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NORTH AMERICAN ADDITIONS TO THE GENUS
PTEROCHEILUS (HYMENOPTERA, VESPIDAE)

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In the decade since publication of my revision¹ of the genus *Pterocheilus*, 5 new species and 1 new subspecies have turned up, bringing the known total for America north of Mexico to 37. This includes the discovery that *nigricaudus* R. Bohart, described from the female, is synonymous with *inyoensis* R. Bohart, described from the male. This was indicated by a series of both sexes from Yermo, San Bernardino Co. (E. G. Linsley, J. W. MacSwain) and Hopkins Well, San Bernardino Co. (J. E. Gillaspay, L. W. Quate) collected in April, 1949. Also, a long series of both sexes of *acuceps* R. Bohart was collected at Mendota, Fresno Co., April 23, 1949 (E. G. Linsley, J. W. MacSwain, R. F. Smith). The male of this species has not been previously described and its principal features are given below.

Pterocheilus acuceps R. Bohart

Pterocheilus (*Micropterocheilus*) *acuceps* R. Bohart, 1940. Ann. Ent. Soc. Amer. 33:208, female.

Male.—Similar to *morrisoni* Cresson, but last antennal segment smaller, more cone-shaped, not flattened beneath. Also, tergite II with a rather squarely U-shaped yellow margin, instead of curved as in *morrisoni*.

The puncturation, pubescence, clypeal shape and mid femur shape are much as in *morrisoni*. The genitalia are most similar to those of *cyathopus* R. Bohart, with the paramere stout and obliquely truncate at the apex. In *cyathopus*, the clump of stout bristles at the inner apex is largely confined to the oblique apical margin, whereas in *acuceps* the bristles continue onto the inner margin. One additional locality is Coalinga, Fresno Co., California (M. Cazier).

Pterocheilus (*Megapterocheilus*) *bradleyi*, new species

Description of male.—Dark brown to black marked with ivory as follows: basal mandible spot, clypeus, face around antennal insertions, extending along lower orbits, spot along upper orbit opposite median ocellus, scape in front, postocular line, pronotum above, tegula except for a clear spot, mesopleural spot, parategula, 2 scutellar spots, postscutellum

¹Bohart, R. M., 1940. A revision of the North American species of *Pterocheilus* and notes on related genera. Ann. Ent. Soc. Amer. 33:162-208.

mostly, spot on propodeal angle, legs partly, wavy apical margins of tergites I to VI and sternites II to VI, that on tergite II shaped roughly like a W. Antennal flagellum brownish beneath, legs partly brown. Wings lightly brown-tinted. Pubescence inconspicuous, pale, minute except on frons and propodeal angles; tergite II with a brownish pubescent sublateral spot. Puncturation moderate on head and thorax, fairly coarse and close on tergites; punctures of clypeus minute, those of frons small and well separated, those of pronotum moderate but well spaced, those of mesonotum mostly less than a puncture diameter apart, those at center of tergite II rather coarse and close. Clypeus weakly concave at apex which is about half as broad as length of antennal segment III; last antennal segment shaped like a curved cone, two-thirds as long beneath as segment XII but only about one-half as large; head broader than long, lateral ocellus not quite 2 diameters from compound eye; propodeal angles blunt, mid femur somewhat flattened beneath toward base; labial palpus with second segment as long as antennal segment XII, third segment as long as XIII. Genitalia about as in *mirandus* Cresson² but aedeagus and parameres a little more slender, aedeagus with edge serrate between median prongs and paramere insertion, paramere with inner basal edge nearly straight. Length to apex of second tergite 10.0 mm.

Types.—Type male and 1 male paratype, Nogales, Arizona, August 30, 1927 (J. C. Bradley). Type in Cornell University Collection; paratype in collection of author.

Remarks.—A female specimen with the same data as the type is probably the same species. However, it differs markedly in color, with an orange-red in place of black except at the petiole, along some sutures and in the ocellar area. The clypeus is somewhat produced apically and truncate.

The male of *bradleyi* runs between *trichogaster* R. Bohart and *decorus* Cr. in the author's key to *Pterocheilus*.² The last antennal segment is pointed but the first tergite has no long hair. The presumed female runs to *texanus* Cr. in the same key but lacks the dark brown wings of the latter and has the first tergite more narrow and gradually sloping.

***Pterocheilus* (*Onchopterocheilus*) *sculleni*, new species**

Description of male.—Black, reddish and ivory (ivory to yellow in paratypes). Reddish are: mandible apex, antennal insertion, scape mostly, flagellum entirely, pronotum at sides below, mesopleuron partly, propodeum except for 2 large spots, stains on scutellum and postscutellum, legs partly (including most of femora), large square-ended mark on tergite I, x-shaped mark on tergite II, bases of tergites III to VI, tergite VII, sternites VI and VII. Ivory are: mandible mostly, clypeus and labrum, frontal and orbital marks, postocular spot, scape in front, pronotum above, large mesopleural and propodeal spots, 2 pairs of spots laterally on mesonotum, tegula, 2 spots on scutellum, post-scutellum mostly, legs partly including most of tibiae, abdomen except for red marks. Costa mostly and other veins of forewing basally reddish, stigma reddish, membrane clouded toward apex. Pubescence pale and inconspicuous except on clypeus which is thickly covered with short silvery hair.

²Figured in Bohart, R. M., 1940. *Ann. Ent. Soc. Amer.* 33:177, fig. 3.

Puncturation sparse on clypeus, coarse and separated by less than a puncture diameter on pronotum, mesonotum and dorsum of tergites I to III, a little less coarse on other tergites and rest of thorax; sternite II well punctured throughout, punctures mostly separated by a puncture diameter. Clypeus convex apically, head broader than long, last 2 antennal segments very small and largely retracted within XI, mid femur with a moderate hump at base beneath, parategula broadly rounded, propodeal angles blunt. Aedeagus with about 15 subbasal lateral teeth; paramere roughly cone-shaped, longer than broad at base, apical one-half with many strong inward-pointing bristles, becoming more numerous toward apex. Length to apex of second tergite 9.0 mm.

Description of female.—Clypeus varying from ivory with red mark toward apex to yellow to orange-red. Mesonotum as in male or with black largely replaced by reddish. Mandible mostly or all red, frons and legs mostly reddish. Pale markings ivory to yellow. Labial palpus light reddish. Clypeus obtusely pointed at apex, punctures distinct and 2 to 3 puncture diameters apart. Length to apex of second tergite about 9.0 mm.

Types.—Male, California Academy of Sciences, Ent. No. 6,146, Douglas, Arizona, June 16, 1942 (H. S. Scullen). Paratypes, 2 females, same data as type; 1 pair, Eckley, Colorado, June 30, 1925 (H. J. Grady); 4 males and 2 females, near El Paso, Texas, June 21, 1942 (E. C. Van Dyke and H. A. Scullen).

Remarks.—This species runs near *laticeps* in the key (Bohart, 1940) and makes the fourth known species of the group. They may be separated as follows:

1. Labial palpus of female yellow, legs black and yellow..... 2
 Labial palpus of female red or reddish brown; legs with considerable reddish, at least on femur..... 3
2. Clypeus in both sexes with a slight subapical depression filled with punctures coarser than those on rest of clypeus; mesonotum of female with a pair of nearly complete curved yellow stripes. Male mid femur with an acute basal knob, male paramere broad at apex and heavily bristled..... *hurdi* R. Bohart
 Clypeus evenly convex and rather evenly punctured in both sexes; mesonotum of female without central marks or with a pair of dots only; male mid femur swollen at base but not distinctly knobbed; male paramere more slender and pointed toward apex, lightly bristled..... *trachysomus* R. Bohart
3. Second tergite with lateral spots broadly attached to apical margin and extending obliquely inward so as to define a red or black x-shaped mark; male paramere cone-shaped with many long and stout bristles..... *sculleni* R. Bohart
 Second tergite with detached or pale spots; male paramere boat-shaped and with weak bristles..... *laticeps* Cresson

***Pterocheilus* (*Onchopterocheilus*) *hurdi*, new species**

Pterocheilus trachysomus R. Bohart, 1940, in part, including allotype female and plate II, fig. 11. Ann. Ent. Soc. Amer. 33:193.

Description of male.—Black marked with yellow as follows: mandible mostly, clypeus, scape in front, interantennal spot, lower orbit, postocu-

lar spot, pronotum except laterally, 2 large pleural spots, tegula and parategula, 2 spots on scutellum, postscutellum mostly, large spot on propodeal angle, legs mostly, apex of tergite I broadly and continued forward laterally to form a U-shaped mark, apical margins of tergites II to VI, enlarged medially and joined with lateral spot on II so that a black x-shaped mark is defined, apical bands on sternites I to VI, those on I and II U-shaped. Inner surface of flagellum, wing veins toward base and around stigma reddish. Wing membrane lightly stained. Pubescence moderate, silvery and appressed on clypeus, erect and fulvous on front, minute and inconspicuous elsewhere. Puncturation relatively coarse; clypeus with largest punctures in a slightly depressed subapical area, tergites closely punctured, tergite I roughened from middle toward apex. Clypeal apex somewhat convex; last two antennal segments largely enclosed in segment XI; parategula oval, propodeal angle blunt, outer surface of mid femur with an acute hump; paramere with a slanting, truncate apex, outer apical angle about 60° , inner apex with a tuft of stout bristles; aedeagus narrow apically and broad medially with a row of about 13 sharp teeth.

Description of female.—Clypeus with an irregular linear spot from middle to base sometimes present, labial palpus yellow, mesonotum with a pair of oblique lines, diverging and recurved anteriorly; clypeus convex at apex and with a slightly depressed subapical area filled with coarse punctures.

Types.—Male, California Academy of Sciences, Ent. No. 6,147, Hallelujah Junction, Lassen Co., California, July 4, 1949 (P. D. Hurd). Paratypes, 4 males and 9 females from the following California localities: Hallelujah Junction, Lassen Co.; La Crescenta, Los Angeles Co.; Mt. San Jacinto, Riverside Co. Collection dates are from May 10 to August 14.

Remarks.—A paratype female from Mt. San Jacinto and a paratype male from La Crescenta were paratypes of *trachysomus* R. Bohart. Also, the allotype female of *trachysomus* now in the California Academy of Sciences is actually *hurdi*, the true female of *trachysomus* differing as indicated in the foregoing key.

***Pterocheilus (Micropterocheilus) sparsipunctatus*, new species**

Description of male.—Black, marked with yellow as follows: clypeus, labrum, mandible mostly, interantennal spot, lower orbital line, scape except for a small black apical spot, postorbital line, pronotum largely, 2 large spots on mesopleuron, tegula, squarish spots on scutellum, postscutellum mostly, parategula, propodeal spots, legs largely and including first 4 tarsal segments (last one brown), broad apical bands on abdominal segments, that on tergite II with anterior margin straight across middle and angled obtusely toward base, segment VII mostly black. Flagellum orange-yellow beneath with a black line above extending around tip of last segment. Wings smoky, veins brown to black. Pubescence pale fulvous, upright, very short except on front where it is about 4 ocellus diameters, and propodeum where it is 1 to 2 ocellus diameters. Puncturation mostly fine, moderate and close on front, distinct but well separated on clypeus, granulate on mesonotum, fine and sparse on propodeum and abdominal apices, apparently absent in black-marked areas of abdomen which are finely granulate. Clypeus a nearly equal-

sided heptagon, apex slightly concave and about as wide as length of antennal segment III; last antennal segment almost as long as XII, broadly rounded at apex, stoutly cone shaped; head broader than long; propodeum with cheeks bluntly angled; mid femur somewhat flattened toward base beneath but without an evident depression. Paramere enlarged triangularly toward apex and bearing 7 or 8 long bristles around inner angle, as well as 11 or 12 scattered shorter ones, longer bristles more than twice as long as distance across narrowest part of paramere. Length to apex of second tergite 6 mm.

Description of female.—Clypeus black-bordered apicolaterally and light brownish across apex. Legs mostly yellow, tarsi reddish tinted. Clypeus almost twice as broad as long, apex slightly concave and with sharp lateral angles, head slightly broader than high. Length to apex of second tergite about 7.0 mm.

Types.—Male, California Academy of Sciences, Ent. No. 6,148, Mt. Pinos, Ventura Co., California, May 31, 1942 (R. M. Bohart). Paratypes, 3 males and 4 females from the following California localities: Mt. Pinos, Ventura Co. (R. Bohart); Acton, Los Angeles Co. (E. G. Linsley), Claremont, Los Angeles Co.; Mt. San Jacinto, Riverside Co. (R. Bohart); Deep Creek, San Bernardino Co. (E. G. Linsley).

Remarks.—This species most closely resembles *provancheri* (Hurd) and runs to it in my 1940 key. The more robust last antennal segment of the male, the broader clypeal apex in both sexes, and the practical absence of puncturation toward the bases of the abdominal segments all serve to distinguish *sparsipunctatus*. Details of the male genitalia, particularly the long bristles of the parameres, are also characteristic.

***Pterocheilus (Micropterocheilus) provancheri albotinctus*, new subspecies**

Pterocheilus provancheri pruinosus Cameron, of R. Bohart, 1940 Ann. Ent. Soc. Amer. 33:203.

Description.—Marked as in typical *provancheri* (Hurd), except that yellow is largely replaced by white. Pale markings of legs, clypeus, and mandible tinted with yellow.

Types.—Male, California Academy of Sciences, Ent. No. 6,149, Summit Camp, Lassen Co., Calif., June 28, 1949 (J. W. MacSwain). Paratypes, 10 males and 9 females from the following localities: Summit Camp, Lassen Co., Calif. (J. W. MacSwain); Lake City, Modoc Co., Calif. (C. R. Fox); Elko Co., Nevada (T. E. Snyder, P. H. Baldwin); Gerlach, Nevada (P. C. Ting); Boardman, Oregon (G. R. Ferguson); Wagontire, Oregon (H. A. Scullen); Hatton, Washington (R. C. Shannon); Lind, Washington (F. W. Carlson); Toppenish, Washington (Spuler); Bridger Basin, Wyoming (S. Garman).

Remarks.—This subspecies is indicated in my 1940 key to males as a whitish *provancheri*, and in the key to females as subspecies *pruinus*. However, true *pruinus* Cameron is a larger, more heavily punctured, species from Arizona, similar except in coloration to *flavobalteatus* Cameron. *P. p. albotinctus* is similar in appearance to *seneconis* Rohwer, and the females of the latter are distinguished only by their finer puncturation. The males are separated by the depression at the base of the mid femur in *seneconis* and its absence in *albotinctus*.

Pterochellus (Micropterocheilus) paenacuceps, new species

Description of female.—Black, marked with orange as follows: clypeus except basally, mandible, labial palpus, antenna except segments X to XII above, interantennal dot, lower orbital line, postocular spot, pronotum above, mesopleural spot, tegula mostly, wing veins mostly, 2 spots on scutellum, postscutellum mostly, legs except basally, broad apical bands on tergites I and II, narrow basal and apical bands on tergites V and VI, lateral spot on sternite I, sternite II mostly, sternite VI at base and apex. Wing membrane amber to dusky in apical cell, faint violet reflections. Pubescence fulvous, inconspicuous. Puncturation moderate to fine, clypeus somewhat strigose and moderately punctured, punctures of front and mesonotum small but close, abdominal tergites with fine punctures basally and a zone of coarser apical ones. Clypeus tapering to a rounded point, head slightly broader than long, propodeum rounded laterally, length to apex of second tergite 8.0 mm.

Type.—Female, California Academy of Sciences, Ent. No. 6,150, Green River, Wyoming, July 2, 1920. Paratypes, 1 female, same data as type; 1 female, Rock Springs, Wyoming, June 29, 1920.

Remarks.—This species is the only one in the subgenus with black and orange color pattern. Structurally it resembles *acuceps*, particularly with respect to the pointed clypeus. However, *paenacuceps* has a rather definite apical zone of punctures on tergites I and II, whereas in *acuceps* the punctures become gradually finer toward the base on these tergites. Since the known males of this subgenus resemble the females in markings, the male of *paenacuceps* should be readily recognizable when found.



1950. "North American additions to the genus *Pterocheilus* (Hymenoptera, Vespidae)." *Proceedings of the Biological Society of Washington* 63, 195–202.

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