

INSECTS OF MACQUARIE ISLAND.

THYSANOPTERA : THRIPIDAE

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Through the kindness and efforts of Mr. K. C. Watson, Dr. J. L. Gressitt, and Miss Setsuko Nakata, the following new entity is made known from the subantarctic region. The first representatives, two females, were discovered by Dr. Gressitt in 1960. During the next year Mr. Watson, while a member of the 1960-61 Australian National Antarctic Research Expeditions, collected over 300 additional specimens including both sexes, larvae, and pupae. Miss Nakata lent those specimens belonging to Bishop Museum to me for study, and Mr. Watson forwarded the remainder.

As is frequently the case, thrips of oceanic islands are apt to be uniformly wingless, i. e. either brachypterous or apterous, especially if they are derived from complexes which have some wingless forms in their mainland constituents. The new, yellow, grass inhabiting species described herein is typical of this tendency and is completely apterous. Although its closest mainland relatives are unknown, the new species possibly is a member of the *Anaphothrips* complex, a group of species which produces many wingless forms that also inhabit grasses and are often yellow.

Physemothrips n. gen.

Head (fig. 1) about as wide as long, strongly produced forward of eyes, vertex broad, dorsal surface finely granular. Ocelli absent. Eyes bulging from head, extended laterally beyond cheeks, dorsal length about equal to the combined lengths of antennal segments I and II. Post ocellar and post ocular setae small, pointed. Antennae each 8-segmented, arising from a position slightly below foremargin of head; each segment with surface granular; segments III-VI with microsetae; segments III and IV each with a forked sense cone; segment VI non-pedicellate; style short. Mouth cone heavy, bluntly rounded, extending to posterior margin of prosternum. Maxillary palps 3-segmented; labial palps seemingly 1-segmented. Prothorax subtrapezoidal in outline, with dorsal surface granular, sparsely setose, and with only the single pair of posterolateral setae well developed. Pterothorax degenerate and granulated, with both mesonotum and metanotum reduced to single plates, which are sparsely setose and sculptured with weak, anastomosing transverse striae. Basal wing sclerites not evident. Legs slightly stocky; all tibiae 2-segmented; fore tibiae unarmed; hind tibiae each with 3 inner apical spurs. Abdominal surface predominately granular, overlaid by transverse anastomosing striae. Wing-holding setae not differentiated. Abdominal sternites without setae in addition to those present along posterior border. Abdominal tergite VIII lacking posterior comb. Abdominal tergite IX with 4 stout dorsal setae along posterior margin, these setae not quite as long as tube; mid lateral setae weak.

Abdominal tergite X split longitudinally along mid line; with 4 stout subapical setae. In ♀ saw-like ovipositor strongly developed. Male with abdominal sternites III–VI each with an oval glandular area; abdominal tergite IX with 2 pairs of short, stout setae.

Larva with most of body bearing numerous, closely spaced warts; abdominal tergite IX with a posterior series of tooth-like projections. Pupae lacking wing buds; abdominal tergite IX with 2 pairs of thorn-like projections.

Type species: *Physemothrips chrysodermus* n. sp.

Superficially, *Physemothrips* resembles *Tmetothrips* and, in a lesser degree, *Arpediothrips*, *Iridothrips*, and some other genera which have the fore part of the head produced beyond the eye margin. From all of these, *Physemothrips* may be distinguished by the combination of the strongly produced head; the broad body; the stout setae on abdominal tergites IX and X; the non-pedicellate form of antennal segment VI; and by the presence of but a single pair of moderately developed posterolateral pronotal setae.

Because to date, *Physemothrips* is represented only by completely apterous forms, inhabiting a remote island in an area where the thrips fauna is poorly known, a guess as to its placement in our phylogenetic system is hardly feasible. Our present concept of the natural classification is based primarily on interpretations of the features of macropterous forms and most apterous species are hard to place even at best. From general appearances, however, this genus might be considered to be a member of the *Anaphothrips* complex.

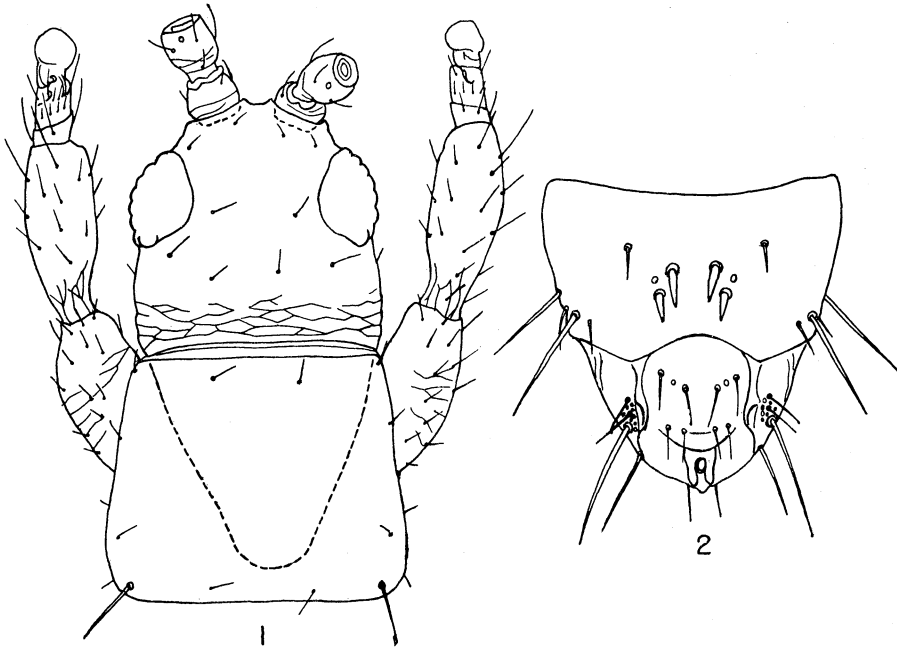
***Physemothrips chrysodermus* Stannard, n. sp.**

Female (apterous): Length distended about 1.8 mm. Color yellow except for tip of mouth cone and antennal segments IV–VIII which are brown. Body setae pale yellow.

Head (fig. 1) with cheeks nearly parallel, sparsely setose. Eye outline approximately the same dorsally and ventrally, not differentially prolonged on venter. Antennal segment I subquadrate; segment II about same width as I, broadly pedicellate, with dorsal sensorium placed near apex; segment III clavate, pedicellate with a dorsal moderately short, forked sense cone; segment IV cylindrical, pedicellate with a ventral moderately short, forked sense cone; segment V cylindrical, pedicellate, with simple apical sense cones; segment VI, longest, narrowed slightly as base but not pedicellate; segment VII and VIII forming a short style. Prothorax with all setae pointed. Pterothorax greatly reduced, sparsely setose. Legs without special spines or teeth; femora without any differentiated setae. Abdominal segments III, IV and V forming widest part of body; tergites I–VIII sparsely setose, with all setae short. Abdominal segment X longer than abdominal segment IX.

Measurements: Holotype, in microns: Head length 165, width across eyes 184, width across cheeks 176; eye length 70, width 45; post ocellar seta length 18; post ocular seta length 24; antennae (length and width, respectively): I: 32×35, II: 42×34, III: 61×24, IV: 51×24, V: 42×24, VI: 64×24, VII: 13×8, VIII: 16×6; pronotum length 173, width 227, posterolateral seta 64; mesonotum length 80, width 272; metanotum length 96, width 296; abdominal tergite V length 88, width 416; abdominal tergite IX length 88, basal width 184, mid lateral seta length 40, mid posterior seta length 85, lateral posterior seta 96; abdominal tergite X length 128, basal width 88, mid subapical seta length 88.

Male (apterous): Length distended about 1.3 mm. Color and structure similar to ♀ with the following exceptions. Prothorax with major posterolateral setae slightly smaller. Abdominal sternites III–V with an anterior median, elliptical glandular area, sternite VI



Figs. 1-2. *Physemothrips chrysodermus*: 1, ♀, dorsal aspect of head and prothorax; 2, ♂, dorsal aspect of terminalia.

with anterior median oval glandular area. Abdominal tergite IX (fig. 2), with 4 short, stout setae on median.

Measurements: Allotype, in microns: Head length 150, width across eyes 144, width across cheeks 136; eye length 64, width 40; post ocellar seta length 16; post ocular seta length 19; antennae (length and width respectively): I: 28×32, II: 35×28, III: 46×22, IV: 40×22, V: 37×22, VI: 53×22, VII: 10×8, VIII: 13×6; pronotum length 136, width 178, posterolateral seta 35; mesonotum length 80, width 189; metanotum length 96, width 197; abdominal tergite V length 64, width 235; abdominal sternite V, glandular area length 16, width 59; abdominal tergite IX, lateral thorn-like seta length 24.

Larva I: Length distended about .8 mm. Color pale yellow. Antennae generally pale; segments I and II lightly clouded with brown; III with light brown median band; IV with basal brown band; V, VI, and VII brown. Legs light brown except pale at apex of femora. Abdominal segments IX and X clouded with brown. Subintegumental pigment yellow.

Head smooth, about as long as wide, widest across eyes, produced in front of eyes. Eyes composed of several larval facets. Ocelli lacking. Intermediate antennal segments shorter than as in larva II; segment V asymmetrical, becoming shortest on inner lateral aspect. Mouth cone large. Maxillary and labial palps each 1-segmented. Prothorax wider than long, smooth, with posterior row of 4 setae slightly longer than anterior setae. Meso- and metathorax bearing numerous rows of closely spaced warts. Mesothorax bearing a pair of lateral spiracles. Legs with all tarsi 1-segmented. Abdomen with surface bearing numerous rows of closely spaced warts, segment I with 4 dorsal setae, segments II-IX each with 6 dorsal setae, segment X with 6 major setae encircling apex. Abdominal tergite IX

with posterior margin bearing about 5 small tooth-like projections. Abdominal segments II and VIII each with a pair of small lateral spiracles. All setae pointed.

Larva II: Length distended about 1.2 mm. Color pale yellow. Antennae generally pale; segment I pale; II lightly clouded with brown; III light brown except at extreme apex and base light brown; V, VI, and VII brown. Legs light brown except pale at apex of femora. Abdominal segments IX and X light yellow but deeper than preceding segments.

Head smooth, slightly wider than long, widest across eyes, produced in front of eyes. Eyes composed of several larval facets. Ocelli lacking. Antennal segments III and IV longer than as in larva I, segment V uniformly even in length. Mouth cone large. Maxillary and labial palps each 1-segmented. Prothorax wider than long, smooth, with 1 pair of fairly well developed, posterolateral setae. Meso- and metathorax bearing numerous rows of closely spaced warts. Mesothorax bearing a pair of lateral spiracles. Legs with all tarsi 1-segmented. Abdomen with surface bearing numerous rows of closely spaced warts, segment I with 4 dorsal setae, segments II-IX each with 6 dorsal setae, segment X with 6 major setae encircling apex. Abdominal tergite IX with posterior margin bearing 6-8 tooth-like projections. Abdominal segments II and VIII each with a pair of small lateral spiracles. All setae pointed.

Prepupa (♀): Length distended about 1.5 mm. Color pale yellow. Antennae placed rigidly forward in a V position, segments largely fused. Eye region small. Body smooth, in general form similar to larva. Thorax without wing buds. Legs with tibiae and tarsi fused. Abdominal sternites VIII and IX each with a pair of small ovipositor buds. Abdominal tergite IX with 4 thorn-like projections along posterior margin. All setae longer than as in larvae.

Pupa (♀): Length distended about 1.5 mm. Color pale yellow. Antennal segments fused, curved over dorsum of head. Eye region large. Body smooth. Thorax without wing buds. Legs with tibiae and tarsi fused. Abdominal sternites VIII and IX each with a pair of moderately well developed ovipositor buds. Abdominal tergite IX with 4 well developed thorn-like projections along posterior margin. All setae very long, curved, pointed.

Holotype ♀, Camp Hill, Macquarie I.; 16. XI. 1961, Watson; ex *Poa foliosa*. Allotype ♂, North Head, Macquarie I.; 13. IV. 1961; Watson, ex *Poa hamiltoni*. Paratypes 2 ♀ ♀, NE #1 Gulley, Macquarie I.; 4-7. XII. 1960; Gressitt; ex *Poa* and *Stilbocarpa*. 111 ♀ ♀, 7 ♂ ♂, approximately 200 immatures, Macquarie I.: North Head, Nuggets Point, Isthmus, Tent Hill, Camp Hill, Caroline Valley, Wireless Hill; I, III, IV, V, VII, X, XI, 1961; Watson; ex *Poa foliosa*, *P. hamiltoni*, *P. annua*, *Stilbocarpa polaris*, *Puccinellia macquariensis*, and *Cotula plumosa*. Holotype and Allotype deposited in the Australian National Insect Collection at the Commonwealth Scientific and Industrial Research Organization, Division of Entomology, Canberra; paratypes in the above, the Bishop Museum, Honolulu, and the Illinois Natural History Survey, Urbana.

For the present, the generic characteristics are sufficient to separate this yellow thrips from other species, especially by the features of the produced forepart of the head, the single pair of posterolateral, pronotal setae, and the four stout posterior setae on abdominal tergite IX in the female.

Females collected in November, December, and May were observed to have fully developed eggs within the abdomen. Larvae were present in the collections made during the months of October, November, January, February, March, and April.