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**AN UNDESCRIBED TELEONEMIA FROM FLORIDA AND
JAMAICA (HEMIP.)***

By CARL J. DRAKE

Since the publication of "The North American Species of *Teleonemia* Occurring North of Mexico" (Ohio Journal of Science, Vol. XVIII, pp. 323-332, 1918) the writer has received through the kindness of several workers many specimens of *Teleonemia* from North America and the West Indies. The new species described herein is the same form as listed by Van Duzee in "Notes on Jamaican Hemiptera" (Bulletin of the Buffalo Society of Natural Science, Vol. VIII, pp. 3-77, 1908) under the name *Teleonemia scrupulosa* Stal. The insect is named in the honor of Prof. E. P. Van Duzee.

Teleonemia vanduzeei new species.

Antennae moderately long, slender, sparsely pilose; first segment a little stouter than and subequal in length to the second; third segment moderately long, slender, about three times as long as the fourth; fourth segment subequal in length to the first and second conjoined. Head armed with five moderately long, porrect spines, the spines arranged as in related species. Length, 3.15 mm.; width, 1.2 mm.

Pale testaceous or light brownish testaceous, with dark brown markings. Pronotum brown, slightly tinged with ferruginous, tricarinate, lateral carinae slightly diverging posteriorly; paranota distinctly uniserate, not quite reflected back against the pronotum proper; carinae rather thin, all strongly raised and with a single row of rather large areolae, the median carinae raised anteriorly and projecting subangularly over the base of head. Elytra constricted a little beyond the middle, with dark brown to nearly black markings in discoidal and sutural areas; costal and subcostal areas uniseriate, the areolae rather large; sutural area with the color marking tending to form a transverse band a little before the apex; discoidal area bounded

*Contributions from the Department of Entomology, The New York State College of Forestry, Syracuse, N. Y.

by strongly raised nervures, faintly pubescent, mostly dark brown to nearly black in color. Antennae brown, the apical segment somewhat darkened. Body beneath brown, usually tinged with ferruginous. Legs brown, the tips of femora and bases of tibiae, and the tarsi dark. Rostrum extending slightly beyond the meso-metasternal suture. Rostral sulcus open behind.

Akin to *T. scrupolosa* Stal, but readily separated from it by the longer and much less pilose antennae; the pubescence in the discoidal area is almost entirely wanting. Twelve specimens. Florida: Crescent City, September 7, 1898, Otto Heidemann Collector. Jamaica: Mandeville, Kingston, January to April, 1908, E. P. Van Duzee Collector. *Type* in my collection; *paratypes* in the collections of E. P. Van Duzee, Cornell University (late Heidemann Collection) and of the writer.

THE NATIVE HOST-PLANT OF THE CAMPHOR THRIPS.

(*Cryptothrips floridensis* Watson.)*

The camphor thrips was first collected by Mr. W. O. Richtman, on the camphor farm at Satsuma in November, 1912 (see An. Rep. Fla. Ag. Exp. Sta. 1913, p. lxvii). Subsequent search thruout Florida revealed its presence in many places, but by no means in all those investigated. This discontinuous distribution and our failure to find the insect on any plant except camphor, which is an introduced plant, finally led us to the opinion that it is an introduced pest, perhaps brought to us on camphor. This opinion was strengthened by the receipt of a single poor specimen of an adult and several larvae of apparently this species collected on camphor in Ceylon (An. Rep. Fla. Ag. Exp. Sta. 1915, p. lxxi).

The first evidence that pointed to an opposite conclusion was gathered on a visit to the DuPont Camphor Farm at Waller last July. The insect was not noticed in this plantation until spring of this year and one of the first centers of infestation was near a "bayhead" in an out-of-the-way section of the farm. This pointed to the bayhead as a possible source of the insect. Accordingly the native vegetation in the bayhead was subjected to a vigorous sweeping and a single adult of the camphor thrips was captured. Altho this pointed strongly to the bayhead as the home of the insect, there was a possibility that the thrips caught there had strayed into the bayhead from neighboring

*Paper read before the Florida Entomological Society Sept. 29, 1919.

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camphor. If the insect was native to the bayhead what was its foodplant there? Those of you who are familiar with our bayheads know that the vegetation there is a bewildering mixture of a large number of species of shrubs, herbs and grasses with no apparent order or zonation. It was therefore difficult indeed to determine the exact host plant. Because it belongs to the same family as camphor we naturally suspected the bay itself. There are two entirely unrelated genera of plants that are commonly called "bays" in Florida. One is a certain small species of *Magnolia* of the magnolia family and the other is *Persea*, or *Tamala*, of the laurel family, the family to which camphor belongs. It was, of course, the latter only that was suspected of possibly being the host plant of the camphor thrips. However, a thorough beating of this plant at Waller failed to reveal the presence of the thrips. A fortnight's vacation spent at Daytona Beach afforded an opportunity to study the bay there, *Tamala littoralis* being one of the most abundant trees on the island. The very first tree investigated yielded many of the camphor thrips, both adults and larvae. Further investigation showed that the thrips was generally distributed thruout the island. It was found on trees miles from any camphor and in isolated places to which the opportunities of catching a ride must be few. On only a few trees, however, was the infestation heavy. It has since been found on the same species of bay at Orlando.

Following the discovery of this thrips on bays and its identification on structural grounds as *Cryptothrips floridensis*, live thrips were taken to the laboratory and transferred to camphor. Vice versa thrips collected from camphor were transferred to bay. In both cases the insects fed with avidity on the new host. They seemed to have no choice whatever as between camphor and bay, provided the leaves or twigs were of an equal age. We have not as yet had an opportunity to study their behavior in the field where bays and camphor are growing side by side.

There can then, it would seem, be no doubt but that the native bays of the genus *Tamala* are the native hosts of the camphor thrips which is a native insect that has spread to the camphor wherever opportunity offered. Its uneven distribution over the state and its absence from many camphor hedges and trees is to be explained by the remoteness of the uninfested trees from bays and lack of transportation facilities.

These developments lead to a reexamination of the specimen from Ceylon, for if the insect is a native of Florida, feeding on

the wild bays, it would seem unlikely that identically the same species should be found in Ceylon. Altho the Ceylon specimen is undoubtedly a *Cryptothrips* and remarkably similar in size and color to *C. floridensis*, a close examination reveals differences in the shape of the thorax and the antennal segments. The Ceylon specimen is probably a distinct but closely related species.

The injury inflicted on bay is similar to that on camphor but less severe. There is the same destruction of the new terminal growth but fewer and less severe bark lesions. The larvae seem to feed more on the leaves and less on the bark than when attacking camphor. Following the destruction of the terminal bud the lateral buds develop freely, resulting in a sort of witch's broom or "multiple bud" growth. The withered terminal shoots cling to the tree longer than do those of camphor and form retreats in which the thrips commonly hide. These dead twigs are the most likely places in which to search for the insects.

Thus far the larvae have been found on only the shore bay, *Tamala littoralis*, but trees of *Tamala barbonia* about Gainesville show typical thrip injury. The avocado belongs to the genus *Persea* to which genus the bays have been commonly referred. Upon the discovery that the latter were the native hosts of the thrips, some apprehension was felt lest the insects might be able to feed also on avocados and ultimately perhaps to invade the avocado orchards of the state. In the laboratory, however, they have refused to feed on young growth of the Mexican avocado.

The life history of the camphor thrips has not been worked out in detail. A single generation was raised in May 1913. The eggs hatched in eight or nine days and the larvae had become adults by the 24th day.

Contrary to our previous experience we have lately observed the insect to fly. The flight was, however, very short. That it does not commonly fly far is indicated by the fact that camphor trees less than a half mile from a center of infestation have remained free for years. A hedge near the writer's home at Gainesville is still uninfested, altho a colony of thrips has for six years existed within a half mile and for the past year within 900 feet. This hedge borders an unused alley where opportunities for transportation are few. Trees along the neighboring street where traffic is heavy have become infested.

J. R. WATSON (Ag. Exp. Sta.).

Pupae.—The pupae (Fig. 20) resemble *Culex*, but are larger. They remain as pupae two or three days.

Adults.—The adults are easily recognized. They have the legs and abdomen conspicuously banded with white and the dorsum of the thorax bears a lyre-shaped area of white, though this is sometimes inconspicuous. They fly and bite only during the day.

BREEDING PLACES

The larvae of this species have been found in an old pot, tin cans, and in pans in the laboratory.

PSOROPHORA

The eggs are large, spined, and laid singly. The larvae are much like *Culex*, but can soon be distinguished by their large size, being over one-half of an inch when full grown. They are cannibalistic and feed upon larvae of *Culex*, *Anopheles*, and the smaller ones of their own species. (Berkley 1902.) The adult of *P. ciliata* is easily recognized by its large size and the bands of erect scales on the legs. *P. Floridense* looks very much like *Stegomyia*, but so far as I have observed, they fly and bite only at night. Neither species are ordinarily troublesome here. No local breeding places have been found.

(To be continued in Nos. 3 and 4. No. 3 will contain Mosquitoes and Disease, Natural Enemies, and Preventives; No. 4, Part II, Traps for Mosquitoes.)

PERSONALS

Announcements of the marriage of Mr. A. C. Mason of the U. S. Ent. Laboratory at Miami to Miss Mary McConchie, at Paris, Ill., have been received.

Mr. C. A. Bennett has established his laboratory for the camphor thrips work at Satsuma. With J. R. Watson of the Fla. Exp. Station, who has been made colaborator in the Bureau on this project, he has recently made a trip to Macclenny, Glen St. Mary, and Monticello.

Mr. K. E. Bragdon is at present supervising the inauguration of a general survey of the peninsular section of Florida for the purpose of finding whether or not the sweet potato weevil has become established at interior points,

Mr. W. R. Briggs has recently been appointed County Agent for Manatee County, with headquarters at Bradentown.

Mr. A. C. Brown recently participated in the boll weevil investigations conducted by the State Plant Board in the northern part of the state.

Mr. Clarence A. Bass, until recently in the navy, is at present in Baltimore, recuperating from an operation. Upon his recovery he is expected to resume his position with the State Plant Board.

Mr. Milledge M. Bass recently resigned from the position of District Inspector for the State Plant Board to accept a position as manager of a large citrus property belonging to the Standard Growers' Exchange, located near Fort Myers.

Mr. Eli K. Bynum has been granted a leave of absence of several weeks by the State Plant Board, in order to attend to personal business affairs at his home at Sattilo, Miss.

Mr. Virgil Clark is now in western Florida making re-inspections of citrus properties formerly infected with citrus canker, this work being done jointly by the State Plant Board and the Bureau of Plant Industry, U. S. D. A.

Mr. Howard G. Carter recently resigned as District Inspector for the State Plant Board. He will henceforth devote his time and attention to his fruit-growing properties in southern Dade County.

Mr. E. F. DeBusk, County Agent of Orange County, has announced his forthcoming resignation. It is understood that he will engage in commercial work.

Mr. B. F. Floyd, Plant Physiologist of the University of Florida Experiment Station, has resigned for the purpose of entering commercial life. He will have charge of the insecticide work of the Wilson-Toomer Company.

Mr. Wm. Gomme is now County Agent of Polk County.

Mr. Chas. M. Hunt, Assistant Nursery Inspector for the State Plant Board, is now located in the Nursery Inspector's office at Gainesville.

Mr. Neal E. Hainlin is now engaged in the citrus canker re-survey work and is located in the northeastern portion of the state.

Mr. K. S. Lamb, formerly Asst. Quarantine Inspector with the State Plant Board, is now occupying a position as traveling salesman for the Loose-Wiles Biscuit Co.

Mr. Harold Mowry, Asst. Quarantine Inspector for the State Plant Board, is now located at Key West.

Mrs. N. M. G. Prange, of Jacksonville, was one of the enthusiastic attendants at the recent Citrus Seminar at Gainesville.

Mr. Wilmon Newell, Plant Commissioner, attended conferences, regarding the European corn borer, at Albany, N. Y., and Boston, Mass., on August 28th and 29th. He afterwards visited Riverton, N. J., and made a personal investigation of the Japanese beetle infestation at that point.

Prof. S. I. Kuwana, Government Entomologist of Japan, recently visited Florida. At Orlando he visited the Bureau of Entomology Laboratory in charge of Mr. W. W. Yothers, at Tampa he investigated the quarantine work of the State Plant Board, and at Largo the citrus canker eradication work, after which he spent two days at the University of Florida Experiment Station and the State Plant Board offices at Gainesville.

Mr. L. Russell Warner, Asst. Quarantine Inspector for the State Plant Board, is ill with typhoid fever at Key West. Fortunately his condition is not considered as critical and hopes are entertained for his steady recovery.

Mr. Frank Stirling installed and had charge of an exhibit for the State Plant Board at the West Florida Fair, at Marianna, October 28th to November 1st.

Mr. D. N. Reynolds is at present assisting the farmers of western Florida and particularly those of Jackson and Liberty Counties in dealing with the mosaic disease of sugar cane.

Mr. A. L. Swanson is heading a small party of inspectors assigned by the Plant Commissioner to the task of determining to what extent the mosaic cane disease may have become established around Lake Okeechobee.

Dr. C. F. Hodge has accepted an appointment with the new Extension Division of the University and is a most welcome addition to our meetings.

STRATEGUS WANTED—Am making a special study of this genus, of the Scarabeidae, and should be very glad to receive Florida specimens, especially of the rarer species. Will exchange or pay cash. Address W. Knaus, McPherson, Kansas.

A NEW PHYSOTHRIPS FROM OREGON

J. R. WATSON

A small collection of thrips collected by Prof. A. Burr Black and sent to the writer contains specimens of an apparently undescribed species.

Physothrips blacki, n. sp.

♀. General color brown, a slight tinge of orange on the thorax of some specimens.

Measurements: Total length 1 mm. Head length .09 mm., breadth 0.15 mm.; prothorax: length 0.13 mm., breadth (including coxae) 0.17 mm.; mesothorax: breadth 0.24 mm.; metathorax: breadth 0.21 mm.; abdomen: breadth 0.26 mm. Total length on antennae 0.22 mm. Segment 1, 25; 2, 33; 3, 37; 4, 36.5; 5, 32.5; 6, 42; 7, 7; 8, 14 microns.

Head considerably wider than long; cheeks slightly convex, sparsely hairy; vertex with several very distinct cross striations; no large post-ocular bristles, but a row of 8 small bristles extends across the vertex behind the eyes; a long spine in front of each posterior ocellus. *Eyes* large bright red by reflected light, occupying over half the length of the head and two-thirds the breadth, sparsely pilose, facets large. *Ocelli* very large, posterior margins of the posterior pair even with and near the posterior margins of the eyes, bordered on the inner sides by heavy pigmented crescents. Anterior cellus directed partly forward, bordered posteriorly by a large pigmented area. *Mouth-bone* long and pointed, reaching nearly or quite across the prosternum. *Antennae* 8-segmented, 1 and 2 almost as dark as the head, 2 often darker than 1; 3 and the base of 4 light-brownish yellow, remainder light brown. Spines and sense cones short and colorless but some of the latter heavy.

Prothorax squarish, sides slightly convex and diverging posteriorly. Posterior angles rounded and provided with a pair of heavy bristles. The anterior angles bear only very short bristles. *Mesothorax* with very convex sides, no large bristles. *Metathorax* with sides nearly straight and parallel. *Legs* rather long, except for the lighter tarsi, nearly concolorous with the body. Fore legs often lighter than the others. Fore *wings* light brown; veins bearing prominent bristles; 11 or 12 on the fore vein, 8 or 9 near the base, 2 in the center and one near the apex; 11 or 12 on the posterior vein, none on the base; fringing hairs stout but rather short and sparse. Hind wings colorless.

Abdomen elliptical, tapering acutely to the base. Spines short on the anterior segments and those on the posterior less than $\frac{2}{3}$ the greatest width of the abdomen.

♂ Smaller than the female. Some specimens are considerably lighter in color, especially the antennae and legs. The latter are sometimes yellow.

Abdomen widest at the base; well rounded posteriorly. The last segment bears several pairs of strong but short bristles.

Measurements: Total body length .87 mm.; head: length .086, breadth .134 mm.; prothorax: length .107 mm., breadth .155 mm.; mesothorax .202 mm.; abdomen: width at base .156 mm.; antennae: total length .187; segment 1, 18; 2, 30; 3, 34; 4, 34; 5, 28; 6, 39; 7, 6; 8, 12.5 microns.

Described from six females and 12 males collected from California poppy and dandelion at Corvallis, Oreg.

REPORTS OF MEETINGS

Aug. 4 (Adjourned meeting). Meeting was called to order by Vice President Merrill at 5 p. m. with the following members present: Geo. B. Merrill, P. W. Fattig, J. R. Watson, Dr. J. H. Montgomery, J. C. Goodwin, C. M. Hunt, Frank Stirling, O. T. Stone, P. H. Rolfs, and E. W. Berger. Visitors present were Prof. W. L. Floyd, Dr. C. L. Crow, W. L. Goette, Dr. C. F. Hodge and several students of the summer school. The following new members were elected: Miss M. F. Hill, teacher, Trenton; W. J. Schubert, of Armour and Co., Jacksonville; E. F. DeBusk, County Agent, Orlando; Dr. C. F. Hodge, instructor in summer school; and W. L. Goette, teacher, Eustis.

The address of the evening by Dr. Hodge on "Housefly Control" was listened to attentively. Dr. Hodge exhibited and explained his fly trap and gave much valuable data on the habits of flies. Flies will usually not travel much over 500 yards if food is available within that area. They may travel even a mile in search of food, and even further over water. The waterworks of Cleveland, Ohio, situated $1\frac{1}{4}$, 5, and 6 miles from shore were one summer overrun with flies. On the furthest crib the biting stable fly was most abundant and troublesome. On the nearer cribs some blue-bottles were present.

One trap is sufficient for a radius of 100 yards provided all other food is kept out of reach of the flies. One afternoon is sufficient to capture all the flies in such an area.

Dr. Hodge also explained how he got the idea that it was possible to "trap a vacuum" of flies. He had been paying boys to collect flies for feeding young quail. One day while dining with a friend on an open porch of his residence the absence of flies was commented upon and it occurred to him that the boys had caught all the flies. The trap was the outcome of this observation and finally led to his successful attempts at cleaning up the flies in whole cities.

E. W. BERGER, Acting Sec'y.

Sept. 29. Meeting called to order by Pres. O'Byrne at 5 p. m., with the following members present: E. W. Berger, K. E. Bragdon, H. S. Davis, G. M. Hunt, G. B. Merrill, Wilmon Newell, F. M. O'Byrne, Frank Stirling, and J. R. Watson. Visitors present were C. A. Weigel, and C. A. Bennett.

The paper of the evening was by J. R. Watson on the Origin

and Hosts of the Camphor Thrips. After an extended discussion of the paper Mr. C. A. Weigel, who has been conducting a general survey of the thrips situation in Florida for the U. S. Bureau of Entomology, outlined the plans for the camphor thrips campaign about to be undertaken by the Bureau under an appropriation of \$5000. Following this Mr. C. A. Bennett, who is to have direct charge of the control work, made a few remarks. Meeting adjourned at 6:30.

H. S. DAVIS, Sec'y.

Some damage is being done by pumpkin bugs and cotton stainers (*Nezara viridula* and *Dysdercus saturellus*) to citrus and other crops. After the adult pumpkin bugs have gotten onto the fruit the only known remedy is to collect them in large nets. The cotton stainers may be killed with a good strong oil emulsion or soap solution sprayed on the trees. Mr. Mosnett has found that spoiled avocados cut in half make excellent traps for them. While congregated on the avocado they may be sprayed with kerosene.

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