

TWO NEW SOUTHWESTERN SPIDER WASPS (Hymenoptera: Pompilidae)

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The Pompilid fauna of Southwestern United States is a rich one, and still contains a number of undescribed and sometimes surprising forms. The two species described here belong to the two largest genera of the tribe Pompilini, *Pompilus* and *Anoplius*. Each is, however, quite distinctive within its genus, so much so that it has seemed desirable to name them prior to a more comprehensive review of the group. I am indebted to Mr. Paul D. Hurd, Jr., of the University of California, for his assistance in obtaining much of the material on which these species are based.

***Pompilus* (*Ammosphex*) *phoenix* Evans, new species**

This curious species of *Pompilus* is apparently widely distributed in the Southwest. It is not closely allied to any other species known to me; the genitalia, however, in particular, betray a kinship to certain members of the subgenus *Ammosphex*, such as *angularis* (Banks). In general it will fit the characters of this subgenus; it possesses, however, a number of striking specific characters. Chief among these are the following: the penultimate visible sternite of the male is provided with a flattened, specialized median area set off by a carina (Fig. 5); the female possesses a tarsal comb in which there are but two comb-spines on the basitarsus (Fig. 6); the third submarginal cell is very much smaller than the second and usually petiolate; the pulvillar comb is much reduced. Certain other characters will become apparent in the description below. This species is an apparently highly specialized member of an otherwise rather homogeneous genus.

The females of this species have sometimes been considered by Banks as the females of *estellina* Banks; the latter species, however, described from a male, is an *Anoplius*, and not closely related to the present species.

Male. Length 6.5 mm.; fore wing 5.5 mm. Black, body conspicuously brownish and silvery pubescent. The following parts are

clothed with a very dense and rather coarse silvery pubescence: lower half of scape, basal half of mandibles, clypeus, front, temples, pronotum, posterior half of mesonotum, sides of the scutellum, metanotum, postnotum, propodeum, mesopleura, sterna of pro- and mesothorax, coxae, and to some extent the trochanters and femora; very densely sericeous are the first abdominal tergite and bands on the posterior margins of tergites 2, 3, and 4; here and on the pronotum and propodeum there is a median line from which the setulae diverge strongly. Vertex, anterior half of mesonotum, disc of the scutellum, and remainder of the abdomen and appendages with a much finer brownish pubescence. Body devoid of erect hairs, except for a few on the mandibles and a few short, pale hairs on the posterior face of the head and the anterior face of the prothorax. Wings completely hyaline except for broad marginal band on the fore wings.

Head considerably broader than high; eyes very large, front narrow; front in anterior aspect hardly wider than the two eyes taken together. Clypeus twice as broad as high, lower margin truncate. Eyes diverging somewhat above, distance between the eyes at the top 1.2 times the distance between them at the bottom. Front with a distinct line from the antennal bases to the anterior ocellus. Ocelli in a large triangle, forming an acute angle in front; post-ocellar line greater than ocello-ocular as 3:2. First four antennal segments in a ratio of about 2.6:1:1.8:2, the third segment about 1.8 times as long as thick.

Pronotum much shorter than the mesonotum, posterior margin subangulate; pronotum more or less swollen dorsolaterally and depressed in a narrow band just before the posterior margin. Scutellum prominent, strongly convex. Metapostnotum very broad, as broad medially as the metanotum, finely transversely striate, impressed medially. Propodeum sloping smoothly; spiracles small and close to the anterior margin. Last segment of front tarsus parallel-sided, inner claw rather strongly curved, bifid; outer claw of front tarsus and all remaining claws dentate. The tarsi become very thin distally, the apical segment being much more slender than the basal. Last tarsal segment without spines beneath; pulvillar comb rudimentary.

Cubitus of hind wing arising opposite the tip of the submedian cell. Transverse median vein of fore wing meeting the median slightly beyond the origin of the basal. Stigma very short; marginal cell short, subtriangular, over twice its length from the wingtip. Second submarginal cell about 1.5 times as broad as high, narrowed by about a third above. Third submarginal cell very small, not half the breadth of the second, petiolate above. Third discoidal cell about 1.3 times its length from the margin of the wing; second recurrent vein arising about two-fifths of the way out from the base of the subdiscoidal vein to the margin of the wing.

Abdomen in resting position not longer than the thorax, by virtue of the fact that the apical segments tend to telescope obliquely into

the first three; the subgenital plate and a specialized flattened area on the preceding sternite remain visible apically. The latter sternite is seen, on dissection, to possess an elongate-V-shaped smooth and sparsely setulose area, marked off by a carina, anterior to the apical emargination and running nearly the length of the sternite (Fig. 5). The posterior margin of this sternite on each side of the hooklets bordering the emargination is produced into short, rounded processes. The subgenital plate is subspatulate and nearly flat (Fig. 3).

Genitalia (Fig. 4) with the parameres slender, sparsely hairy, not exceeding the aedeagus. Volsellae with the basal hooklets strong, double, the basal pair the larger; digitus subspatulate, sparsely clothed with short setae, the extreme apex bare. Parapenials short, stout, their inner margins strongly excised opposite the base of the aedeagus. Aedeagus basally broadly expanded, much more slender distad, the extreme apex again expanded, suggesting the tail of a fish. On high magnification several minute teeth can be seen on the margin of the aedeagus subapically; these may be the rudiments of the teeth which occur on the aedeagus of all members of the subgenus *Ammosphex*, but in no other Pompilini known to me.

A single male paratype agrees closely with the type. It is smaller (5.5 mm. long); the basal and transverse median veins of the fore wing are interstitial. The head of this specimen is partially eaten by Dermestids.

Female. Length 9.5 mm.; fore wing 8.5 mm. Black; entire body clothed with a fine, somewhat velvety brownish-cinereous pubescence; part of the lower front and spots on the sides of the scutellum and metanotum are silvery-sericeous. Front wings brownish, the margin with a darker band, strongly violaceous; hind wings subhyaline basally, more heavily infuscated toward the apex. Body with only a very few erect hairs as in the male.

Head broader than high; eyes large and front narrow. Front, in anterior aspect, not wider than the two eyes together; inner orbits subparallel. Clypeus three times as broad as high, truncate below. Labrum mostly concealed, the apical margin with a median notch. Mandibles with a single tooth on the inner margin. Median line of front distinctly impressed. Ocelli in a large triangle, the laterals much nearer to the eyes than one another. Antennae long and slender; first four segments in a ratio of about 3:1:4:3, the third segment subequal to the distance between the eyes on the vertex.

Thorax similar to that of the male; metapostnotum nearly as long as the metanotum, finely transversely striate. Propodeum short, subglobose, sloping more steeply behind, the declivity slightly concave. Median line of propodeum distinctly impressed above; spiracles not their length from the anterior margin. Front tarsus (Fig. 6) with a comb, the spines of which are about twice as long as the width of the tarsus. There are two comb-spines on the basitarsus, the apical one about two-thirds as long as the second segment; there are two comb-spines on the second segment and a single smaller spine on the third. Tarsi becoming more slender apically, as in the

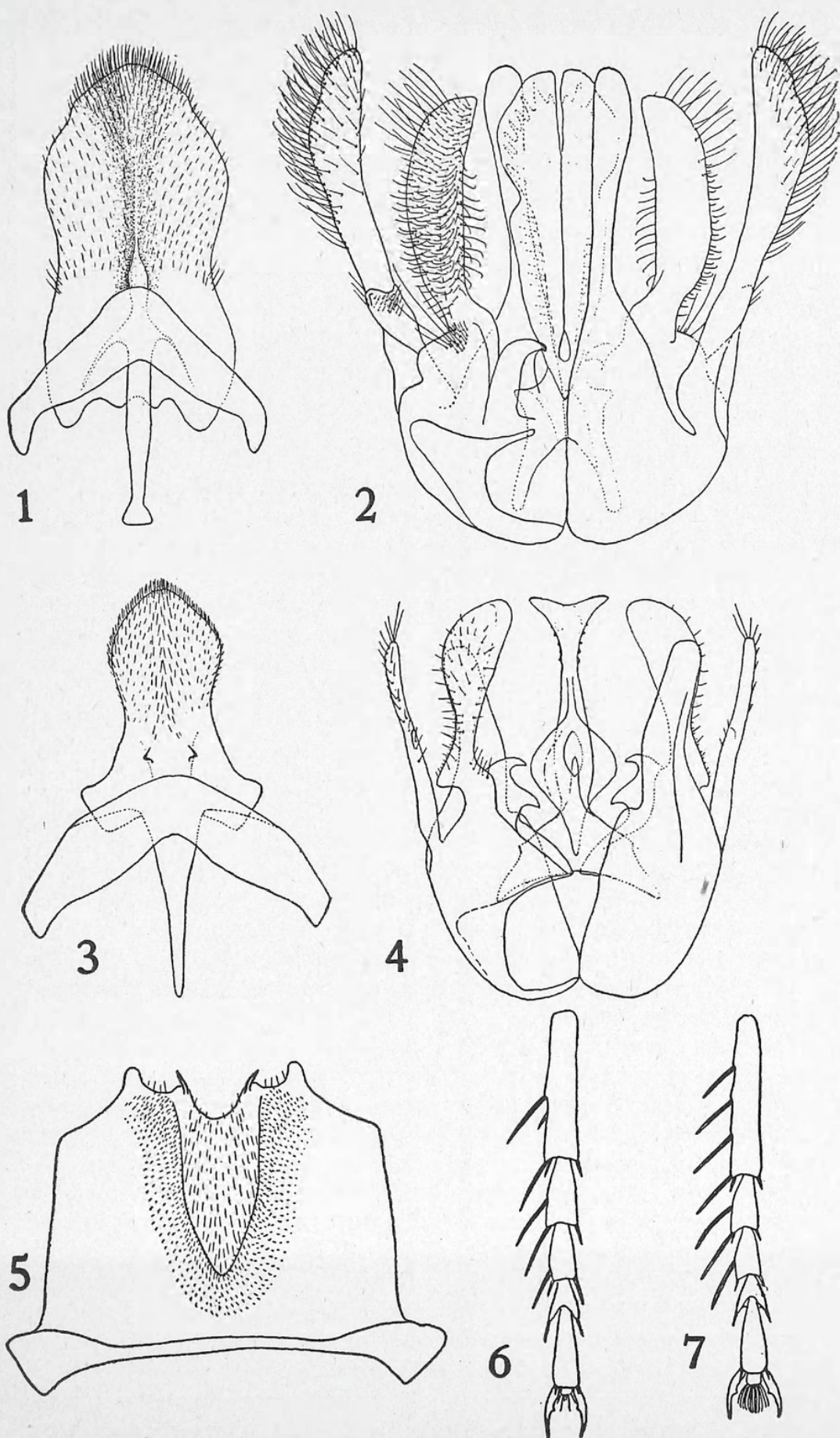
male; pulvillar comb rudimentary; last tarsal segment with two or three spines beneath near the base, the apical half without spines. Venation not differing from that of the male. Abdomen short and stout, tapering rapidly behind; entire abdomen devoid of erect hairs or bristles.

Seven female paratypes vary in size from 5.5 to 10.5 mm., a considerable range. The smaller specimens have a relatively broader front and shorter antennae; the third antennal segment in the smallest specimen is equal to but .65 times the distance between the eyes on the vertex. The spines of the tarsal comb may be very short, not longer than the width of the tarsus. In one specimen the third submarginal cell is not petiolate, nor even triangular, but is at least much smaller than the second.

Holotype. ♂; ARIZONA, MARICOPA COUNTY, PHOENIX, July 11, 1932. *Allotype*. ♂; CALIFORNIA, IMPERIAL COUNTY, PALO VERDE, August 20, 1946 (P. D. Hurd). *Paratypes*. ♂; California, Contra Costa County, Antioch, September 10, 1947 (J. W. MacSwain). [These three specimens are from the collection of the California Insect Survey; the specimens will be deposited in the California Academy of Science.] ♂; California, Inyo County, Independence, June 7, 1939 (R. M. Bohart). ♀; California, Fresno County, Coalinga, July 18, 1946 (P. D. Hurd). [These two specimens, also from the California Insect Survey, will be deposited in the U. S. National Museum.] ♂; California, Calaveras County, Mokelumne Hill, October (F. E. Blaisdell) [Calif. Academy of Science]. ♀; California, Kings County, Lemoore, August 6, 1927 [Cornell Univ.]. ♀; California, San Diego County, National City, May 15 (Van Duzee) [Mus. Comp. Zool.]. ♀; UTAH, San Juan County, Bluff, July 7, 1935 (C. T. Brues) [Mus. Comp. Zool.]. ♀ TEXAS, Jeff Davis County, Fort Davis, July 26, 1946 (H. E. Evans) [Cornell Univ.].

EXPLANATION OF FIGURES

Anoplius (Pompilinus) californiae Evans, new species: Fig. 1, Subgenital plate (sternites VIII and IX) of male; Fig. 2, Male genitalia; Fig. 7. Front tarsus of female. *Pompilus (Ammosphex) phoenix* Evans, new species: Fig. 3, Subgenital plate (sternites VIII and IX) of male; Fig. 4, Male genitalia; Fig. 5, Sternite VII of male; Fig. 6, Front tarsus of female. In the figures of the genitalia, the ventral view is drawn on the left side, the dorsal on the right.



Anoplius (Pompilinus) californiae Evans, new species

This new member of the very homogeneous subgenus *Pompilinus* is fortunately provided with a number of specific characters which set it apart without great difficulty from its congeners. The tarsal comb of the female is more strongly developed than in other native species of the subgenus except *brevihirtus* (Banks); from the latter it differs in being much larger, all black, less hairy, and in the relatively longer antennae, narrower front, etc. In the hairiness of the propodeum it resembles *tenebrosus* (Cresson), but the stronger tarsal comb serves to separate it from this species. The male is separable on the characteristic subgenital plate and genitalia, as well as in the hairiness of the propodeum.

Female. Length 10 mm.; fore wing 8 mm. Black; apical two-thirds of the mandibles dull ferruginous. Body clothed with a very fine brownish pubescence. Wings fuliginous, somewhat violaceous. Body with erect dark hairs as follows: clypeus, front, vertex, temples, prosternum rather densely; scape slightly hairy below; entire thorax including the coxae and propodeum, with rather sparse but prominent erect hairs; abdominal venter somewhat hairy, especially caudad; apical tergite with numerous stout, bristly setae.

Head, exclusive of mouthparts, 1.2 times as broad as high. Mandibles with a single tooth on the inner margin. Labrum slightly exserted, apical margin truncate, bristly. Clypeus 2.5 times as broad as high, apical margin truncate. Front broad; distance between the eyes at the emargination of the orbits .6 times the width of the head. Eyes converging but very slightly above, the inner orbits nearly parallel. Ocelli in approximately a right triangle; postocellar line greater than ocello-ocular as 5:4. Antennae quite long and slender, the first four segments in a ratio of about 3.5:1:4.5:3.5, the third segment equal to about three-quarters the distance between the eyes on the vertex.

Posterior margin of prothorax angulate, although not sharply so. Metapostnotum a narrow transverse band, about one-third the width of the metanotum, transversely striate. Propodeum strongly swollen, with a well defined flat or slightly concave declivity, median line scarcely impressed. Anterior tarsus (Fig. 7) with a well developed comb of spines nearly twice as long as the width of the tarsus; there are four on the basitarsus, the apical one over half the length of the second tarsal segment. Last tarsal segment with 3 or 4 median spines beneath; pulvillar comb strongly developed.

Anal and cubital veins of hind wing interstitial on the medius. Transverse median of fore wing meeting the median slightly distad of the base of the basal vein. Marginal cell about 1.5 times its length from the wing-tip, radial vein angled at the second transverse cubital. Second submarginal cell rhomboidal, somewhat broader

than high. Third submarginal cell about as broad as high, petiolate above.

The six female paratypes vary in size from 9 to 12.5 mm. In two specimens there are but three comb-spines on the basitarsus of the same length as in those with four. The hairiness of the body is somewhat variable, and in one specimen the femora bear numerous erect hairs. In most of the paratypes the anal vein of the hind wing meets the median before the origin of the cubitus.

Male. Length 9.5 mm.; fore wing 8 mm. Black; pubescence brown, except on the sides of the clypeus and lower face, and on the temples, where it is conspicuously silvery. Fore wings fuscous, slightly darker along the margin; hind wings subfuscous, darker apically. Scape slightly hairy below; clypeus, front, vertex, temples, and prosternum with short erect hairs in abundance; entire thorax, including the front coxae and the propodeum, with more sparse but prominent hairs; abdomen smooth, without erect hairs.

Head, exclusive of mouthparts, 1.15 times as broad as high. Clypeus truncate below, 2.25 times as broad as high. Front quite broad, at the middle .6 times the breadth of the head. Eyes diverging very slightly above. Ocelli quite large, forming an acute angle in front; postocellar line greater than ocello-ocular as 8:7. Antennae quite long and slender, first four segments in a ratio of about 3:1:3:3, third segment about 2.8 times as long as thick.

Pronotum angulate behind. Metapostnotum about half as wide as metanotum, finely transversely striate, it and the propodeum with an impressed median line. Propodeum swollen, more steeply declivous behind. Last segment of anterior tarsus asymmetrical, the inner margin produced; inner claw of front tarsus strongly curved, the outer less strongly curved but more so than the claws of the middle and hind tarsi; all the claws bifid. Last tarsal segment not spined beneath. Venation as in the female; anal vein of hind wing meeting the median before the origin of the cubitus.

Abdomen rather stout, subfusiform. Penultimate visible sternite with a large U-shaped emargination. Subgenital plate (Fig. 1) rather broad, nearly flat, but with the median line slightly raised. Genitalia (Fig. 2) with the parameres the longest of the appendages, expanded and very slightly curved apically; basis volsellaris with the hooklets single and strong, at the base of the digitus with numerous short and several long hairs; digitus quite long, nearly parallel-sided, acutely pointed, beset with short setae which are longer on the upper, outer part; parapenials simple, nearly as long as the parameres, subequal in length to the adeagus; adeagus gradually expanded toward the apex, which is quite broad, but margins notched about two-thirds way out. The genitalia, while possessing numerous specific characters, are of the general pattern of those of the subgenotype, *cylindricus* (Cresson). They closely resemble those of *estellina* (Banks), which occurs in the same area, except that the

aedeagus is very different in shape; this species is also much smaller than *californiae*.

Holotype. ♀; BAJA CALIFORNIA, MEXICO, LA PAZ, June 3, 1921 (E. P. Van Duzee). *Allotype*. ♂; same data as holotype. [These two specimens will be deposited in the California Academy of Science.] *Paratypes*. ♀; Gulf of California, Mexico, Angeles Bay, May 7, 1921 (E. P. Van Duzee [U. S. National Museum]). ♀; CALIFORNIA, Inyo County, Owens Lake, June 2, 1937 (N. W. Frazier) [Cornell Univ.]. 2 ♀♀; California, San Bernardino County, 29 Palms, Boyer Ranch (M. Boyer) [Mus. Comp. Zool.]. ♀; ARIZONA, Pinal County, Florence, May 1903 [Acad. Nat. Sci. Phila.]. ♀; "Arizona" [U. S. National Museum]. The last two listed are in poor condition.

BOOK NOTICE

The Naturalist's Lexicon, a List of Classical Greek and Latin Words used or suitable for use in Biological Nomenclature, with abridged English-Classical Supplement. By Robert S. Woods. Abbey Garden Press, P. O. Box 101, Pasadena, Calif. xvii + 282 p. 1944. Price \$2.75.

The Introduction of this attractively-bound book includes sections on the construction of names, terminations (with tables of Latin adjectival endings and Greek noun endings), formation of nouns, adjectives and participles, diminutives, compound words, generic and specific words, and pronunciation. Pronunciation is indicated for each word listed in the body of the work, and although the list is not as long as that in Jaeger's "A Source-book of biological Names and Terms" (C. C. Thomas, 1944. \$3.50), there are here many words not in the latter, and they make fine companion pieces. The English-Classical section (p. 259-282) is classified and helpful to persons wishing to coin appropriate scientific names.

In 1947 the Abbey Garden Press published a 47-page "Addenda to the Naturalist's Lexicon," by the same author, price 25 cents. It contains a comprehensive classified English-Classical key to the descriptive nouns, adjectives and verbs in the Lexicon, as well as some additions and emendations to the latter. This Addenda is comparable, in its usefulness, to the dictionary form of Roget's Thesaurus, and as in the main work the typography is clear and legible.—HUGH B. LEECH.



Evans, Howard E. 1948. "Two new south-western spider wasps (Hymenoptera: Pompilidae)." *The Pan-Pacific entomologist* 24, 123-130.

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