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FAUNA OF THE THYSANOPTERA IN JAPAN

By

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(Part II)

(With 5 Text-figures)

Suborder TEREBRANTIA HALIDAY
Superfamily AEOLOTHRIPIDEA HOOD
Family AEOLOTHRIPIDÆ HALIDAY

4. *Aeolothrips concinus* sp. nov.

Female Holotype. Colour: reddish cinnamon; prothorax, pterothorax, abdominal segments I to 3, 7 to 8 and 11 wholly reddish brown, segments 4 to 6 dark brown, antennal segments 1 blackish, 2 cinnamon, 3 and 4 yellowish white, 5 and other extremity (8) concolorous with the head, three pair of the legs uniformly blackish brown except all tarsi paler. Wings pale blackish brown with three transparent spots, one of which locating near the base, other two at the middle or at the tip.

Total length of the body: 1.658 mm.; head-length .153 mm., thickness (lateral vein) .153 mm.; fore wings .85 mm., width .128 mm.; prothorax .165 mm.; pterothorax .255 mm., thickness .238 mm.; abdomen 1.003 mm.

Segments of antenna: length (width) I, 38 (25); II, 57 (34); III, 87 (23); IV, 81 (25); V, 54 (25); VI, 17 (20); VII, 17 (10); VIII, 15; IX 12. mc., total length .375 mm.

Length of the spines: on the under sides of the antenna 34 mc., the endocranial thickening 61 mc.; on the hind femora 42 mc.; on the hind tibia 49 mc., on the hind tarsi 16 mc.; on the abdominal segment 9 161 mc.; on the anal segment 170 mc.

Head a little longer than the basal thickness itself, rather rough above the eyes, cheeks more or less arched and constricted behind. Postocular spines short and sharpened. Eyes large, semi-spherical (at the lateral view) occupying approximately a half length of the head, facets coarse with very fine hairs. Mouth-cone sharp conical, a little more than two-thirds as long as the head,

hardly reaching to the posterior margin of the prosternum.

Antennae moderately stout, almost one and a half times as long as the head, geniculated from segment 4, segment 1 proportionally longer than the congeneric species, segments 3 to 4 the longest, 5 relatively long, 6 to 9 gradually short and sharpened at the tip, segment 5 with a pair of long sense-cones which are about three-fourths as long as the segment itself, besides with many hairs, those of which especially on the segment 2 thickened.



Fig. 1.

Aeolothrips concinus sp. nov.

♀

a. Lateral view of the head.

× 96.

b. Lateral view of the right antenna. × 214.

c. Fore right tarsus with the hooks. × 347.

Prothorax long, somewhat less 1.07 times as long as the head, spines of the body very scanty, except the segments 9 and 10, those of which strong and sharp, having the moderate length.

Fore femora and tarsi quite developed, thickened, fore tarsi armed with some remarkable hooks and spines, the middle legs short, the hind femora and tibia the longest of all.

Wings short, hardly reaching to the posterior margin of the abdominal segment; broad, keeping the same breadth throughout to the rounded tip, never constricted at the middle, and no hair on the costal margins of the fore wings, but many long fringes along the posterior margins and about twenty seven to twenty eight of them are double.

Abdomen: segment 1 very small and short, segments 2 to 7 gradually thickening, segments 8 to 10 abruptly decreasing their thickness, ending at the smallest segment 11, with no remarkable spine, except at the segments 9 and 10.

Type material: Holotype ♀ (Ishida No. 114) taken from some flowers of meadow grasses at Konuma, Saghalien, on July 2, 1930, by C. WATANABE, the type is preserved in the Entomological Museum, Hokkaido Imp. Univ.

Type locality: Konuma, Saghalien.

This species may be compared with *A. vittatus* HALIDAY, Europe, but easily separated from it in the measurements and the colour of each antennal segment.

Family *THRIPIDÆ* UZEL

Subfamily *HELIOTHRIPINÆ* KARNY

5. *Heliothrips aino* sp. nov.

Female holotype. Colour: the main body metallic black in a direct light, head, prothorax and pterothorax with a blackish brown shade in a transmitted light, abdomen black, fore femora at the basal two-thirds cinnamon, the outer portion paler, fore tibia pale yellowish brown shaded with deep brown, the middle trochanter pale brownish yellow, the middle femora blackish brown except the extreme basal and distal which are paler, the middle tibia at the basal two-thirds blackish brown, the distal one-third paler, the hind femora and tibia blackish brown, except the basal and distal portion of the tibia which pale are browish yellow, all the tarsi uniformly pale yellowish brown. Antenna: segments 1 to 5 uniformly pale yellowish brown being concolorous with the all tarsi, segment 6 yellowish brown, at the base being paler, segments 7 to 8 pale dark brown. Eyes reddish brown in a direct light, but in a transmitted light black.

Fore wings light grayish brown, darker at the basal, defined by a transparent part, the hind wings paler than the fore wings; some prominent spines of them dark brown.

Total length of the body: 1.18 mm.; head-length .85 mm., width (across the eyes) .182 mm.; prothorax-length .128 mm., width (together fore coxa) .238 mm.; pterothorax-length .255 mm., width .315 mm.; abdominal segment 3 (at the widest part of them) width .366 mm.

Segments of antenna: length (width) I, 19 (27); II, 48 (32); III, 35 (29); IV, 43 (30); V, 43 (24); VI, 30 (21); VII, 10 (8); VIII, 32 (3); total length .261 mm. Length of the spines: on the postocular 16 mc.; on the abdominal segment 9, 72 mc.; on the anal segment 43 mc.

The entire body and legs showing reticulate chitinous wrinkles, which

are the heaviest at the head, and the weakest upon the all legs (except all the trasi).

Head evidently transverse, about 3 times as long as the width, much constricted behind the eyes; cheeks rather concaved; the anterior margin of which strongly aculeate; post-ocular spines small, inter-ocular invisible being in an obscure ground colour. Eyes prominent, but a little protruding; facets coarsely pilose. Ocelli degenerated, the front ocellus invisible, the two posterior ocelli smaller, being longitudinally semilunar.

Antenna proportionally long, somewhat more than 3 times as long as the head, the basal segment of which inserted into a sharp hump between the eyes; segment 3 to 4 with long, sharp and bended horn-like sense-cones which are far longer than the segment itself, all segments entirely covered with long hairs, the segment 4 conspicuously the longest of all, and the last segment provided with a few short, slender hairs at the tip.

Prothorax somewhat more than 1.5 times as long as the head, and about 1.8 times as wide as long, the outline of which being roughened by reticulated wrinkles.

Pterothorax about twice as wide as the prothorax; reticulation of wrinkles on the mesonotum quite heavy and rough, the lateral sides strongly arched and set with a few inconspicuous hairs; metanotum prominent, triangular, smooth. Wings slender, the fore wings slightly extending out to the tip of the abdomen, broadened at the base, a little more than about twice the diameter at the middle, with a longitudinal vein, the costal margin thickened, fringe more or less waved, the hind wings shorter.

Fore and middle legs rather short and thick, the hind legs moderately long, all the tarsi short; surface of the legs entirely set with proportionally long hairs.



Fig. 2.

Heliothrips aino sp. nov. ♀

- a. Head (dotted line invisible ocellus) $\times 153$.
- b. Left hind tarsus with the tibia $\times 370$
- c. Ventral view of the right antennal segments 3 to 8 $\times 285$.

Abdomen oblong-ovate, pointed at the terminal segment, consisted 10 segments, segment 3 the broadest, 8 to 9 being about equilateral triangular.

Type material: Holotype ♀ (ISHIDA No. 438) collected from a some flowers of the meadow grasses and clover at Konuma, Saghalien, on July 2, 1930, by C. WATANABE, the type deposited at the Entomological Museum, Hokkaido, Imp. Univ.

Type locality: Konuma, Saghalien.

Subfamily *THRIPINÆ* KARNY

6. *Taeniothrips karafutensis* sp. nov.

Female holotype. Colour: brown with blackish brown pigmentation at the pterothorax and abdomen; antenna blackish brown except the segments 1 to 3.

All the femora dark brown, all the tibia brown, all the tarsi yellow, the middle and hind trochanters yellowish. Wings grayish brown.

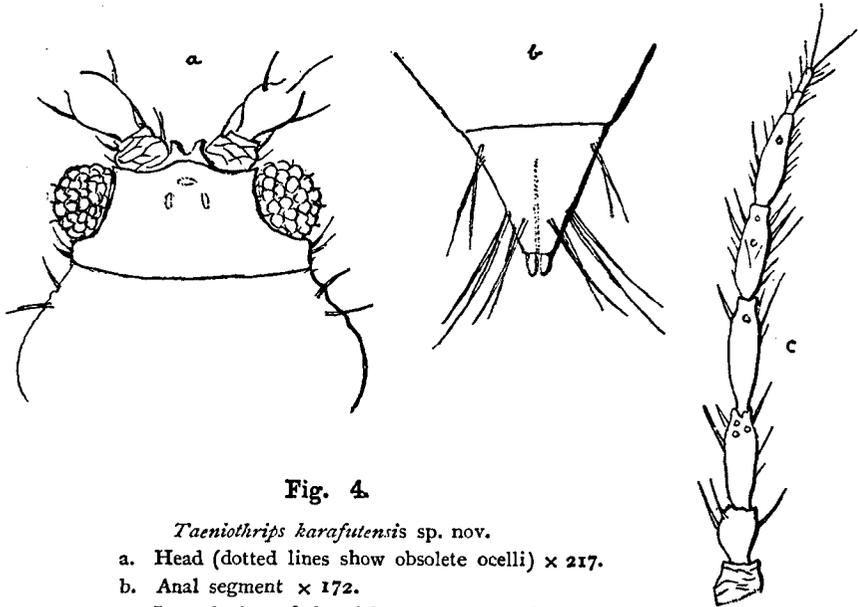


Fig. 4

Taeniothrips karafutensis sp. nov.

- a. Head (dotted lines show obsolete ocelli) $\times 217$.
 b. Anal segment $\times 172$.
 c. Lateral view of the right antenna $\times 228$.

Length of the body: 1.037 mm.; head-length .074 mm., width .038 mm.; pterothorax-length .023 mm., width .039 mm., segments of antenna: length (width) I, 21 (32); II, 40 (30); III, 61 (22); IV, 64 (19); V, 48 (22); VI, 54 (18); VII, 11 (8); VIII, 15 (5) mc.; total length .320 mm.

Length of the spines: on the frons (hooked) 22 mc.; postocular 27 mc.; anterior angles of the prothorax 22 mc.; on the episternum, 19 mc.; on the epimeron 30 mc.; on the abdominal segment 8, 76 mc.; on the costal margins of the fore wings 33-36 mc.; on the subcosctal 84 mc.

Head somewhat broader than the length (about 2.5 times), cheeks at the sides short and slightly convexed, frons straghit, eyes large and protruding, facets coarse, pilose. Antenna long, slightly more than 4 times as long as the head. Prothorax broader than the head; pterothorax and legs normal. Wings strong, reaching to the posterior margin of the abdominal segment 8. Abdomen subovate, segment 3 the broadest, segments 4 to 5 decreasing their breadth, segments 8 and 9 being about equilateral triangle.

Type material: Holotyp ♀ taken on some flowers of clover and other meadow-grasses at Konuma, Saghalien, collected by C. WATANABE on July 2, 1930 (ISHIDA No. 436), the type preserved at the Entomological Museum, Hokkaido Imp. Univ.

Type locality: Konuma, Saghalien.

7. *Taeniothrips konumensis* sp. nov.

Female holotype. Colour: dark brown; antennal segment 1 dark brown, 2 yellow, shaded towards distal, dark brown at the basal portion, 3 pale yellowish at the one-third, yellow at the distal two-thirds, 4 pale yellowish at the one-fifth of the base, pale yellowish brown at the distal four-fifths, 5 to 8 uniformly brown, except at the base of segment 5 which is pale brown. All the femora and the middle and hind tibia dark brown being concolorous with the body, while the fore tibia and all the tarsi yellowish brown. Fore wings brown at the extreme bases. All the spines of the body pale brown in a high power microscope (about 300 times), but in a low power almost black except the hairs of the antenna. Maxirally palpi dark brown; labial palpi yellowish.

Total length of the body: .102 mm.; head-length .094 mm., thickness .128 mm.; prothorax-length .179 mm., thickness .135 mm.; pterothorax-length .209 mm., thickness .169 mm.

Segments of the antenna: length (width) I, 30 (24); II, 41 (34); III, 61 (24); IV, 68 (23); V, 42 (19); VI, 65 (24); VII, 11 (8); VIII, 18 mc., total length .336 mm. Length of the spines: interocellar 88 mc.; uuder sides at the frons of the antenna 51 mc.; on the anterior margin of prothorax 16 mc.; on the posterior angles of the prothorax 81 mc.; on the middle of the posterior margin of the prothorax 112 mc.; on the ventral of the abdominal segment 2, 20 mc. 3, 8 mc.; 4, 51 mc.; 5, 42 mc.; 6, 61 mc.; 7, 38 mc.; 10, 135 mc., on the costal margin of the fore wings 30 mc., 54 mc., 68 mc. Length

of maxillary palp 54 mc. (joint 1, 20 mc.; 2, 14 mc.; 3, 20 mc.); labial palpi 16 mc.

Head very short and smoothly rounded, about .73 times as long as the thick-

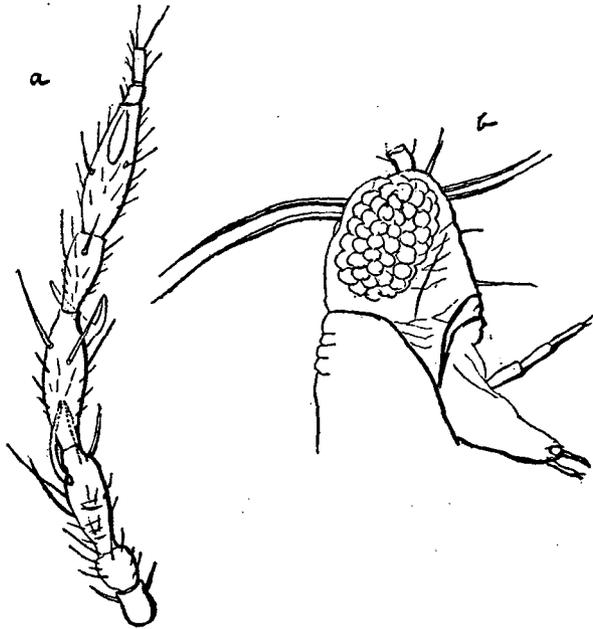


Fig. 3.

Taeniothrips konumensis sp. nov. ♀

a. Lateral view of the right antenna $\times 232$.

b. Lateral view of the head $\times 174$.

ness but at the ventral side (face) elongated to the beak being arched; intercellular spines conspicuously very long, a pair of the spines near the base of the antenna, which stretch out nearly vertically. Eyes very large, occupying about three-fourths length of the head. Ocelli well developed, placed backward near the posterior margin of the head. Mouth-cone connected to the head-shield by the membranous tissue sharply pointed, reaching to the posterior margin of the prosternum. Antenna very long and slender, less than 3.6 times as long as the head; segment 4 the longest, 6 relatively long, with a very large sense-area

at each lateral side near the outer boundary of it, 7 the shortest, at the segment 3 with four long sense-cones, at the segment 4 with a bended fork-like sense-cone. Prothorax large, slightly less than 2 times as long as the head; spines on the anterior angles very short, on the posterior angles long, and on the middle of the posterior margin strong and the longest.

Pterothorax swollen at the dorsal. Legs much stout, fore femora broad and thick, fore tibia armed with two small hooks at the distal end,

Wings fully developed, length .162 mm. extending far beyond the abdomen, not constricted at the middle, fore wings with four or five strong sharp spines, arranged in an almost straight line at the base; hind wings transparent, with eight rows of fine hairs, the third row of which accompanied by a pale yellowish line along the longitudinal vein of the wings, long fringe of them regularly waved.

Abdomen normal, with the segments 2 to 4 being gradually increasing

their thickness, 5 to 10 being gradually reduced, from 8 abruptly reduced to the anal segment.

Type material: Holotype ♀ one taken on some flowers of the meadow grasses and clover on July 2, 1930 by C. WATANABE (ISHIDA No. 449) at Konuma, Saghalien, the type deposited at the Entomological Museum Hokkaido, Imp. Univ.

Type locality: Konuma, Saghalien.

Suborder TUBULIFERA HALIDAY

Superfamily PHLOETHRIPIDEA HOOD

Family PHLOETHRIPIDÆ HOOD

Subfamily PHLOETHRIPINÆ PRIESNER

Tribe Hoplothripini PRIESNER

8. *Gynaikothrips claripennis* KARNY

1914—16 *Gynaikothrips claripennis* KARNY, Beiträge zur Kenntnis der Gallen von Java, 1914, p. 203; 1916, pp. 84-85.

Female. Colour: body dark chestnut-brown, head and abdominal segments, 6 to 9 blackish, darker at the basal two-thirds of the tube; antennal segments 1 to 2 like that of the head, 2 lighter at the distal portion, segments 3 to 8 pale amber yellow. All the femora dark brown like the body, fore tibia pale brownish yellow, slightly darker shaded at the basal portion, all the tarsi yellow.

Fore wings somewhat transparent, brown at the extreme base, otherwise shaded grayish brown, the hind wings all transparent. Prominent body-spines pale dark yellow.

Total length of the body 1.76 mm; head-length .281 mm., width .196 mm.; prothorax-length .166 mm., width .315 mm.; pterothorax-length .298 mm., width .383 mm.; length of the tube .23 mm., width (basal) 83 mc., (distal) 45 mc. Segment of antenna: length (width) I, 36 (39); II, 47 (35); III, 74 (27); IV, 74 (34); V, 74 (30); VI, 68 (27); VII, 53 (27); VIII, 39 (16) mc. Length of the spines: on the posterior angles of segments 6 and 7, 145 mc.; on the posterior angles of segment 8, 145 mc.; segment 9, 190—203 mc.; at the tip of the tube 135—142 mc.; on the terminal spines (faculum) of the hind tibia 68 mc.

Head 1.7 times as long as wide, with sides of the head including eyes, almost straight and very slightly constricted at the base. No spine at the head and prothorax. Eyes large occupying about two-fifths the side of the head. Ocelli large, the anterior one removed to the vertex, the posterior pair contiguous to the anterior inner margins of the eyes. Antennae 1.62 times as

the head, segments 4 to 6 broadly clavate, each segment with two moderately long and pointed sense-cones, segments 7 and 8 clearly divided into two.

Prothorax normal, no spine. Wings narrowed at the middle, all the basal spines of the wing with dilated tips, with seven or eight doubled fringe along the posterior margin of the fore wings.

Abdomen with fairly prominent spines at the posterior angles of each segment. Tube .81 mm. about as long as the head, both the sides very slightly arched, evenly narrowed from the base to the tip.

Locality: Taihoku, Koshun, Sozan, Formosa.

Host: Piper galls. All collections made by Mr. R. TAKAHASHI.

I described this by a single ♀ specimen deposited at the Hokkaido Agr. Exp. St. at Kotoni, which was presented by Mr. MOULTON (MOULTON'S No. 1132).

9. *Gynaikothrips flavus* sp. nov.

Female holotype. Colour: pale yellowish brown, prothorax, meso, meta-thorax, and abdominal segments 1 to 3 paler, except the metascutum (1-2); abdominal segments 4 to 10 gradually shading brown, especially at the tube be-

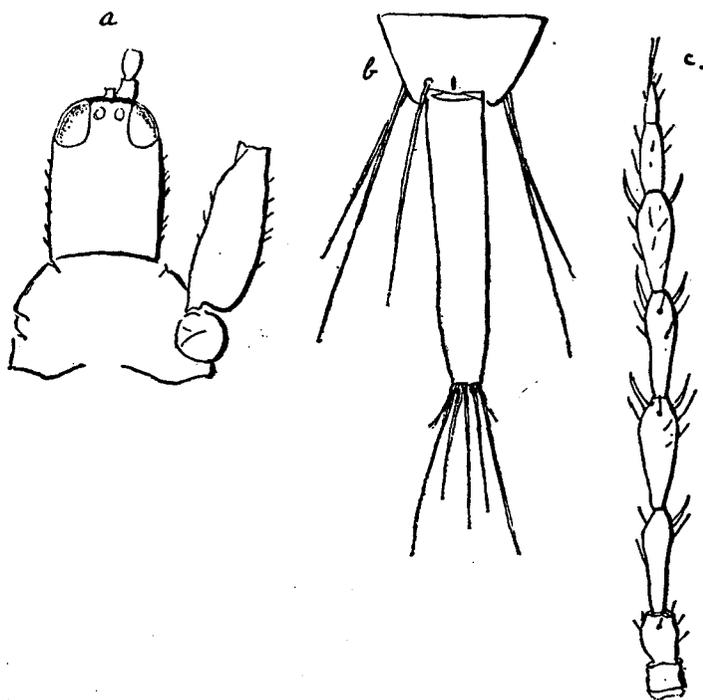


Fig. 5.

Gynaikothrips flavus
sp. nov. ♀

a. Head × 57.

b. Anal segment (tube)
× 106.

b. Right antenna from
upper side × 140.

ing deep brown, their connective tissues pale yellow. Antennal segment 1, slightly paler than the head, 2 at the extreme base deep, but lighter in the medial outer portion, 3 to 8 uniformly pale yellow. All the femora concolorous with the head, but slightly lighter, fore tibia light brownish yellow, fading to the distal portion, the middle tibia of the basal half pale yellowish brown, with the distal part paler, the hind tibia at the basal three-fifths pale yellowish brown, with distal two-fifths paler, all the tarsi concolorous with the antenna (segment 3 to 8), with a small spot at the last joint. Eyes transparent, at the inner margin with a dark shadow at the outer margin. Ocelli pale yellow. All wings transparent, having very slight yellowish shade, with light yellowish brown hairs. All the body-spines pale yellowish brown.

Total length of the body: 2.193 mm.; head-length .340 mm., width .247 mm. Segments of the antenna: Length (Width) I, 42 (47); II, 57 (38); III, 101 (34) IV, 97 (41); V, 97 (41); VI, 93 (34); VII, 61 (25); VIII, 41 (15); Total length .595 mm. Prothorax-length .221 mm., width .424 mm., (with the coxa) mesothorax-length .323 mm., width .536 mm., metathorax length .170 mm., width .544 mm.; abdominal length 1.70 mm., (except the tube), segment 2 the widest .493 mm.; tube length .40 mm., basal width .074 mm., distal width .055 mm. Femora: fore and middle both .264 mm., hind .340 mm. Length of the spines; postocellar 27 mc.; postoculler 61 mc.; on posterior angles of the prothorax 122 mc.; on the abdominal segments 9; inner and outer 315 mc., on the tube 264 mc.

Head large, with fine reticulated wrinkles; eyes occupying about two-fifths the sides of the head, spines of postocellar small, postocullar spines of a moderate length. Eyes with very fine facets. Ocelli large, the anterior removed to the top of vertex, the posterior pair near close by the inner margins of the eyes. Mouth-cone broadly rounded, nearly reaching to the prosternum, labrum constricted at near the end.

Antenna 1.75 times as long as the head, segment 3 the longest, 4 and 5 with the same length and width, 6 to 8 gradually lessening either length or width; with a sharp pair sense-cone at the both sides of segments 3 to 6.

Prothorax of a moderate size, being typical of the genus, dorsal surface roughly reticulated, at the middle or at the posterior parts with an irregular network; spines on the posterior angles long and strong, here and there with small hairs at the surface of it. Mesothorax the widest, at both sides parallel, metathorax gradually narrowing to the posterior margin, metasternum very short, reaching to the base of the hind coxa. Legs moderately developed, fore femora thickened, fore tarsi very short and stout, evidently showing two joints, the first joint armed with four short leaf-like teeth in its distal edge, the last

joint of which provided with a cup-shaped end, the middle, and the hind femora, the same tibia as well as tarsi normal.

Wings transparent, fairly developed, reaching to the abdominal segment 4, not constricted at the middle, with long and slender hairs.

Abdomen: segment 2 the widest, 3 to 9 being gradually reduced their width, segments 3 to 8 with two spines at each posterior angle, those of which are about 132 mc., a spine on the segment 9 very long, being nearly the same with the tube. Tube long, a little more than 1.1 times as long as the head, straight at both the sides slightly narrowed to the tip, spines of the tip not so strong and prominent.

Male allotype: Colour as in the female holotype, and the body longer than the female (male type with an extended abdomen). Abdominal segments gradually reduced in the breadth from segment 3 to the stout tube, the outer pair of the spines near the posterior margin of the segment 9 long and strong, being about the same as long as the tube itself.

Total length of the body 2.635 mm., (abdomen extended); head length .34 mm., width anterior .23 mm., posterior .196 mm.; prothorax-length .213 mm., width (including fore coxa) .40 mm.; mesothorax length .213 mm., width .468 mm.; metathorax length .23 mm., anterior width .468 mm., posterior width .40 mm.

Segments of the antenna: length (width) I, 41 (46); II, 57 (30); III, 101 (31); IV, 101 (36); V, 97 (34); VI, 88 (28); VII, 68 (22); VIII, 34 (11); total length 595 mc. Length of the spines: postocular 101 mc., on the posterior angles of the prothorax 111 mc.; on the abdominal segment 9, outer 176 mc.; inner 189 mc.; annal 135 mc.; a prominent coxal spines probably 68 mc., (spines broken, estimated by the diameter of the remaining of it).

Type material: Holotype ♀ allotype ♂ and 9 ♀, 1 ♂ paratypes collected on *Eicus retusa*, July 2, 1920 by Mr. R. TAKAHASHI, Types (ISHIDA Nos 981, and 982).

Type Locality: Taihoku, Formosa. the holotype is preserved in the Entomological Museum, Hokkaido Imp. Univ. and the paratype is in the authors private collection.

摘 要

本編は (Part I) よりの續きにして樺太産の總翅目 4 種孰れも新種と認めたり。尙臺灣産のもの二種就中一種は新種にして、他は KARNY 氏により發表せられたるも重複を顧みず記載せり。即ち次の六種をす。

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| 4. <i>Aeolothrips concinus</i> sp. nov. | 樺太産 | 7. <i>Taeniothrips komumensis</i> sp. nov. | 樺太産 |
| 5. <i>Heliiothrips aino</i> sp. nov. | 樺太産 | 8. <i>Gynaikothrips claripennis</i> KARNY | 臺灣産 |
| 6. <i>Taeniothrips karafutensis</i> sp. nov. | 樺太産 | 9. <i>Gynaikothrips flavus</i> sp. nov. | 臺灣産 |
- 番號は前より繼承のものとするべし。