

New California Thysanoptera.

BY S. M. DANIEL.

Four species of Thysanoptera have been recorded from California: *Euthrips occidentalis*, *Euthrips tritici*, *Thrips tabaci* and *Heliothrips fasciatus*. To this list I am able to add *Heliothrips hæmorrhoidalis* and the four new species *Criptothrips californicus*, *Euthrips pyri*, *Sericothrips apteris* and *Caliothrips woodworthi*.

Our species may be distinguished by the following synopsis:

Female without ovipositor (Phlæothripidæ). **Criptothrips.**

Criptothrips californicus nov. sp.

Female.—Length 1.7 mm.; width 0.3 mm.; general color black, dark brown under the microscope.

Head cylindrical, 0.3 mm. long, 0.15 mm. wide, about as wide as prothorax is long. Cheeks almost straight and nearly parallel, set with a few minute spines; surface of head finely cross-striated. Eyes quite large, occupying about three-fifths the width of the head, quite finely faceted and protruding very slightly; ocelli situated far forward, posterior ocelli close to margin of eyes, front one on apex of prolonged vertex of head, color same as that of second antennal segment. Antennæ inserted below vertex, approximate at base, about one and one-half times as long as head, eight-segmented; length of segments: 31, 53, 79, 68, 58, 31, 45, 31. First segment concolorous with head, second base concolorous with first, apex light brown, third and base of fourth and fifth pale yellow, the rest of the antennæ shading to dark brown. Spines and sense cones quite prominent.

Prothorax comparatively small, about one-half length of head. One prominent spine at each posterior angle, anterior marginal and mid-lateral spines wanting. Surface finely cross-striated. Pterothorax approximately as wide as abdomen, nearly cylindrical, narrowing abruptly in front, gradually behind. Wings extending to about the seventh segment, fringe long and wavy. Legs long and slender; fore coxa projecting strongly, fore femora scarcely thickened. Femur, tibia and tarsus bare, with the exception of a number of small spines, more numerous and longer on fore tibia than on the others. Legs concolorous with body.

Abdomen long and slender, cylindrical to about the seventh segment, a little more than twice as wide as head; from this segment tapers gradually to tube. Tube a little more than half the length of head, sides straight, converging slightly, width at middle about one-fourth that of head; four terminal hairs approximately as long as tube, six shorter ones. Spines at sides of abdomen slender, pale, prominent, two on sides of each segment. Segments overlapping considerably; sides of abdomen black, shading to russet-brown at center.

This species is not uncommon at Berkeley and in Southern California, being found on Orange and other trees infected with the black scale (*Saissetia oleæ*). It is found very commonly beneath the old scale, among the eggs, probably feeding on them.

Female with ovipositor down-curved (Thripidæ).

Antennæ with seven segments **Thrips.**

Antennæ with eight segments.

Body with markedly reticulate surface **Heliothrips.**

Body not reticulate.

Abdomen clothed with fine hairs and having a silky lustre.

Sericothrips.

Abdomen without such clothing **Euthrips.**

Thrips tabaci Lindeman.

Food-plants: onion, cabbage and chrysanthemum.

Hab.—San Francisco and Berkeley.

HELIOTHRIPS.

Antennæ about twice as long as head **hæmorrhoidalis.**

Food-plants: cherry-laurel and laurestina.

Hab.—Berkeley.

Antennæ two and one-half times as long as head **fasciatus.**

Food-plants: Orange leaf infested with *Aspidiotus aurantii*.

Hab.—Yuba County.

EUTHRIPS.

Seventh antennal segment about as long as eighth **pyri.**

Seventh antennal segment about twice as long as eighth.

Fifth antennal segment about five-sixths as long as fourth.....**occidentalis.**

Food-plants: orange, milkweed and various weeds.

Hab.—Berkeley, Pomona and Lake County.

Fifth antennal segment two-thirds as long as fourth **tritici.**

Food-plants: rose, both cultivated and wild, bean, tomato, apple and myrtle.

Hab.—Berkeley, Watsonville, San Francisco and Lake Co.

Euthrips pyri nov. sp.

Female.—Length 1.26 mm.; width of mesothorax .32 mm.; general color dark brown. Head about as long as broad; cheeks convexed; anterior margin broad, acutely angular; back of head transversely wrinkled,

and bearing a few minute spines. Eyes medium, black, with light borders rounded or oval in outline, coarsely faceted, hairy. Ocelli yellow, margined inwardly with reddish brown crescents, widely separated, posterior ones contiguous, with light borders around eyes; one very long slender spine on each side midway between ocelli. Mouth cone pointed, tipped with black; maxillary palpi 3-segmented. Antennæ 8-segmented, approximate, slightly over twice the length of head. Length of segments: 33, 43, 55, 52, 35, 50, 8, 10. Antennæ brown, except segment three which is yellow. Spines pale, conspicuous, special sense organs on segments three and four.

Prothorax longer and wider than head; bears many prominent spines, the one at each anterior angle, and the two at each posterior angle are longest. Color, yellow-brown; faintly cross-striated.

Mesothorax approximately as wide as antennæ are long; front angles obtusely rounded; metanotal plate bears four spines close to front edge, middle pair equal in size and prominence to those at the angles of prothorax, the others are small; pterothorax yellow-brown, transversely wrinkled.

Wings present, extending slightly beyond abdomen, about twelve times as long as wide, pointed at ends; surface of wings thickly covered with minute brown spines; both longitudinal veins and costa of forewings thickly set with quite long, brown-colored spines, placed regularly on costa and hind vein; costa has from 29-33 spines, fore-vein 12-15, and hind vein 15-16; veins not prominent; costal fringe of fore wings about twice as long as costal spines.

Legs moderately long, scarcely thickened; femora and all except the terminal part of tibia brown; terminal part and tibiae and tarsi yellow, a double row of twelve strong spines on the inner side of hind tibia, several inconspicuous spines on fore and middle pairs.

Abdomen about two and one-half times as long as width of mesothorax, cylindrical to eighth segment, then abruptly pointed. Spines on sides and around tip of abdomen dark brown, conspicuous; those on last two segments are long and approximately equal. Color of abdomen dark brown, connective tissue yellow.

Found on pear blossoms, San Leandro.

Sericothrips apteris nov. sp.

Female.—Length 0.745 mm. (0.65-0.84 mm.), width 0.34 mm.. General color very dark brown, nearly black.

Head 0.39 mm. long, 0.289 mm. wide, broadest just under the eyes retracted slightly into prothorax, cheeks convex, converging very slightly posteriorly, anterior margin slightly depressed at the insertion of the antennæ. Spines upon the head inconspicuous, a few small ones upon the cheeks. Head dark brown, nearly black. Eyes moderately large, dark, cornea appears as a light colored margin about the eye; coarsely faceted,

occupying about one-half the width of the head. Ocelli wanting. Mouth cone long, extending to mesothorax, tipped with black; maxillary palpi three segmented. Antennæ eight segmented, bases separated by one-half width of basal segment. Length of segments: 34, 59, 89, 68, 76, 119, 25, 42. Two basal segments broadest. First segment brown, second and third yellow, base and sides shaded with brown, other segments brown, the fourth being a shade lighter. Spines conspicuous, having become specialized as sense organs on segments three to eight.

Prothorax about four-fifths length of head, and twice as broad as long, widest in the middle, tapering abruptly to the head, less abruptly posteriorly. Each anterior angle bears a pair of short, divergently curved spines, one curved spine at each posterior angle. Color dark brown. Meso- and metathorax as long as head, diverging posteriorly, only a little wider than prothorax; color dark brown; surface marked with transverse reticulating wrinkles appearing like striæ in dorsal view. Wings wanting. Legs about same thickness; hind pair somewhat longer than the other two. Femora brown, tibiæ brown, shading into yellow, tarsi yellow, brown at extreme tip.

Spines prominent and numerous on tibiæ, one especially well defined, at the posterior angle of the tibia of the third pair of legs.

Abdomen about one-half as broad as long; black, with silky lustre, a transverse row of twelve dark brown spines, regularly spaced, across segments two to seven. One long spine on the lateral margin of each segment; narrow, dark brown, transverse reticulate wrinkles appearing as striæ on first seven segments. Spines on last two segments comparatively short but strong.

Very common at Berkeley on grass in winter and spring.

Female with ovipositor upcurved (*Æolothripidæ*) **Caliothrips.**

CALIOTHRIPS nov. gen.

Entire surface of insect faintly reticulate and coarsely punctate with the exception of the tibiæ and tarsi. Head slightly wider than long. Ocelli present. Antennæ 9-segmented, the last three being much shorter and closely joined, the third and fourth segments are equal in length and longer than any of the others. Prothorax a little shorter than the head, without large bristles.

Legs long and slender, bearing a stout spine at the base of the posterior tibia, femora unarmed. Wings present, pointed at tip; anterior wings with strong veins consisting of a ring vein and one longitudinal vein, the longitudinal bearing stout spines almost to the tip. Both wings are thickly set with

short hairs. Fringe on posterior margin wavy. Wings white; fore wings with two broad dark cross bands.

Abdomen with posterior margin of segments serrate, these serrations becoming acuminate in the last five.

Caliothrips woodworthi.

Female.—Length 0.91 mm.; width of mesothorax 0.31 mm. General color yellowish brown to brown.

Head slightly wider than long, rectangular in outline; not retracted into prothorax; cheeks nearly straight; surface of head reticulate and closely punctate. Eyes large, black, circular, borders light, coarsely faceted; ocelli of medium size, yellow, and placed quite close together. Mouth cone sharply pointed, maxillary palpi geniculate, 3 segmented. Antennæ 9-segmented, a little over three times as long as head, slender, approximate at the base; length of segments: 19, 35, 49, 49, 39, 32, 14, 11, 18. Segments 1 and 2 cylindrical, light brown in color; second of little greater diameter than first; center of segments 3 and 4 nearly twice the diameter of extremities, brown shading to yellow; segment 5 light at base, apex concolorous with segments six to nine inclusive (dark brown). Sense cones on segments 2 to 6 inclusive with portion beyond middle of segments 3 to 6 bearing sense hairs.

Prothorax about twice as broad as long, a little wider than head, sides slightly arched, no conspicuous spines, but several weak ones. Mesothorax smoothly rounded at the anterior angles. Metathorax slightly narrower than mesothorax and tapering posteriorly. Entire surface of thorax faintly reticulate and coarsely punctate. Wings long, extending beyond tip of abdomen, narrow, pointed at tip; fore wings with strong veins; fringe on posterior margin long and wavy, about four times as long as that on anterior margin; anterior wings with two white bands, one at the base and one just beyond the middle, with a dark brown band between the white ones, and one at the apex of the wing. Hind wings without these areas.

Legs pale yellow, except the middle of the femora and tibiæ, where they are concolorous with thorax. Femora coarsely punctate and faintly reticulate; tibiæ clothed with several small hairs; the under side of the hind tibia bears a row of spines, the last being the longest and stoutest.

Abdomen obtusely conical, twice as long as wide, about the length of the insect, brown, surface faintly reticulate and coarsely punctate. Segments gradually increase up to 4th, then gradually decrease to tip. Segments overlap considerably; serrate, serrations appearing as strong spines on the edges of segments 4 to 8 inclusive. Spines on last 2 segments fine lemon yellow, inconspicuous. Transverse oval areas in the middle of segments 2 to 6, yellowish.

Found on grass in Berkeley.



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