

FIVE NEW SPECIES OF PSYLLA FROM NORTH-EASTERN JAPAN.

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The present paper is the outcome of an investigation into the faunal distribution of insects in Iwate Prefecture carried out with the aid granted to the author by Saito Gratitude Foundation, Sendai, Japan. The descriptions of five new species are given here, other species common around here being as follows;

1. *Anomoneura mori* SCHWARZ (Kuwa-kijirami) on mulberry trees.
2. *Trizoma nigra* KUWAYAMA (Kurotogari-kijirami) on *Styrax* spp.
3. *Psylla elaeagni* KUWAYAMA (Gumi-kijirami) on *Elaeagnus* spp.
4. *Psylla coccinea* KUWAYAMA (Beni-kijirami) on *Alcebia leucia*.
5. *Psylla pyrisuga* FORSTER (Nashi-kijirami) on pear trees.
6. *Psylla malivorella* MATSUMURA (Kuroringo-kijirami) on the apple tree.
7. *Psylla abietis* KUWAYAMA (Todo-kijirami) on *Abies* spp.
8. *Psylla yamatonica* KUWAYAMA (Yamato-kijirami) on *Albizia Juribrissin*.

9. *Psylla poligoni* SHINJI n. sp. (Niwatade-kijirami)

Adult:—Body not humped, light greenish in colour, without prominent hairs. Head divided by a black longitudinal suture, the ground colour white, with maculation black, between the eyes much broader than long and including the eyes as broad as mesothorax which is by far the broadest part of the body, provided with no prominent hair, muscle lobes connecting two eyes reddish yellow. Compound eyes, dark red, almost black. Frontal cones prominent, as high as broad and blunt, at the apex white. Antennae 10-articulated. I and II subequal, and both are as wide as the front tibia, infuscated. III by far the longest, being almost one and half times as long as IV, the rest of the articles subequal in length. III~VIII white while IX and X are black. Terminal setae two in number and almost as long as VIII. Thoracic parts grayish except the infuscated margin, with muscle lobes beautiful thick yellow. Wings hyaline, with veins yellow, stigma almost reaching the apex of the wing very narrow and yellow, radial sector curving slightly so as to make the middle part of the cell somewhat narrower, media arising at about the middle of the cubital trunk, once branched, second cubital vein infuscated. Hind wings provided with both media and cubitus. Legs rather short, second tarsus including claws black, the remaining parts concolourous with the body. Hind legs somewhat heavier than the others, provided with about 6 black spines arranged like comb teeth at

the apex and the first tarsus with about two such but much shorter ones. Abdomen plump in females and narrower in males. Every tergum with a black transverse band except 9th. There are also a pair of black maculae on each of the tergum on its submarginal part. In the female the upper genital valve as long as the lower. In males upper genital valve as long as the lower, clasper small.

Measurements in mm:

Length of body	2.1	Width of abdomen	0.7
Length of fore wing	3.1	Width of fore wing	0.8
Length of antenna	0.9	Length of hind tibia	0.4

Nymph:—Body oval, without prominent hairs except on the caudal region. Head divided, including the eyes as broad as the thoracic parts with which it is fused. Antennae 10-articulated, horn-like, articles being all of the same length and width. Eyes dark red. 3 pairs of legs are all like. Abdominal part flat, almost circular, first 5 segments are clearly demarked from the rest as well as each from the other, having broad, somewhat dusky transverse band on the tergum of each, the rest of the abdominal segments are fused, forming the caudal region which is provided with many hairs and concolourous with the body.

Host: *Polygonum aviculare*.

Date of collection: July 28, 1937.

Type locality: Morioka, Iwate.

10. *Metapsylla robiniae* SHINJI n. sp. (Saikachi-madarakijirami)

Adult:—Body with rather a few short hairs, yellowish (in alcoholic specimens). Head much broader than long, with prominent genal cones of yellow and a pair of large U-shaped projections in front. Proboscis reaching beyond the front leg, terminal article black. Eyes very large, situating on the sides of the head, dark red. Ocelli three in number, red. Head divided, usually dusky with many transverse black wrinkles. Antennae 10-articulated, subequal with the dorsum of the thoracic parts, I and II dusky, apices of III~VI inclusive and the whole of 9~10 black, the rest being concolourous with the body, I about twice as big as the 2nd, II about as long as wide, III and VI somewhat longer than the rest which are subequal in length, X with a pair of bristles, one of which much longer than the other. Thorax dusky to black with fine black reticulation all over, 4 longitudinal stripes on the dorsum of the mesothorax as well as marginal portion as a whole strongly infuscated. Legs short, with a few hairs, for the most part infuscated. On the apex of the hind tibia there are a pair of short and long horn-like spurs each. First tarsi also have a pair of black spurs. Wings rounded at the apex, white with veins yellow. Fore wings with black dots and patches as follows:

Along the costa about 16 small dots; along radius 7, on radial sector

10; on the stalk of these 2~3, 1 at the junction; on MI 5, on MII 3, at their junction 1, on the stalk of these two 7; on CI 8, on CII 4, at the junction 1, on the stalk of these two 3; on the stalk of MC I large, on the stalk of RMC 3; on the anal 5, between Costa and RMC 16, in stigma an aggregate macula of about 32 dots, in between R and RS about 20; between R and C 3 an aggregate of about 30; between M stalk and C stalk 18; between RMC stalk and Anal 55 in about 4 or 5 rows. Outer and inner margins of the wing are as far as the junction of two M's usually black, but in many specimens the spaces midway between RS and M and also MI and MII remain white. Hind wing is white.

Abdomen yellow, with the dorsum of the segments III on to VIII provided with black transverse bands. Of the genital valves the upper very much longer than the lower, both being black. Penis longer than lower valve.

Measurements in mm:

Length of abdomen	1.4	Width of abdomen	0.6
Length of fore wing	2.0	Width of fore wing	0.9
Length of antenna	0.6	Length of hind tibia	0.3

Nymph:—Body is usually of inverted guerd in shape, with wing pods protruding. Head and thorax yellow, abdomen green. Head broader than long, slightly dusky in front. Antennal articles III and IV and VII, VIII, IX, X or IX and X are usually found undifferentiated; I and II dusky, 6~10 black. Eyes very large, dark red, ocelli red. Proboscis reaching beyond the front coxa, terminal article black, the remaining portion being yellow. Legs short and stout, tarsus is usually 1-articulated, black. Abdomen greenish yellow, usually not much differentiated, without long hairs.

Host plant: *Robinia pseudoacacia*.

Date of collection: August 20, 1937.

Type locality: Morioka, Japan.

Notes: This species attacks terminal shoots. Leaves so attacked are found, when grown, folded together inclosing the nymphs within. The nymphs usually emit rather short bluish cottony mass of secretion. Shoots badly infested with this insects are often found deformed or at least stunted in their growth, and in many cases withers in the long run.

11. *Psylla tadeana* SHINJI n. sp. (Tade-kijirami)

Adult:—Body with rather a few hairs, light brownish yellow. Head divided in middle, wider than long, with a pair of yellowish genal cones in front. Proboscis reaching beyond the first pair of legs, terminal article black, the remaining portion being concolourous with the body. Antennae 10-articulated, much longer than the largest width of the head, being subequal in length to the front tibia and its first tarsal joint taken together; two apical articles black, the rest of the articles being concolourous with the body.

I much larger than II. II longer than broad. These two and the rest are all imbricated, III by far the longest, IV, V and VI subequal, all being much shorter than III. VII and VIII subequal, both being shorter than VI. IX and X again subequal, both being shorter than VII, X with a pair of yellowish spur on its apex. Eyes prominent, dark red. Ocelli also well defined, red. Thoracic lobes prominent, much raised up on the dorsum, not infuscated except the four margins which are black. Prothorax with 2 and the mesothorax 4 beautiful longitudinal bands of ochre yellow on the dorsal surface. Legs short, concolourous with the body. Hind tarsi with about 4 frontal and 6 caudal spurs of black. Wings subhyaline with veins yellowish, very long and narrow, covering completely the tip of the genital valves, radius short and straight, being almost perpendicularly bent up to the subcosta. Apex of each vein and the area lying on both sides of radius in addition to a broad band passing the junction of M1 and M2 and ending at the anterior as well as at the inner margins of the wing are infuscated. Hind wings subhyaline with veins somewhat dusky. Abdomen yellowish with dark brown to black transverse band besides a pair of black lateral papillae on each one of the segments II~VII, upper genital valve much longer than the lower.

Measurements in mm:

Length of the body	21	Length of the fore wing	18
Width of the fore wing	8	Length of antenna	6.5
Width of head including the eyes	5.5	Length of hind tibia	5

Host plant: *Polygonum minus* var. *interruptum*.

Date of collection: Sept. 8, 1937.

Type locality: Morioka, Iwate Prefecture.

Distribution: Honshû, Shikoku and Kiushû, being very commonly met with in discarded rice-fields in Miyakonojô, Zentsûji, Shizuoka etc..

Notes:—The plant attacked by this species curls its leaves right side out, and the insects feeding there usually secrete somewhat bluish cottony threads which are often seen even to the naked eye.

12. *Psylla itadori* SHINJI n. sp. (Itadori-madarakijirami)

Adult:—Body dirty yellow, with usually light brownish tint. Frontal tubercles conical, large, slightly infuscated. Head broader than long, divided in middle by a black longitudinal suture, infuscated a little and black at the margins. Eyes large, black, arising from the sides of the head. Ocelli reddish. Proboscis reaching beyond the front leg, apical article black. Prothorax broader than the head but not so broad as the head including the eyes. Meso- and meta-thoracic parts infuscated with 5 grayish longitudinal stripes on the dorsum of the mesothorax. Legs with tibiae and their spurs and claws black, the remaining portion being concolourous with the body. Hind and often the middle tarsi with about 12 large blunt and black spurs

and the first hind tarsi with about 4 of them. Wings subhyaline, broad and rounded at the apex. Fore wings with radius almost perpendicular to subcosta and radial sector which is nearly one and half times as long as the radius, almost straight. Medial stalk arising at about the middle part of the radial stalk, basal portion usually obscure, almost as long as radial sector, both M1 and M2 short and subequal. Cubital stalk arising at about $\frac{1}{4}$ part of medial stalk which arises in turn at about the middle part of the cubital stalk, C1 much curved up, about 3 times as long as C2 which is almost straight. The following places are maculated or infuscated: a wide area on both sides of C1; along C1 and continuing to cover the apical half of the cell enclosed by it, a transverse region extending from the infuscated part of the cell and traversing it to the costal margin, and area extending along the radial sector and M1 and M2 as well. Legs short with femora infuscated, the remaining parts being concolourous with the body, hind tibia with about 10 black and blunt spurs and the first tarsus with about 4. Abdomen yellowish in colour with infuscated transverse band on each of the segments II~VIII. Genital valves with some long hairs, the upper being much longer than the lower.

Measurements in mm:

Length of body	1.70		
Length of fore wing	2.00	Width of abdomen	0.90.
Length of antenna	0.65	Length of hind tarsus	0.35

Host plant: *Polygonum reynoldii*.

Type locality: Morioka, Iwate Prefecture, Japan.

Date of collection: Sept. 20, 1937.

Notes: This species attacks the underside of leaves as well as shoots and flowers. When attacked leaves curls in toward the underside and enclose the insects within. In the case of flowers they become stunted in growth and congregate all in a body. The insects are very common during the months of July to October.

13. *Psylla artemisifoliae* SHINJI n. sp. (Yomoginoha-kijirami)

Adult:—Body devoid of prominent hairs except the genital valves, light yellow. Head including eyes wider than prothorax and itself wider than long. Eyes arising from the side of the head, very much prominent, dark red. Ocelli prominent, reddish. Proboscis reaching beyond the front pair of legs, apical article infuscated, the remaining portion being concolourous with the body. Antennae of 9 articles, slightly longer than the width of the head including the eyes. I and II slightly and IX and X heavily infuscated, the remaining articles being concolourous with the body, imbricated throughout, I and II nearly subequal, III the longest, about the same length as the sum of IV and V which are subequal, VI and VII subequal, both being somewhat longer than IX or X, X with a pair of long spurs.

Thorax well developed, infuscated about the margins and with five grayish longitudinal stripes on the dorsum of mesothorax. Legs rather stout, tibia usually infuscated and femora usually and tibia often infuscated. Wings subhyaline with veins yellow. Fore wings with radius short and straight, being almost perpendicular to the subcosta, radial sector long, slightly curved, media arising at about the middle point on the radial stalk, M1 almost perpendicular to the inner margin of the wing, M2 curved up and about 4 times as long as M1, cubital stalk arising at about the middle point on the medial stalk to which it is equal in length, C2 much shorter than C1. Hind wings with usual venation.

Abdomen yellowish in colour with infuscated transverse band on each of the segments II~VIII. Genital valves with some long hairs, the upper being longer than the lower, the apices of both infuscated.

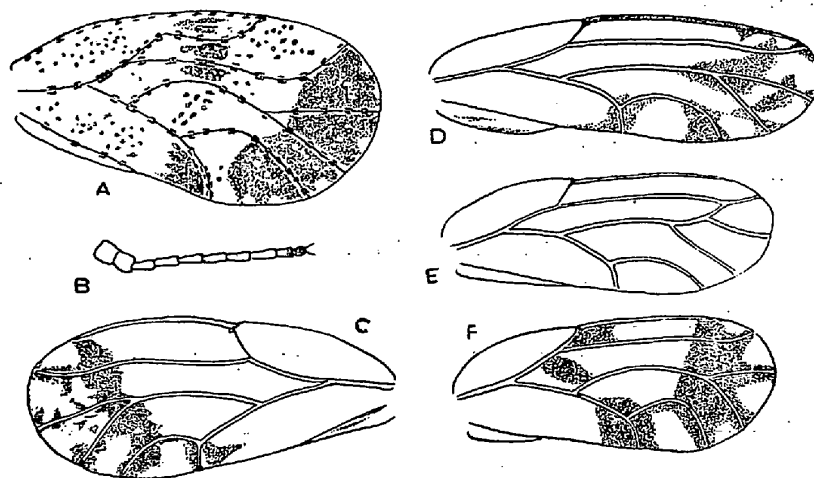
Measurements in mm:

Length of the body	1.80	The greatest width of abdomen	0.65
Length of fore wing	2.20	Width of abdomen	1.10
Length of antenna	0.75	Length of hind tarsus	0.45

Host plant: *Artemisia vulgaris* L.

Type locality: Morioka, Iwate prefecture, Japan.

Date of collection: Sept. 30, 1937.



A: Fore wing of *M. robini* SHINJI; B: Antenna of *P. polygoni* SHINJI;
 C: Fore wing of *P. polygoni* SHINJI; D: Do. of *P. tadeana* SHINJI;
 E: Do. of *P. artemisifoliae* SHINJI; F: Do. of *P. itadori* SHINJI.