as wide as interocular space; rostrum reaching to or a little beyond the apex of anterior coxae; antennae slender and long with 1st segment the thickest, a little curved and distinctly shorter than the 4th, relative lengths of the segments: I : II : III : IV = 27 : 21 : (2) : 25 : (0.7) : 41 for male*, 25 : 20 : (2.6) : 22 : (1) : 42 for female.

Pronotum about a half of the width (33 : 62), the disc distinctly punctured excepting the area of pale transverse band. Legs relatively long, tibial comb of pegs very short and on each of anterior and intermediate tibiae in male.

Relative lengths of segments of legs.

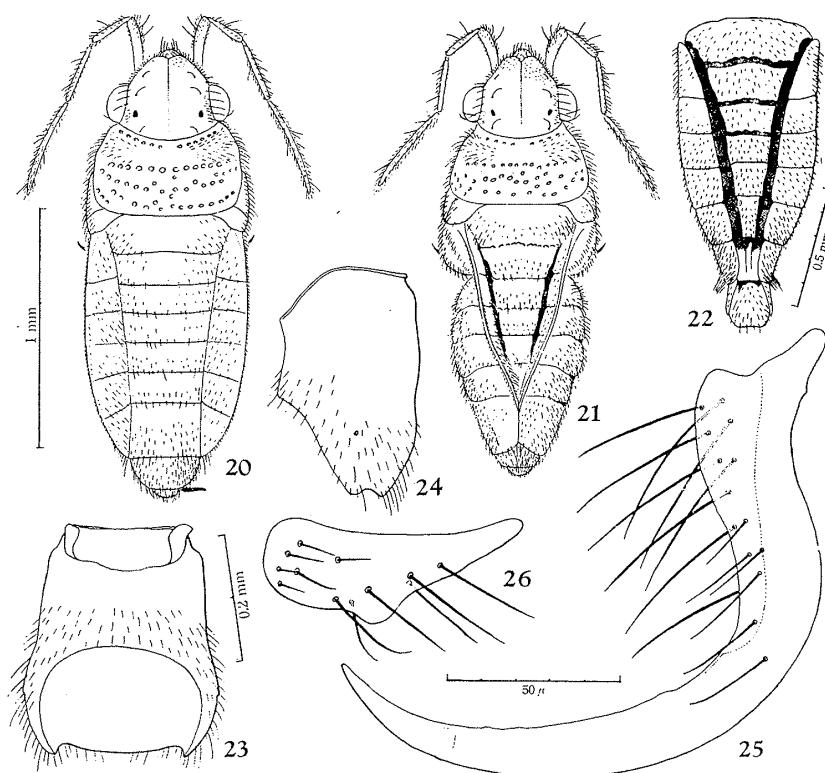
	Femur	Tibia	Tarsus ₁	Tarsus ₂
Anterior leg ♂	52	43(5)	23	
Intermediate leg ♂	57	54(3)	10	20
Posterior leg ♂	66	71	12	20
Anterior leg ♀	52	39	23	
Intermediate leg ♀	57	51	10.5	18
Posterior leg ♀	65	71	13	20

Abdomen about one and a half times as long as head and pronotum put together (114 : 70 for male, 112 : 65 for female). Sides of abdominal tergum in male slightly

* The measurements in male are made on a single dried specimen, the holotype.

convergent posteriorly and a little concavely sinuate; 1st tergite distinctly shorter than the 7th, not very longer than in each of the 2nd to 6th, 7th tergite a little shorter than the width (ca 23 : 30). Abdominal tergum in female strongly narrowed toward behind (Fig. 22). Connexivum moderately broad and obliquely erect in male or almost vertical and both connexiva touching each other on hind part in female.

Eighth abdominal segment of male (Figs. 23 & 24) broad, slightly widened near apex, with the hind margin of dorsal wall excavated near both sides and roundly,



Figs. 20-26. *Microvelia uenoi*, apterous form; 20 & 21, ♂ and ♀, legs omitted; 22, ♂ abdominal tergum with laterotergites; 23 & 24, ♂ 8th abdominal segment, ventral and lateral aspects; 25 & 26, right- and left-hand parameres respectively.

broadly and slightly produced behind in middle. Ninth abdominal segment widened near middle; right-hand paramere (Fig. 25) strong and long, distinctly curved near middle, with acute apex and furnished with some long erect bristles on dorsal side of basal half; left-hand one (Fig. 26) short, with a tubercle on outer side near middle, with the apex narrowed and covered with some erect long bristles.

Holotype, ♂, *allotype*, ♀ and 2 paratypes, ♀♀, *apterous*, Ushikumori, Iriomote I., 4. x. 1963, near water edge between stones along a small hill stream, S. Miyamoto.

M. uenoi is rather allied to *M. japonica* Esaki et Miyamoto and *douglasi* Scott but

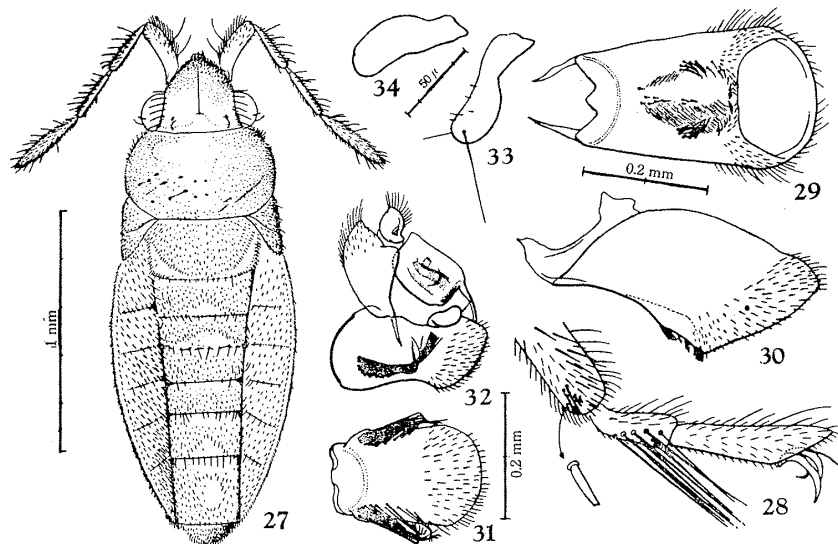
immediately separated by the structure of genital segments and parameres and shape of female. From *douglasi* this is further different in the brownish colour, smaller eyes and produced head, etc. Specific name is dedicated to Dr. S. Uéno who helped the author in getting the Heteropterous material in the Ryukyus.

***Pseudovelia takarai* sp. nov.** (Figs. 27-34)

Size: Apterous males 1.9-2.0 mm. long and 0.75-0.76 mm. wide at the 3rd abdominal segment. Apterous females 2.25-2.41 mm. long and 0.81-0.87 mm. wide at the 3rd abdominal segment.

General colour dark brown to blackish with pronotum and connexivum paler and with 3 basal segments of legs pale. Head dark brown or black with base of vertex brown; eyes brownish black; antennae dark brown, a little paler on 1st antennal segment except the apex; rostrum shining brown with the apical part black. Pronotum brownish, with a slightly paler transverse band along or near anterior margin of disc. Apex of femora and whole tibia and tarsi dark brown. Abdominal tergum dark brown or blackish, often slightly paler on central area of basal two tergites; the connexivum brownish, dark or black on the inner portions but the 7th in male or 7th and 8th in female entirely dark. Ventral side of head, lateral and ventral sides of prothorax, upper halves of sides of meso- and metathoraces and lateral portion of abdominal sternites brown. Genital segment dark brown.

Body covered with dense pubescence and distinct hairs. Some silvery hairs along inner side of eyes, on lateral sides of 1st abdominal tergite, hinder parts of 2nd, 3rd and 6th tergites and on central part of the 7th.



Figs. 27-34. *Pseudovelia takarai*, apterous male; 27, dorsal view, legs omitted; 28, apical portion of right-hand posterior leg; 29 & 30, 8th abdominal segment, ventral and lateral aspects; 33 & 34, right- and left-hand parameres respectively.

Outline of body elongate ellipsoid (Fig. 27). Head shorter than wide across eyes (36 : 51), with a median longitudinal furrow on vertex well separated from the base of vertex; eyes relatively small, the width distinctly less than half the shortest distance between eyes (11 : 29). Antennae stout, with distinct erect bristles on anterior side of the segments; 1st segment thickest and longest, distinctly curved before middle; relative lengths of the segments: I : II : III : IV = 36.5 : 23 : (3) : 21.5 : (1.8) : 30.5 for male, 38 : 27 : (2.6) : 25 : (1.2) : 33.5 for female. Rostrum long, the apex almost reaching base of intermediate coxae.

Pronotum transverse, somewhat longer than half the width (36 : 62), the disc covered with feeble punctures on basal two-thirds. Legs long and stout; in male comb of pegs long and along nearly apical half of anterior tibiae; male posterior tibiae (Fig. 28) armed with a batch of some truncate headed bristles (14 ca) on dorsal apex, and basal segment of posterior tarsi in male furnished with 8 long swimming bristles in two rows.

Relative lengths of segments of legs.

	Femur	Tibia	Tarsus ₁	Tarsus ₂
Anterior leg ♂	49	48(22)	26	
Intermediate leg ♂	59	59	12	24
Posterior leg ♂	62	70	11	26
Anterior leg ♀	60	54	30	
Intermediate leg ♀	73	72	13	29
Posterior leg ♀	82	89	14.5	29

Abdomen long, twice as long as head and pronotum put together in male (132 : 66) and a little more than twice in female (168 : 73). Abdominal tergum gently narrowed backwards, 1st tergite with no punctures and somewhat shorter than the 7th (22 : 26) in male but longer than the 7th in female, 7th tergite a little wider than long (28 : 26). Connexivum broad and obliquely erect.

Eighth abdominal segment (Figs. 29 & 30) moderately long, slightly widened behind, with a large oval impression on the ventral side; a tuft of suberect bristles on each border, some bristles along hind border and some lesser bristles scattered along longitudinal median line of the impression in irregular two rows. Ninth abdominal segment (Figs. 31 & 32) somewhat narrowed in middle, with a tuft of distinctly long bristles (20 ca) on each side, the bristles curved near middle; both parameres (Figs. 33 & 34) small, with round apex and of similar shape.

Macropterous form unknown.

Holotype, ♂ and *allotype*, ♀, paratypes, 3♂♂, 2♀♀, Kampira-daki (or Kampire-daki), Iriomote I., 9. x. 1963; other paratypes, 3♂♂, 1♀, Shirahama-toge, Iriomote I., 9. x. 1963; 3♂♂, 3♀♀, Omotosan, Ishigaki I., 14. x. 1963; on almost standing water filled a crevis of rock that communicated with a small spring or slow moving surface of mountain stream, all *apterous*, S. Miyamoto.

This species is easily separated from the relatives in East Asia by the characteristic structure of genital segments, shorter basal segment of posterior tarsi which is

half as long as the second segment, and two rows of swimming bristles on the 1st tarsal segment. The specific name is dedicated to Dr. Takara who has studied the fauna in the Ryukyus and gave us kind help in various ways during our stay in the Ryukyus.

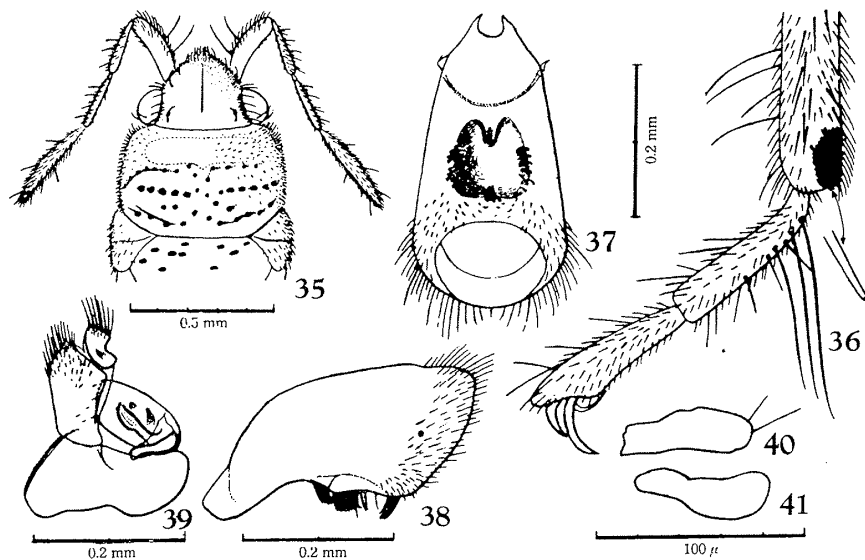
Pseudovelgia hirashimai sp. nov. (Figs. 35-41)

Size: Apterous males 1.77-1.8 mm. long and 0.65-0.67 mm. wide at the level of metathorax. Macropterous male 2.14 mm. long to the tip of hemelytra and 0.85 mm. wide across humeri.

Apterous form blackish with brownish antennae and pale legs. Head black, with a shining, median, longitudinal line, the end of which is a little separated from the base of vertex; eyes brownish black; antennae dark brown excepting base of 1st segment broadly paler; rostrum shining brown with the apical segment black. Pronotal transverse band brownish, unclearly bordered, separated from anterior margin of the disc. Acetabulae black, legs pale brownish yellow, with apex of femora and whole tibiae dark and tarsi darker. Body beneath entirely black.

Body covered with dense pubescence and distinct hairs. Silvery hair markings along inner margin of eyes, lateral and posterior margins of 1st abdominal tergite, on hinder parts of 2nd, 3rd and 6th abdominal tergites, central part of the 7th, inner margin of 1st abdominal laterotergites and on postero-inner parts of 3rd, 4th and sometimes of 5th laterotergites.

Elongate ellipsoid. Head (Fig. 35) slightly longer than half the width across eyes



Figs. 35-41. *Pseudovelgia hirashimai*, apterous male; 35, head and thoracic nota with base of abdomen, legs omitted; 36, apical portion of left-hand posterior leg; 37 & 38, 8th abdominal segment, ventral and lateral views; 39, 9th abdominal segment, lateral aspect; 40 & 41 right- and left-hand parameres respectively.

(26 : 46), with a faint median longitudinal furrow on vertex: eyes relatively small, the width less than half the distance of interocular space (10 : 26.5). Antennae stout, with distinct erect bristles on anterior side, 1st segment the thickest but a little shorter than the 4th and curved before middle; relative lengths of the segments: I : II : III : IV = 28.5 : 19.5 : (2.4) : 19.5 : (1.8) : 35. Rostral apex reaching base of intermediate coxae.

Pronotum (Fig. 35) about two-thirds as long as wide (39 : 60), the disc covered with distinct punctures except for the anterior one-third. Legs long and stout, tibial comb of pegs on anterior legs long and just half as long as the tibiae; posterior tibiae slightly curved, armed with a batch of a number of recurrent headed bristles (a little more than 70) on dorso-interior side of the apex (Fig. 36); basal segment of posterior tarsi (Fig. 36) long and subequal to the apical segment, and with 3 distinctly long swimming bristles in a row near base.

Relative lengths of segments of legs.

	Femur	Tibia	Tarsus ₁	Tarsus ₂
Anterior leg	49	47.5(23.5)	24	
Intermediate leg	61	62	14.5	25
Posterior leg	62	66	23	24

Abdomen a little more than one and a half times as long as head and pronotum combined together (112 : 67). Abdominal tergum slightly narrowed toward apex, 1st tergite coarsely punctured, a little shorter than the 7th which is nearly square. Connexivum relatively broad and obliquely erect.

Eighth abdominal segment (Fig. 37 & 38) subconical, with a somewhat quadrate impression, the anterior margin of impression deeply concaved in middle, a loose tuft of bristles on each side and a rather compact tuft of bristles one each in middle of anterior and posterior sides. Ninth abdominal segment (Fig. 39) a little narrowed beyond middle; both parameres (Figs. 40 & 41) of similar shape.

Macropterous form similar in general colour as in apterous one. Pronotal transverse band paler or yellowish, the band continuous to anterior margin of the disc. Silvery hair markings only inside eyes. Hemelytra blackish with 2 white markings at base, apical two-thirds dark and opaque. Pronotum roughly pentagonal, slightly shorter than wide (72 : 84), the disc distinctly punctured excepting anterior one-eighth. Hemelytra with 4 closed cells, the anterior basal cell entirely, the posterior basal except apical portion and the posterior apical only at base furnished with suberect long hairs, membrane wide, with no visible hairs excluding marginal minute ones.

Holotype, ♂, *apterous* and paratypes, 1♂, *apterous*, 1♂, *macropterous*, Iriomote I., 5. x. 1963, on the upper stream of Nakara-gawa, S. Miyamoto.

This water strider is different from the other species of the genus by relatively long basal tarsal segment of posterior legs, 3 long swimming bristles, structure of 8th abdominal segment. In addition to above mentioned characters, it is distinguished from *P. tibialis* Esaki et Miyamoto by smaller size, relatively longer apical segment of antennae, longer rostrum, curved posterior tibia, etc. The specific name is

dedicated to Dr. Y. Hirashima who was a member of team sent to the islands to study the fauna of the Ryukyus and assisted the present author in collecting the Hemipterous material.

***Xiphovelia curvifemur* Esaki et Miyamoto, 1959**

Xiphovelia curvifemur Esaki et Miyamoto, 1959, pp. 94-97.

Specimens examined: 30 ♂♂, 20 ♀♀, *apterous*, 2 ♂♂, 1 ♀, *macropterous*, Yona, Okinawa I. (new record), 19. x. 1963, on a hill stream, S. Miyamoto.

Distribution: Amami-Oshima and Okinawa I.

***Rhagovelia esakii* Lundblad, 1937**

Rhagovelia esakii Lundblad, 1937, pp. 3-4.

Specimens examined: 11 ♂♂, 11 ♀♀, *apterous*, 1 ♂, 1 ♀, *macropterous*, 26 nymphs, Hateruma-mori, Iriomote I. (new record), 5. x. 1963, on a mountain stream, upper stream of the Nakara-gawa, Miyamoto and Hirashima.

Distribution: Ishigaki and Iriomote Is.

***Halovelia septentrionalis* Esaki, 1926**

Halovelia septentrionalis Esaki, 1950, p. 240.

Specimens examined: 1 ♂, 3 ♀♀, 3 nymphs, Kabira, Ishigaki I., 15. x. 1963, S. Miyamoto; 5 ♀♀, 2 nymphs, Ohama, Ishigaki I., 30. x. 1963, Y. Hirashima. 2 nymphs, Ohara, Iriomote I., 2. x. 1963, K. Morimoto.

Distribution: From Japan (Pacific coast and the Inland Sea) to Formosa through the Tokara and Ryukyu Islands.

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摘 要

この報文は日米合同調査に基づき採集品を主としたものである。従来琉球諸島から知られていた種類は *Microvelia douglasi* Scott ケシカタビロアメンボ (西表島), *Rhagovelia esakii* Lundblad エサキカタビロアメンボ (石垣島), *Halovelia septentrionalis* Esaki ケシウミアメンボ (石垣島, 西表島) の3種にすぎなかつたがこれらの新産地が追加され, また東洋熱帯に分布する *Microvelia diluta* Distant ウスイロカタビロアメンボ (沖縄島), 本州・九州のみから知られていた *M. kyushuensis* Esaki et Miyamoto キュウシュウカタビロアメンボ (石垣島), 奄美大島特産であつた *Xiphovelia curvifemur* Esaki et Miyamoto アマミオヨギカタビロアメンボ (沖縄本島) が新たに記録され, さらに次の4新種・1新亜種が記載された。キュウシュウカタビロアメンボに近縁の *M. morimotoi* Miyamoto モリモトカタビロアメンボ (西表島), ジャバ産 *genitalis* の亜種 *M. genitalis iriomotensis* Miyamoto シリプトカタビロアメンボ (西表島), 前者とともにケシカタビロアメンボに近い *M. uenoi* Miyamoto ウエノカタビロアメンボ (西表島), ナガレカタビロアメンボの類縁種 *Pseudovelia takarai* Miyamoto タカラカタビロアメンボ (石垣島, 西表島) と *P. hirashimai* Miyamoto ヒラシマカタビロアメンボ (西表島) とである。島群によつて分布する種あるいは属が相異なることは興味ある点である。