

TIPULA FALLAX AND OTHERS.

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For sometime I have had in my possession a number of species of *Tipula* with wing markings similar to *T. fallax*, *hebes* and *grata*. *T. hebes* may at once be distinguished by the yellow antennæ with the black rings at the base of each segment beyond the third and by the first posterior cell being black only in the base. All attempts to separate the others on the basis of wing markings or other markings on the body have proved futile. An examination of the hypopygium shows that eight different species, the three just mentioned and five new ones, are represented in the lot.

T. fallax is represented in my collection by specimens from



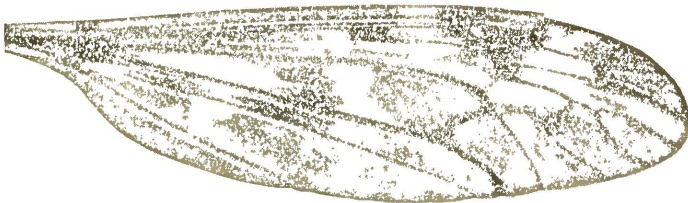
Fig. 1. Wing of *Tipula fallax* Lw.

Stanford University and vicinity; Keyport, Washington; Sitka, Alaska. A single female from Oak Creek Cañon, Ariz., is also placed here but it is not impossible to definitely place the female without the males.

Another group from Keyport and Olympia, Washington, is represented by ten males and possibly two females. The markings of the wings and body are similar in almost every respect except that as a rule, but not always, the markings are a little more intense. I have always confused this species with *T. fallax* and Snodgrass, in his article on the "Hypopygium of the Tipuladæ," Trans. Amer. Ent. Soc., Vol. XXX, No. 3, relying on my identification, figures this species under that name. A description of the species follows:

***Tipula olia* sp. nov.**

Brown: Head grayish with faint median and lateral brownish lines; rostrum yellow with brown stripes laterally; palpi, brownish yellow, darker toward the base; first and second segments of the antennæ yellow, others brown; mesonotum with three broad brown stripes, the median one is entirely divided by a broad fusiform grayish line, the lateral stripes are also marked but not completely divided by a broad gray line; metanotum and scutellum yellowish gray, the latter with two faint brown spots; pleura grayish with a rather distinct brownish line reaching from the neck almost or quite to the base of the wing; halteres brownish, knobs darker, base yellowish; legs yellowish; tarsi and tips of femora and tibiæ darker; abdomen yellowish brown, with interrupted median and lateral brown lines; posterior margin of each segment grayish; eighth sternite wholly brown, produced posteriorly and ending in three blunt conical projections which are covered with thick short yellow hairs; hypopygium (see Snod. fig. of *T. fallax*) much elongated; ninth tergite brown, lateral margins converging slightly, posterior margin strongly chitinized, extreme tip produced downward into two short sharp curved claws; ninth sternite brown, lighter posteriorly, no pleural sutures, posterior ventral margin deeply notched and provided with two long, slender, sinuous, blade-like proc-

*Tipula olia* Doane

esses; lateral margins of the sternite with deep oval incisions which are filled with a whitish membrane; the points that project just above these incisions bear a pair of pendulous appendages which are made up of a somewhat quadrate basal portion and three arms, the upper and middle arms are short incurved, claw-like and chitinous at the tips, the lower arm is long, slender, pointed and membranous; the first pair of appendages are a little more than twice as long as wide with the tip bluntly rounded; the second pair of appendages consists of a membranous basal portion and two strongly chitinized lobes, the largest one triangular and sharp pointed, the smaller one rounded at the tip; the third pair is membranous, roughly quadrate, broadly joined to the middle appendage; the upper margin is provided with fine short hairs and a weakly chitinized ridge sets off a small darker lobe on the posterior dorsal corner; the females that I think belong with this species have the upper valves of the ovipositor long, slender and blunt at tip; lower valves shorter, broad, obtuse; wings, brownish with several whitish hyaline spots in nearly all the cells; a whitish, hyaline, interrupted band beginning in the anterior margin just beyond the stigma extends through the submarginal, first posterior and discal cells and along the edges of the fourth and fifth posterior cells to the posterior margin of the

wing; first posterior cell almost wholly white, the base and a spot along the anterior margin about the middle being brown. Length, 15 mm., wing, 17mm. Keyport, Wash., 9 males, 2 females; Olympia, Wash., 1 female.

The hypopygium of *T. fallax* differs from *T. alia* in the following particulars: The blade-like processes arising from the posterior incisions of the ninth sternite are broadly triangular, the tip ending in a sharp backward curved claw; the pendulous appendage has but two arms, the middle one being represented by a very short projection, the lower arm is shorter and more slender; there are also other less conspicuous differences but these will serve to separate the two species.

Tipula madera sp. nov.

Brownish: Head brownish yellow, with a faint median and plainer lateral brown lines above; rostrum yellow, with brown stripes laterally; palpi brown, lighter toward the tips; first and second and the extreme base of the third segment of the antennæ, yellow; others, brown; mesonotum grayish pruinose, the usual three brown stripes divided in such a way as to appear as eight separate lines, the lateral pairs uniting anteriorly; metanotum and scutellum grayish with a median brown line, scutellum with brownish spots on the sides; pleura grayish pruinose with a distinct brownish line reaching from the neck to the base of the wings, lower half of sternopleura and the margins of the hypopleura brown; halteres yellow; knobs brown, tips whitish; legs brownish yellow; tarsi and the tips of the femora and tibia darker; abdomen light brown with distinct median and lateral, interrupted, brown lines; eighth sternite brown, yellowish posteriorly, posterior margin with two deep incisions making three distinct lobes, which are covered with short, thick, yellowish and brownish hairs; hypopygium much elongated as in *T. fallax* and *T. alia*; ninth tergite brown somewhat narrowed posteriorly, posterior margin more strongly chitinized, the median portion produced into a short, broad, three-pointed, downward-projecting tooth; ninth sternite brown, yellowish posteriorly, divided ventrally by a broad more membranous area, no pleural sutures; posterior margin with a broad crescent-shaped incision, from the middle of which arises a pair of long strap-like appendages, the inner edges of which are straight, parallel; the outer edges bisinuate; lateral margins with deep oval incisions which are filled with a whitish membrane; the points that project just above these incisions bear a pair of quadrate, weakly-chitinized appendages, the posterior margins of which are deeply notched; the two triangular teeth thus formed are more strongly chitinized and slightly incurved toward the tips; first pair of appendages but little longer than broad; upper edge of second pair of appendages divided into two strongly chitinized unequal teeth; third pair membranous with the base broadly joined to the second; upper valves of ovipositor of female long, narrow, obtusely pointed; lower valves reaching to or beyond the middle of upper valves; wings brownish with several whitish hyaline spots in nearly all the cells, making a pattern exactly

like that on the wings of *T. alia* except that the brown is a little more intense. Length 18 mm.; wing 20 mm. Corte Madera Creek, near Stanford University, Cal., 2 males, 1 female. Stanford University, 2 males, 1 female.

Although the markings and general appearance of this species are very like *T. fallax*, the structure of the lateral appendages of the ninth sternite will enable one readily to separate them.

***Tipula newcomeri* nov. sp.**

Brown: Head brownish yellow, with a broad, dorsal, brown stripe; rostrum yellow; palpi brown, the last segment lighter; first and second joints of antennae yellowish, others brown, cylindrical; collar light brown with three brown spots; mesothorax light brown, with three brown stripes, each of which is divided by a brownish yellow line; coxæ and pleura hoary; scutellum and metanotum yellowish brown with a narrow, median, brown line; halteres brown; extreme base yellow; knobs darker brown; legs yellowish brown, tips of the tibiae, femora and tarsi, darker; abdomen brownish yellow, with a broad dorsal brown line and narrow interrupted lateral lines; posterior margin of each segment lighter; eighth tergite almost wholly brown, lighter posteriorly; eighth sternite broad, somewhat produced posteriorly, posterior half, particularly the posterior margin and two light colored areas on the posterior lateral angles, thickly covered with short, soft, yellow hairs; ninth tergite wholly brown, a little longer than wide, posterior margin somewhat depressed and with a pair of short, black, downwardly-projecting, hook-like processes; ninth sternite brown, completely divided below by a broad suture which is filled with a white membrane; from the posterior lateral margins of the suture arises a pair of rather long, thin, sharp-pointed, blade-like processes; lateral margins with deep, oval incisions which are filled with a whitish membrane; the points just above these bear a pair of appendages consisting of a slightly chitinized base with three processes, the upper one spatulate and black-tipped, the middle one triangular, sharp-pointed, the lower one long, narrow and slightly curved toward the tip; first pair of appendages broad, brown, tips rounded; second pair rather flattened, edge and tips black; posterior margin of third pair with a deep median incision dividing the appendage into two lobes, the lower one largest, yellowish; the upper one oval, brown, with short brown hairs; the upper valves of the ovipositor long, very slender, tips rounded, lower valves rather long, narrow, sides parallel, tip rounded; wings with a brownish tinge, with several irregular whitish spaces, and darker brown spots; two irregular whitish spots in the middle of the second basal cell, the first sending an arm across the anal into the axillary cell, the second sending an arm into the anal cell; the posterior half of the first basal cell, the bases of both the marginal cells, the submarginal, and the first and fourth posterior cells, whitish; discal cell, almost wholly whitish; distal portion of the first posterior cell somewhat lighter, a brownish spot over the origin of the praefurca and a larger one over the stigma; veins brown. Length male 13 mm., wing 15 mm.; female 15 mm., wing 15 mm. Deer Park, California. Four males, four females.

The hypopygium differs from *T. alia* in the following particulars: ninth sternite divided; the blade-like processes arising from the posterior margin are shorter and more triangular, in this respect more like *T. fallax* from which it may be separated by the character of the pendulous appendage which has three arms as in *T. alia* instead of two as in *T. fallax*.

***Tipula coloradensis* sp. nov.**

Brown: Head light brown with a broad, brown line above; rostrum yellowish, darker above; palpi brown, lighter toward the tips; first and second segments of antennæ yellow, others brown, cylindrical; antennæ of female with third and fourth joints more or less yellow; collar yellowish, with a median brown spot; mesonotum grayish brown, with three brown stripes each divided by a rather broad, grayish line; the gray line dividing the median brown line much narrowed anteriorly; pleura hoary; mesopleura and sternopleura much darker; a brown line running from the upper angle of the mesopleura to the neck; scutellum yellowish brown with a median darker line; metanotum dark brown; halteres yellowish toward the base, darker toward the tip, knobs brown; legs yellowish, tarsi and tips of femora and tibiæ darker; abdomen yellowish brown, darker posteriorly; eighth sternite wholly brown, posterior portion with very thick rather long yellow hair, posterior margin with a median tuft of yellow hairs and with a pair of rather broad, flat, somewhat triangular, yellowish appendages which are folded back over the posterior-lateral portions of the sternite; ninth tergite very dark brown, about twice as long as wide; posterior lateral angles ending in short blunt points below which is a pair of short triangular strongly chitinized plates; ninth sternite divided below by a rather broad suture which is filled with a whitish membrane, posterior margin with a pair of long twisted heavily chitinized processes which are narrowed toward the tip and then suddenly broadened into flat backward projecting plates; no pleural suture; first pair of appendages broad at the base, narrowing toward the tip which is broadly rounded; the lateral appendages, arising from above the lateral membranous incisions, consist of broad, rather weakly chitinized basal portions from the anterior margins of which projects a short two-pointed process and from the posterior margin a long rather broad membranous lobe with the tips distinctly incurved; upper valves of ovipositor long and very slender; tip rounded; lower valves not reaching to tip of upper valves, broader, flat, tip rounded; wings with a brownish tinge, with a few indistinct whitish spaces as follows: one in the posterior portion of the second basal cell beyond the middle, two near the middle of the anal cell, a larger one extending from the base of the second marginal cell through the discal cell and fading out along the margins of the fourth and fifth posterior cell; distal portion of first posterior cell somewhat lighter; stigma and a small spot over the origin of the prefurca brown; veins brown. Length male and female 15 mm.; wing 15 mm. Tabernash, Col. One male, three females.

A single somewhat lighter female from Arizona seems to belong here also. The brown on the wings of this species is much less intense than in *alia*. The shape of the blade-like processes arising from the posterior margin of the ninth sternite and the pendulous appendages are also quite different.

***Tipula rohweri* sp. nov.**

Grayish brown: Head grayish pruinose with a median brown line above; rostrum light yellow, with brown lateral stripes; palpi brownish, lighter toward the tips; first two segments of antennæ yellow, basal portion of third yellowish; distal portion brownish, other segments brown; mesonotum light brown, each of the three broad brown stripes divided by a grayish brown line; scutellum and metonotum grayish, lighter laterally; pleura grayish pruinose, an interrupted brown line running from the neck to the base of the wings; halteres brown, whitish at the base; legs yellowish brown; tarsi and tips of femora and tibiæ darker; abdomen light brown with a median, lateral, broad, interrupted, brown band, posterior lateral margin of each segment grayish; eighth sternite brown, posterior margin lighter, with two incisions dividing the margin into three prominent lobes each furnished with an abundance of short yellowish hairs; ninth tergite brown, posterior margin with a downward projecting process which ends in two sharp lateral claws and a median blunter tooth; ninth sternite brown, lighter posteriorly, no pleural sutures, divided below by a rather broad more membranous portion from the posterior margin of which arises a pair of long slender blade-like processes which bend first upward then backward at almost right angles; lateral margins of the sternite with deep oval incisures which are filled with whitish membrane; just above these there arises a pair of membranous appendages which terminate posteriorly in two more strongly chitinized projections, the upper ones broader and somewhat spoon-shaped and the lower narrow and claw-like; upper pair of appendages less than twice as long as wide; second pair of appendages ending in two strongly chitinized teeth, the larger one of which bears on one edge a conspicuous coat of fine yellow hairs; lower pair of appendages comparatively small, membranous; base broadly joined to the second; wings brownish with whitish hyaline spots in all the cells, making a pattern like that on the wings of *T. alia*. Length 15 mm.; wing 17 mm. Florissant, Colo., 3 males and 1 female (type). Big Horn Co., Wyoming, 2 males, 3 females.

This species differs from *T. grata*, which it most closely resembles by being darker the whole body and wings having a grayish rather than a yellowish tinge; antennæ much darker brown; the lower claw-like arm of the lateral membranous appendage much shorter and stouter.

The following table will aid in separating the species:

- | | |
|--|---------------------|
| 1. Antennæ yellow, base of each segment black | .hebes |
| Antennæ, except basal segments, brown | 2 |
| 2. Lateral appendages of the ninth sternite (below the pleural appendages)
without a lower pendulous or claw-like arm | madera |
| Lateral appendages with a lower pendulous or claw-like arm | 3 |
| 3. Lateral appendages with only two arms | 4 |
| Lateral appendages with three arms | 6 |
| 4. Lower arm of lateral appendage slender; membranous, nearly straight . . | fallax |
| Lower arm of lateral appendage more strongly chitinized, claw-like, tip
blackish | 5 |
| 5. Lower arm of lateral appendages short, broad, flat | rohweri |
| Lower arm of lateral appendages long, slender | grata |
| 6. The two upper arms of lateral appendages consisting of two small subequal,
spine-like processes | coloradensis |
| First and second arms of lateral appendages very different in size and shape . . | 7 |
| 7. The blade-like processes arising from the posterior margin of the ninth
sternite long, slender, sinuous | alia |
| The blade-like processes shorter, more triangular | newcomeri |

PSEUDOSCORPIONS IN ANT NESTS.

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The sporadic occurrence of pseudoscorpions, especially of species of *Chelifer* and *Chernes*, in ant nests has been reported by several authors. Haldemann¹ seems to have been the first to note this occurrence in America. Wasmann² states that species of the genus *Chelifer* are not uncommon in ant nests, "but apparently only as occasional inquilines." He also says that he received from Mr. Pergande specimens of *Chelifer* that had been taken in nests of the American *Aphaenogaster fulva*. Banks³ describes several pseudoscorpions taken by Brues in the nests of Texan ants, namely *Chelanops unicolor* with *Eciton caecum* and *Pachycondyla*

¹On the Occurrence of Cremastocheilus and other Insects in Ant Nests, and of Chelifer found Parasitic under the Elytra of Alaus oculatus. Amer. Journ. Sci. Arts (2) VI, 1848, pp. 148-149; Ann. Mag. Nat. Hist., 1848, pp. 221-222.

²Kritisches Verzeichniss der myrmekophilen und termitophilen Arthropoden. Berlin, Felix L. Dames, 1894, p. 193.

³The Pseudoscorpions of Texas. Bull. Wis. Nat. Hist. Soc., VI, 1908, pp. 39-42.



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