

A COLLECTION OF THYSANOPTERA FROM
WESTERN OKLAHOMA

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The following report is on a small collection of Thysanoptera gathered by Prof. T. H. Hubbell during June and July of 1926. These insects were mostly taken by sweeping grass and herbage, which method of collecting doubtless accounts for the abundance of certain species and the apparent scarcity of flower inhabiting forms. The collection contained nine species, three of which are undescribed. Descriptions of these are included in this paper.

(1). *Sericothrips variabilis* (Beach) var. a. This was the most abundant of all species.

Taken by sweeping *Artemisia* along the north Canadian River, Cimarron County, July 30, 1926.

Sweeping tall dune grass along the north Canadian River, Cimarron County, July 30, 1926. 200 specimens.

Sweeping *Artemisia* on the uplands one mile south of Sayre, Beckham County.

This species extends from Massachusetts to British Columbia, California, Iowa, Georgia. The present record of this species represents the most southern collection in the middle west. It attacks a wide variety of hosts. All specimens collected belong to "variety A." (Beach).

(2). *Chirothrips manicatus* Hal.

Three specimens taken with the last species by sweeping tall dune grass along the north Canadian River, Cimarron County, July 30.

Sixty specimens taken near Hollis, Harmon County, on June 20.

Sweeping tall dune grass on the North Canadian River south of Boise City, Cimarron County, July 1.

Sweeping gramma grass on the summit of Black Mesa, Cimarron County, July 3. Two specimens.

From the Wichita Mts., Comanche County, two specimens.

This species occurs from Massachusetts to Florida, British Columbia, Oregon and Kansas, but it has not been reported from Texas. The present collection represents the most southwestern record of the species. Like the last it is preeminently a northern species.

(3). *Frankliniella tritici* (Fitch)

"On flowers of a tall plant" (probably *Cleome*), on the North Canadian River, Cimarron County, July 30.

Sweeping tall rank herbage along the bank of the Cimarron River three miles north of Kenton.

Camp Boulder, Comanche County, June 15.

This is the common flower thrips of the United States and is abundant and common in every state except Florida. If the collection had included many takings from flowers this probably would have been the most common species.

(4) *Acolothrips fasciatus* (Linn.)

Taken by sweeping tall dune grass along the North Canadian River, Cimarron County, July 30, along with first two species.

Sweeping rank herbage along the bank of the Cimarron River three miles north of Kenton with the preceding species. 10 specimens.

Comanche County with the second species.

This species occurs from Massachusetts to British Columbia, California and Texas, and thus includes the whole United States except the warmer portions of the Gulf Coast. It occurs typically on grasses and herbs.

(5) *Zygothrips harti*, Hood

Taken with No. 4 and 2 in Comanche County.

This rather uncommon thrips has been taken in Maryland, Virginia, Illinois, Michigan, Missouri and Nebraska. The present is the most southwestern record.

(6) *Leptothrips mali* Fitch—The Black Hunter.

Comanche County. (No. 9)

This is a common predaceous thrips found over practically all of U. S. and Southern Canada.

AELOTHRIPS FUSCUS, sp. nov.

General color dark brown with considerable reddish brown hyperdermal pigment. Antennal segment 3 light yellow, shaded with brown at extreme apex.

Head a little wider than long, slightly rounded in front and slightly elevated between bases of antennae, back of head striate, cheeks arched. Eyes black, large and long, extended posteriorly on the ventral side. Ocelli conspicuous, yellowish brown, posterior pair contiguous with the inner margins of the eyes near their middles.

Antennae 9-segmented, a little more than twice as long as the head. All segments thickly and uniformly provided with short spines. Some longer ones on segment 2, especially a pair of stout ones on the dorsal surface near the apex.

Prothorax about 1.5 as wide as long, shorter than the head. Metathorax with sides parallel to near the posterior border.

Fore wings with pale, indistinct but distinguishable veins, the posterior longitudinal set with about thirteen short, pale, inconspicuous bristles; clear except a dark band along the posterior margin which does not extend to either the tip or the base. This band is much narrower than in *A. kuwanai*, extending but little beyond the posterior vein and showing no tendency to form a cross band near its base as in the many specimens of that species.

In other characters, including the color of the antennae, it is very similar to *A. kuwanai*.

Measurements:

Total body length 1.15 mm; Head, length, 0.18 mm, width 0.20 mm; prothorax, length 0.15 mm, width 0.23; mesothorax, width 0.30 mm; metathorax, width 0.26 mm; abdomen, width 0.33 mm; antennae, total length 0.40 mm.

Segment	1	2	3	4	5	6	7	8	9
Length	38	60	107	91	76	25	21	15	10
Width	35	32	24	27	27	21	18	12	8
									microns

Described from four females collected from *Artemisia* near Sayre, Beckham County, Oklahoma.

Associated with *Sericothrips variabilis*.

This species is intermediate between *A. kuwanai* Moulton and *A. vittipennis* Hood. It can be told from *kuwanai*, which has been taken only in California, by the indistinct veins on the fore wings and the smaller number of much smaller spines on the posterior longitudinal vein. The

pair of bristles on the dorsal surface at the apex of antennal segment 2 is shorter than in the California species but thicker and heavier. The lengths of the antennal segments in *kuwanaii* are quite variable. The prothorax is shorter than the head.

From *A. vittipennis* Hood it differs in the character of the dark band which is black in that species and extends to the extreme base and apex of the wing and in the color of the fourth antennal segment. It agrees with it in the indistinct veins of the fore wing and the relatively long head and short prothorax.

(8) *OEDALEOTHRIPS HUBBELLI* sp. nov.

Female (apterous). Total body length 2.6 mm. Head and abdomen dark brown, almost black, thorax and legs a much lighter brown, prothorax, all tibiae and fore femora deeply shaded with black. Antennal segment 1 light yellowish brown in basal third, the remainder white but streaked with four light yellow longitudinal bands (in dorsal aspect), 2 mostly colorless but shaded with yellowish brown; 3 abruptly raw sienna (Ridgeway's Color Standards) shaded with black at apex; 4-8 almost black, tube black.

Head about a third longer than the greatest width, across the eyes; twice as long as width at base where the head is contracted to a neck which is considerably narrower than the base of the mouth cone; dorsal surface reticulated posteriorly. Cheeks somewhat convex, provided with several short, pale, capitate bristles (the postoculars, but little larger than these, also capitate and pale), a pair above the bases of the antennae fully as large as the post-oculars.

Eyes pale yellow, flattened, protruding, small, about half as wide as their dorsal interval, facets large.

Ocelli lacking. Mouth cone short, reaching but little beyond the middle of the prothorax, rounded at tip.

Antennae only about 1.5 times as long as the head. Segment 1 cylindrical; 2 contracted to a broad stalk but expanding a little at the base; 3 markedly swollen at apex; 4 and 5 with short, broad pedicels; 6-8 with still shorter and proportionally broader ones; 5 and 6 prolonged on ventral side of apex into a tooth, which ends in a pale bristle. (The measurements given in the table below include these teeth). Sense cones at apex of segments 4-6 rather large but pale. Antennal bristles rather weak, pale brown.

Prothorax two-thirds as long as the head and but little wider than long, almost circular in dorsal aspect. Posterior angles with two rather prominent, knobbed bristles at each posterior angle, similar one near each anterior angle and one on each coxa, a pair along the anterior margin, midway between those near the anterior angle and the mid-dorsal line.

Pterothorax much narrower than the head, metanotum with conspicuous concentric anastomosing striae. Legs long and slender, middle and hind tibiae distinctly darker than the femora, concolorous with fore tibiae and femora. Fore tarsus with a short, curved tooth.

Abdomen heavy, width from segment 3 to 6 nearly uniform. Segment 1 pale yellow except two small ivory white blotches on the anterior half, an indefinite whitish band along the posterior border of segment 2, and a pair of well defined circular white areas near each posterior angle of segment 5. Tube less than half as long as the head, sides straight, one pair of terminal bristles nearly as long as the tube; others much shorter, all light brown and pointed. All other conspicuous bristles of the abdomen knobbed.

Measurements of holotype female: Total body length 2.6 mm. Head, length 0.43 mm., width across the eyes 0.32 mm., at base 0.21 mm.; prothorax, length 0.29 mm., width (exclusive of coxae which project but little beyond the margins) 0.33 mm.; pterothorax, greatest width, 0.29 mm.; (but slightly narrower at middle); abdomen, greatest width (at segment 4) 0.525 mm.; tube, length 0.19 mm., width at base 0.11 mm., at apex 0.06 mm. Total length 0.67.

Antennal Segment	1	2	3	4	5	6	7	8
Length	58	91	164	126	129	111	63	61
Width	50	48	47	50	43	37	31	20

microns

Male (apterous). Similar to the female but the abdomen is much smaller, the pair of white blotches on segment 5 are fused into one. The fore femora are much enlarged

and strikingly arcuate, the tarsal tooth is very long and conspicuously curved. Both males are darker than the female, most of the thorax in one specimen being as dark as the head and abdomen. On the other hand the third antennal segment in one is much lighter in distal half.

At the base of the abdomen on each side of the tube there is a peculiar, roughly diamond-shaped appendage with a rather narrow pedicel. These appendages are from a third to a half as long as the tube.

Measurements: Total body length 2.1 mm; Head, length, 0.49, breadth 0.28 mm.; prothorax, length, 0.26 mm., breadth (including coxae) 0.38 mm; pterothorax, smallest diameter 0.27; abdomen, greatest width 0.57 mm; tube, length 0.20 mm, width at base 0.11 mm, at apex 0.058 mm. Antennae total length 0.62 mm.

Segment	1	2	3	4	5	6	7	8
Length	73	76	161	110	99	86	57	57
Width	56	44	47	47	40	38	33	21

microns

These are the first males to be described in this genus.

Described from a single female and two males collected from Bermuda grass, by T. H. Hubbell after whom the species is named.

Close to *O. jacksoni*, Hood, but differs from that species, and all others of the genus, in the color of antennal segment 3, in the longer prothorax and shorter head, and the longer intermediate (4-6) antennal segments.

KEY TO THE SPECIES OF OEDALEOTHRIPS

- a. Tube yellow; white blotches on abdominal segments 2, 5 and 6; antennal segment 3 orange brown in basal half, antennal segment 2 nearly eight tenths as long as 4 ----- *hookeri* Hood.
- aa. Tube black.
 - b. Tarsal tooth of female long and curved; antennal segments 1 and 2 uniform light brown, 3 uniform dark brown, nearly as dark as segments 4-8; abdominal segment 1 light yellow, without white markings, white blotches on segments 2, 4 and 5 ----- *querci* Watson.
 - bb. Tarsal tooth of female short, triangular; antennal segments 1 and 2 only shaded with brown at base, segments 2 about three-fourths as long as 4; at least part of abdominal segment 1 white.
 - c. All of abdominal segment 1 and blotches on segment 5 white; most of antennal segments 1 and 2 and all of segment 3 pale lemon yellow; prothorax less than half as long as the head ----- *jacksoni* Hood.
 - cc. White blotches only on abdominal segments 1 and 5; most of antennal segments 1 and 2 white, only tinged with brown, segment 3 abruptly uniform deep brown but much lighter than segments 4-8; prothorax 2/3 as long as head ----- *hubbelli* sp. nov.

(9) *THRIPS OKLAHOMAE* sp. nov.

Color, abdomen yellow ocher to yellowish brown, head, thorax and tip of abdomen darker, ochraceous—tawny to hazel (Ridgeway's Color Standards, 1912). All tarsi, fore tibiae, tips of middle and hind tibiae and base of middle femora straw yellow. Fore tibiae tinged with brown along outer margin. Antennal segments 1 and 2 colorous with the head; the remainder mostly fuscous; 3 and base of 4 somewhat lighter. Ocellar pigment carmine.

Head from 1.25 to 1.3 times as wide as long, width across the eyes and just above the base about equal, conspicuously constricted behind the eyes, cheeks arched. Dorsum conspicuously striated posteriorly, the most anterior ridge midway between the eyes and

base, being especially heavy. Cephalic bristles small and inconspicuous.

Eyes large, protruding, occupying considerably more than half the length of the head and wider than the interocular space. Facets large. Ocelli large and conspicuous, bordered by large carmine colored crescents.

Mouth cone reaching about the middle of the prosternum. Antennae at least twice as long as head, segment 5 conspicuously smaller than the others except 7. Bristles thin, pale and inconspicuous.

Prothorax from 1.5 to 1.7 as long as the head, about 1.25 times as wide as long. Posterior angles well rounded; all bristles small and inconspicuous. Mesothorax much wider than the prothorax or the metathorax, sides rounded. Sides of metathorax nearly straight and parallel but abruptly rounded at posterior angles.

Wings long, reaching the 9th abdominal segment, membranes shaded with gray, more deeply along the anterior margins and veins; fore pair with a clear area along the posterior margin above the base; conspicuously curved. Anterior vein with about 10 short bristles (7 in basal half quite regularly spaced); posterior vein with about 7.

Abdomen rather stout and heavy. Four bristles on 9th segments moderately long, light brown; four others on anal segment considerably weaker; all others small, pale and inconspicuous.

Measurements: Total body length 0.86 mm; head, length 0.76 mm, width 1.06 mm; prothorax, length 1.26 mm, width .152 mm; mesothorax, width .20 mm; metathorax .17 mm; abdomen, greatest width (about segment 5) .20 mm. Antenna, total length .20 mm.

Segment	1	2	3	4	5	6	7
Length	15	38	38	30	26	42	21
Width	25	25	22	23	18	20	8

Described from two females taken from sweeping grass in Cimarron Co., one on gramma grass on summit of Black Mesa, the other on tall dune grass along the North Canadian River, July 1 and 3, 1926.

The color of this insect suggests *Thrips aureus* (Hood) but is darker. It differs in the large eyes, narrower head, the weaker bristles, the character of the wings and many other respects.

Close to *Thrips abdominalis*, but can be told by the lighter color, especially the abdomen which is lighter than the thorax instead of darker and does not have the dark bands so characteristic of that species. The legs are more yellow. The head is larger. The mouth cone is much larger, antennal segment 3 is not as narrowly pedicellate, the bristles on the anal segments are weaker.

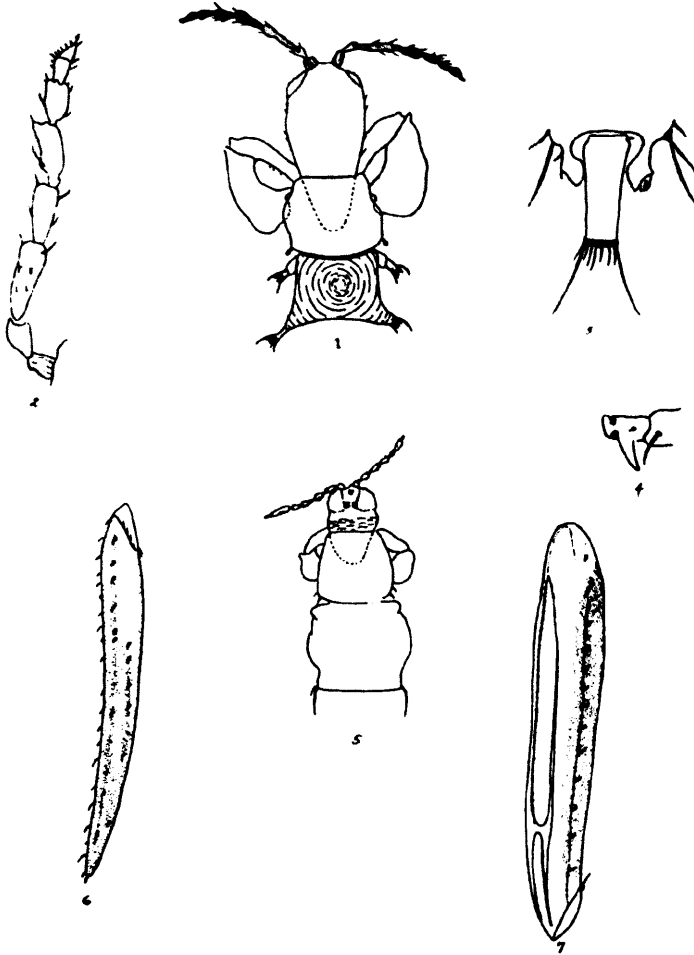
The following key to those North American species of the genus that have the head considerably wider than long and are either yellowish or light brown in color, will be found more usable than that in the author's Catalogue (1923) p. 43, aaa.

- b. Most bristles weak, especially those on posterior angles of prothorax; prothorax much larger than the head; posterior vein of fore wing with 7 to 9 bristles, ocelli widely separated.
 - c. Terminal segment of abdomen blunt at end, approaching tubular in shape; wings reaching abdominal segment 5; posterior vein of fore wing with 9 bristles..... *crenatus* Watson.
 - c. Terminal segment of abdomen sharply conical; wings longer; posterior vein of fore wing with 7 bristles.
 - d. Body color yellow ocher, abdomen lighter than thorax; mouth cone reaching to middle of prosternum; ocellar crescents carmine; wings reaching abdominal segment 9
.....*oklahomae* sp. nov.

- d. Body color light brown, abdomen darker than thorax; mouth cone reaching only about a third of the distance across prosternum; ocellar crescents brown; wings reaching abdominal segment 7 ----- *abdominalis* Crawford.
- bb. Bristles on posterior angles of prothorax at least well developed.
 - c. Body color yellow ocher; ocellar crescents carmine, wings reaching only first abdominal segment ----- *aureus* Hood.
 - cc. Body brownish yellow to light brown; posterior veins of fore wings with 13 to 17 bristles.
 - d. Spines light brown; ocellii subapproximate; prothorax not much larger than the head; posterior vein of fore wing with 14 to 17 regularly placed bristles *tabaci* Lind.
 - dd. Spines dark, heavy; ocelli well separated; prothorax considerably longer than the head; posterior vein of fore wing with about 13 bristles ----- *spinus* Morgan.

In summing up the general affinities of this collection of Thysanoptera, it is apparent that on the whole they are distinctly eastern and northern species. This is true of all of the five described species. In the case of three this is their most southwestern record. Of the new species, *Oedaleothrips hubelli* finds its closest relative in Colorado, altho the other two known species of the genus are southern in distribution. *Aeolothrips fuscus* n. sp. is intermediate between *Aeolothrips kuwanii* Crawford, which, as far as is known, occurs only in California, and *Aeolothrips vittipennis* Hood which is a northern and eastern species. The other new species, *Thrips oklahomae*, is more closely related to the common thrips of the south, *Thrips abdominalis*. This is the only suggestion of a southern element in the thrips taken.

Equally significant is the absence in this collection of two very common southern thrips, *Thrips abdominalis*, mentioned above which has been collected in Oklahoma as well as Kansas, Texas and Mexico, and *Haplothrips graminis*, the common grass thrips of the South. If either of these had been common in western Oklahoma they should have been represented in the collection, especially the last which is a grass-inhabiting species. Evidently the region surveyed is beyond the northern and western range of these common southern forms.



- Fig. 1. Dorsal view of head and thorax of *Oedaleothrips hubelli*, n. sp. male.
- Fig. 2. Lateral view of right antenna of *Oedaleothrips hubelli*, n. sp. male.
- Fig. 3. Tube and appendages on the ninth abdominal segment of male of *Oedaleothrips hubelli*.
- Fig. 4. Fore tarsus and tip of tibia of male of *Oedaleothrips hubelli*.
- Fig. 5. Dorsal view of *Thrips oklahomae* n. sp.
- Fig. 6. Fore wing of *Thrips oklahomae* n. sp.
- Fig. 7. Fore wing of *Aeolothrips fuscus* n. sp.