

NOTES ON THE *PASSALOECUS* OF NEW YORK STATE WITH DESCRIPTIONS OF TWO NEW SPECIES (HYMENOPTERA: SPHECIDAE)

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During the last few years I have had occasion to study a number of specimens belonging to *Passaloecus* Shuckard with the result that several apparently new forms were discovered. Recently I had an opportunity to study the types of the species described by Rohwer in the United States National Museum and by Fox and Viereck in the Philadelphia Academy of Natural Sciences and find that the following two species have not been described previously. Except where noted the type material is retained in my collection for the present.

The following key will serve to separate the species found in New York State and should also be of use in determining material from east of the Mississippi River:

KEY TO THE SPECIES

1. Antennae with twelve joints, abdomen with six segments; females 2
- Antennae with thirteen joints, abdomen with seven segments; males 6
2. Anterior margin of clypeus tridentate medianly, not produced into a lobe: labrum, mandibles except apically and pronotal tubercles creamy-white; impressed lines on mesonotum not foveolate; mesopleura without a longitudinal series of foveolate impressions running caudad from the upper termination of the omaulus *mandibularis* (Cresson)
- Anterior margin of clypeus produced into a lobe medianly which is truncate or very slightly emarginate apically, and without teeth 3
3. Impressed lines on mesonotum usually noticeably foveolate; mesopleura with a longitudinal series of foveolate impressions running caudad from the upper termination of the omaulus; labrum and pronotal tubercles creamy-white; legs, except coxae, light ferruginous *relativus* Fox
- Impressed lines on mesonotum usually not noticeably foveolate; mesopleura without a longitudinal series of foveolate impressions running caudad from the upper termination of the omaulus although there may be a faint sulcus in this region 4

4. Labrum and pronotal tubercles creamy-white; legs, except coxae, light ferruginous *annulatus* (Say)
Labrum and trochanters black 5
5. Pronotal tubercles black; scutellum shining, with sparser minute punctures; postocellar distance at most twice the lateral ocellar distance; size smaller, 5.0–6.7 mm. in length.
gertrudis sp. nov.
Pronotal tubercles white; scutellum opaque, with numerous minute punctures; postocellar distance two and one-half to three times the lateral ocellar distance; size larger, 6.7 mm. in length *ithacae* sp. nov.
6. Median antennal joints spinose beneath 7
Median antennal joints rounded out beneath 8
7. "Eleventh joint of antennae much larger and broader than the others, angular, in consequence of which the two apical joints are turned backward. . . ." *distinctus* Fox
"Eleventh joint of antennae not larger or broader than the others, not angular. . . ." *mandibularis* (Cresson)
8. Antennal joints with a conspicuous yellow spot at the apex beneath; legs, except coxae, ferruginous . . . *annulatus* (Say)
Antennal joints concolorous, without a yellow spot at the apex beneath 9
9. Impressed lines on mesonotum usually noticeably foveolate; mesopleura with a longitudinal series of foveolate impressions running caudad from the upper termination of the omaulus; legs, except coxae, ferruginous *relativus* Fox
Mesopleura without a longitudinal series of foveolate impressions running caudad from the upper termination of the omaulus; trochanters black 10
10. Impressed lines on mesonotum not foveolate; pronotal tubercles black; postocellar distance less than the ocellocular distance, the ratio varying from .75–.91:1 *gertrudis* sp. nov.
Impressed lines on mesonotum foveolate; pronotal tubercles creamy-white; postocellar distance greater than ocellocular distance, the ratio being 1.3:1 *ithacae* sp. nov.

P. mandibularis (Cresson)

Pemphredon mandibularis Cresson, Proc. Ent. Soc. Phila., IV: 451, 1865.

Forest Lawn, Buffalo, July 10, 1934 (K. V. Krombein); Ithaca, June 6, 1934 (K. V. Krombein); Ithaca, June 6, 1936 (J. G. Franclemont); Frontenac Point, Cayuga Lake, July 1–9, 1935 (J. G. Franclemont); Otsego Lake, July 3, 1935 (H. K. Townes).

P. relativus Fox

Passaloecus relativus Fox, Trans. Am. Ent. Soc., XIX: 319, 1892.

Millwood, June 20, 1936 (J. G. Franclemont); Farmingdale, L. I., Aug. 28, 1937 (K. V. Krombein; on scrub pine).

P. annulatus (Say)

Pemphredon annulatus Say, Boston Journ. Nat. Hist., I: 379, 1836.

Breesport, July 6, 1937 (H. I. Scudder); Ithaca, June 8, 1934 (K. V. Krombein); Frontenac Point, Cayuga Lake, July 1-15, 1935 (J. G. Franclemont); Onteora Mt., Greene Co., July 27, 1929 (L. O. Howard) [U. S. N. M.]; Shokan, July 13, 1936 (H. K. Townes); Farmingdale, L. I., Aug. 28, 1937 (K. V. Krombein; on scrub pine).

Of the specimens placed by Fox in *annulatus* (Say) in the Philadelphia Academy two males and one female are *relativus* Fox and the remaining females are *annulatus*.

P. rivertonensis Viereck (Trans. Am. Ent. Soc., XXX: 243, 1904) described from a male from New Jersey is doubtfully distinct from *annulatus*.

P. distinctus Fox

Passaloecus distinctus Fox, Trans. Am. Ent. Soc., XIX: 319, 1892.

This species is recorded from Ithaca, June 28 in the State List of Insects (Cornell Univ. Agr. Expt. Sta., Memoir 101, p. 1014, 1928).

***Passaloecus gertrudis* sp. nov.**

Female.—5.4 mm. long. Black: mandibles except apices, apical joints of palpi and scape beneath, creamy-white; fore and middle tibiae and all tarsi beneath and base of hind tibia, tinged with fulvous; wings slightly infuscated, stigma and nervures fuscous.

Head subshining; clypeus very sparsely haired; face with sparse, appressed silvery hair and closely granulate; a small median spiniform tubercle just above the level of the antennal insertions; ocelli in a low triangle, the postocellar and ocellocular distances about equal and twice as great as the lateral ocellar distance; vertex with numerous minute punctures.

Thorax subshining, with sparse, short appressed silvery hairs; pronotum very short and transversely carinate dorsally;

mesonotum shining, with numerous minute punctures which are not so close together as in *P. ithacae* sp. nov.; notaulices are present on the anterior portion of the mesonotum and are not foveolate; suture between mesonotum and scutellum deeply impressed and slightly foveolate; scutellum polished with minute punctures which are more separated than those of the mesonotum; postscutellum punctured like the mesonotum; dorsal surface of the propodeum glabrous with irregular carinae presenting a reticulate appearance; posterior surface of propodeum with finer irregular carinae; mesopleura shining and sparsely punctured; omaulus and episternaulus deeply impressed and foveolate; metapleura shining; lateral surface of propodeum with finer oblique carinae anteriorly and with a few coarser oblique carinae posteriorly; legs covered with fine appressed hairs.

Abdomen shining, the first tergite with sparse minute punctures, the remaining segments with numerous minute punctures and abundant short appressed hairs.

Male.—4.8 mm. long. Similar to female except as follows: clypeus with abundant silvery appressed hairs; clypeus opaque and rather closely punctate; antennae with a series of tyloides beneath on segments four to ten; postocellar distance about three-fourths the ocellocular, the latter about three times as great as the lateral ocellar distance.

Type.—♀; Forest Lawn, Buffalo, New York; June 28, 1934; (K. V. Krombein).

Allotype.—♂; Forest Lawn, Buffalo, New York; June 13, 1935; (K. V. Krombein).

Paratypes.—1 ♂, topotypic, June 12, 1935 (K. V. Krombein); 1 ♀, topotypic, June 25, 1934 (K. V. Krombein); 1 ♀, topotypic, June 29, 1934 (K. V. Krombein); 1 ♂, topotypic, July 11, 1934 (K. V. Krombein); 1 ♂, topotypic, July 12, 1934 (K. V. Krombein); 1 ♀, Ithaca, New York, April 20, 1934 (K. V. Krombein; reared from burrow in sumach twig); 1 ♂, Ithaca, New York, June 1, 1937 (J. G. Franclemont); 1 ♂, Ithaca, New York, June 13, 1935 (J. G. Franclemont); 1 ♀, Oswego, New York, July 26, 1936 (K. V. Krombein); 1 ♀, Rosedale, Massachusetts, June, 1928 (R. L. Taylor; from burrows of *Pissodes strobi*) [U. S. N. M.]; 1 ♂, Boston, Massachusetts, June 16, 1928 (R. L. Taylor; from burrows of *Pissodes strobi*) [U. S. N. M.]; 1 ♂, Arnold Arboretum, Boston, Massachusetts, July 8, 1921 (H. Morrison; swept from *Vaccinium* spp. near entrance) [U. S. N. M.]; 1 ♂, same locality as preceding,

July 14, 1921 (H. Morrison; swept from 5-leaf pines behind lab.) [U. S. N. M.].

Female paratypes vary from 5.0–6.7 mm. in length and differ from the holotype as follows: ratio of lateral ocellar to postocellar distances as 1:1.8–2.0, posterior margins of pronotal tubercles ferruginous in two specimens. Male paratypes vary from 4.3–5.1 mm. in length and differ from the allotypes as follows: the yellow spot on the scape beneath varies in size and is lacking on two specimens; tyloides present only on antennal segments five to nine in two specimens; postocellar distance varying from three-fourths to nine-tenths the ocellocular distance, the latter varying from two and one-half to three times as great as the lateral ocellar distance.

P. gertrudis is named for Mrs. Louis H. Krombein in grateful appreciation for all that one mother has done.

***Passaloecus ithacae* sp. nov.**

Female.—6.7 mm. long. Black: mandibles except apices, apical joints of palpi, scape beneath and pronotal tubercles, creamy-white; tegulae apically, apices of fore and middle femora, all tibiae and tarsi beneath tinged with dark fulvous; wings hyaline, stigma and nervures fuscous.

Head opaque: clypeus with appressed silvery hairs basally which are directed medianly and a few scattered longer erect hairs on the medio-apical lobe; face with abundant appressed silvery hairs and closely granulate; a small median spiniform tubercle just above the level of the antennal insertions; ocelli in a low triangle, the postocellar and ocellocular distances equal and three times as great as the lateral ocellar distance; vertex with numerous minute punctures.

Thorax opaque with abundant short appressed silvery hairs; pronotum very short and transversely carinate dorsally; mesonotum with numerous close-set fine punctures; notaulices present on the anterior third of the mesonotum and noticeably foveolate; suture between mesonotum and scutellum deeply impressed and foveolate; punctures of scutellum slightly larger and more separated than those of mesonotum; postscutellar puncturation like that of mesonotum; dorsum of propodeum glabrous with irregular carinae presenting a reticulate appearance; posterior surface of propodeum shagreened and with finer irregular carinae; mesopleura subshining, with fine well-separated punctures, the omaulus and episternaulus deeply impressed and foveolate; metapleura shining; lateral surface of propodeum shagreened anteriorly and with a few oblique

carinae posteriorly; legs covered with fine appressed hairs.

Abdomen shining with numerous minute punctures and abundant short appressed hairs.

Male.—5.2 mm. long. Similar to female except as follows: fore tibiae beneath and fore and middle tarsi entirely ferruginous; clypeus closely punctate and with numerous appressed silvery hairs; postocellar distance twice the lateral ocellar distance and almost one-third again as great as the ocellocular distance.

Type.—♀; Ithaca, New York; July 23, 1937 (J. G. Franclemont).

Allotype.—♂; Timagami, Ontario, Canada; June 10, 1932; (A. W. A. Brown) [U. S. N. M.].

Paratypes.—1 ♀, 1 ♂, Holden, Massachusetts, Aug. 8–10, 1905 (J. C. Bridwell) [♀ in U. S. N. M., ♂ in K. V. K.].

Other material examined.—1 ♀, 1 ♂, Itasca State Park, Minnesota, Sept., 1927 (S. Garthside) [U. S. N. M.]. Excluded from type series because of poor condition.

The paratypes differ from the type and allotype in having a more yellowish cast to the creamy-white markings; the female paratype also differs from the type in that the ferruginous on the legs is lighter and the postocellar and ocellocular distances are about two and one-half times as great as the lateral ocellar distance.

Courtship in Hesperidae.—During the summer of 1937 I several times noticed various species of Hesperidae engaged in courtship. Familiar as Lepidoptera are to me (I used to collect them), it was my experience that such activities are carried on during flight. But in the Hesperidae this appears to take place on or near the ground. On one occasion a male walked in circles about a female resting upon a grass stem, vibrating his outstretched wings as he walked. When the female moved to another location, he repeated this performance. The activity has been observed in several species, and generally resembles the description given above. I should welcome information as to whether this sort of mating procedure is general among Hesperidae and peculiar to that group.—CYRIL E. ABBOTT, Chicago, Ill.



Krombein, Karl V. 1938. "Notes on the Passaloecus of New York State with descriptions of two new species (Hymenoptera : Sphecidae)." *Bulletin of the Brooklyn Entomological Society* 33, 122–127.

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