THREE NEW HYMENOPTEROUS PARASITES OF THE PINE TIP MOTH, RHYACIONIA FRUSTERANA (COMSTOCK)\(^1\)

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The following new Ichneumonidae and Braconidae were reared by the writer and others during a preliminary study of the parasites of the pine tip moth in connection with a project to introduce the parasites of this species into the Nebraska National Forest for the control of the tip moth there.

**Campoplex frustranae**, new species.

*Campoplex frustranae* may possibly be one of the many species recently described by Viereck;\(^2\) but in his key to species it runs nowhere convincingly. It corresponds most closely to *angularis* Viereck, but differs in its pale scape and pedicel and in other characters.

**Female.**—Length 5 mm., antennae 3 mm., ovipositor 1.5 mm. Temples convexly sloping; diameter of lateral ocellus subequal to ocellocular line and slightly more than half postocellar line; eyes shallowly concave opposite antennae, frons only slightly broader than face; combined face and clypeus almost exactly as broad as long; clypeus broadly rounded at apex, medially very slightly produced; malar space about two-thirds basal width of mandible; antennae stout, flagellum thicker in middle than at either end, first joint four times as long as thick, others gradually shorter, those beyond apical fourth as thick as long and submoniliform. Thorax of normal proportions, propodeum with strong carinae, finely granularly opaque except apical areas, which are coarsely transversely rugose, areolar and petiolar area confluent, latter barely concave; areolet robust, radius beyond middle; nervellus inclivous, broken, but no trace of subdiscoidella present; legs moderately stout; hind basitarsus slightly longer than next two combined. Abdomen rather slender, weakly compressed; first tergite slightly longer than second, this half as long again as third and distinctly longer than broad at apex, spiracle slightly beyond middle; ovipositor sheath more than half as long as abdomen.

Black; scape and pedicel below, mandibles, palpi, front and middle trochanters, and apices of their coxae stramineous; tegulae yellow; front and middle legs otherwise testaceous, their tarsi paler; hind coxae black, reddish at apex, femur ferruginous, tibia brownish stramineous with apex blackish, tarsus fuscous, paler at base; wings hyaline; abdomen immaculate black except slightly reddish apical corners of second tergite.

**Male.**—Except sexually essentially like female; second tergite more extensively reddish apically.

**Type locality.**—Falls Church, Virginia.

**Host.**—Rhyacionia frustrana (Comstock).

**Type.**—Cat. No. 40102, U.S.N.M.

Ten females and 10 males selected from a large series reared by the writer during July, 1924, and April, 1925.

The delicate white cocoon is spun inside the shattered pupal shell of the host.

\(^1\) Received for publication Jan. 5, 1927; issued June, 1927.

Phanerotoma rhyacioniae, new species.

This species is remarkable chiefly for its very strongly depressed abdomen.

**Female.**—Length 2.7 mm. Head slightly broader than thorax, granularly opaque, sides of frons and upper part of face more or less rugose; eye large, bulging, broadly oval, sparsely hairy, its longest diameter nearly twice the length of ocelliocular line; malar space no greater than basal width of mandible; clypeus minutely bidentate at apex; antennae opposite upper fourth of eyes, scape hardly twice as long as thick, basal joint of flagellum about two and a half times as long as thick, joints toward apex changing gradually from cylindrical to nearly round moniliform. Thorax depressed, granularly opaque, notauli irregularly rugose, propodeum medially and apically coarsely irregularly reticulate rugose, laterally more finely so; second abscissa of radius hardly as long as first and distinctly shorter than second intercubitus; first and second abscissaes of cubitus not quite continuous, the second cubital cell not pointed at base; nervulus postfurcal by barely its length. Abdomen very flat, the edges especially at apex only slightly rolled downward, apically narrowly truncate but not at all emarginate, finely granularly opaque, longitudinally rather weakly and sparsely striate except in basal middle of first tergite and on apical half of third; first and third tergites subequal in length, second shorter by about a fourth; ovipositor straight, slightly exserted.

Ferruginous; stemmaticum, apices of antennae, propodeum, and third tergite brownish; abdomen otherwise yellowish; coxae, trochanters, and front and middle femora stramineous, hind femur darker; hind tibia reddish below, with apical and subbasal blackish spots above, extreme base and space between spots whitish, the same pattern but less distinct on middle tibia, front tibia mostly dark, tarsi paler than tibiae.

**Male.**—Like female but eyes larger with malar space and ocelliocular space somewhat shorter; subbasal joints of antennae about a half longer than thick.

**Type locality.**—Bogalusa, Louisiana.

**Host.**—*Rhyacionia frustrana* (Comstock).

**Type.**—Cat. No. 40103, U.S.N.M.

Described from four females and five males reared from infested pine tips collected by R. A. St. George in April, 1925. Some of the specimens are less contrastingly colored than the type.

**Microbracon gemmaecola, new species.**

In Muesebeck's key to the North American species of Microbracon this species runs to couplet 65, where it agrees fairly well with the characters assigned to *argutator* (Say); but a comparison of specimens shows the antennae to be somewhat longer (very nearly as long as body in *gemmaecola*), with the subapical joints relatively longer. The head is somewhat thinner anteroposteriorly, and the hind tibia, except at the extreme base, and the tarsus are black.

**Female.**—Length 2.5 mm. Head hardly two-thirds as thick as broad, temples sloping; face, frons, and vertex laterad of ocelli finely shagreened, vertex behind ocelli and temples polished; malar space about three-fourths as long as first flagellar joint; space between eye and clypeal opening more than half as wide as opening; antennae 27 to 30 jointed (28 in holotype), very nearly as long as body, flagellum tapering slightly beyond middle, basal joints two-thirds as thick as long, subapical joints distinctly though not conspicuously longer than thick. Thorax smooth and polished; notauli with sparse hairs; mesoscutum posteriorly with scattered, coarse, shallow punctures; propodeum posteriorly faintly reticulately and with a stump of the median carina and radiating ridges; stigma slightly more than a third as broad as long, radius before middle, second abscissa of radius barely twice as long as first and more than half as long as third, with which it forms a slight angle, first intercubitus two-thirds as long as second abscissa of radius. Abdomen broadly oval, opaque, granularly punctate, second tergite as long as first and longer than third, more coarsely sculptured with an

irregularly rugose area in basal middle, and medially emarginate at apex; ovipositor sheath barely as long as abdomen exclusive of first tergite, rather stout.

Pale yellowish ferruginous, with back of head, lateral lobes of mesoscutum, mesosternum, and propodeum stained with piceous; antennae, stemmaticum, tarsi, hind tibia except base, and apices of other tibiae black; wings hyaline, faintly infumate in basal half.

Male.—Runs to argutator in Muesebeck’s key. Like female, but malar space much shorter; antennae longer and more slender, the subapical joints nearly twice as long as thick; second tergite less distinctly emarginate.

Type locality.—Nantucket, Massachusetts.

Host.—Rhyacionia frustraria (Comstock).

Type.—Cat. No. 40104, U.S.N.M.

Described from seven females and eight males reared during March, April, and May, 1926, by L. W. Bailey from host in pine tips at the type locality and two females and one male reared by the author from the same host at Falls Church, Va., May 17 to 21, 1925.

The individuals of the Nantucket series display comparatively little variation and that mostly in the extent of the piceous staining of head and thorax. The Virginia specimens lack this staining entirely.