

A New Ant Mimetic Mirid From the Colorado Tundra (Hemiptera: Miridae)

DAN A. POLHEMUS and JOHN T. POLHEMUS

Univ. of Colorado Museum, 3115 S. York St., Englewood, Colo. 80110

In 1980, while examining a lot of ant mimetic Miridae kindly loaned to us by Dr. Joseph C. Schaffner of Texas A&M University we came across two female specimens of an unusual *Coquillettia* species taken by Dr. Schaffner near Rollins Pass, Colorado. These females possessed small wing pads, a character state found in no other *Coquillettia* species except *C. numata* Bliven from California. Having no males at hand we hesitated to describe this new species, but the knowledge of its existence caused us to collect more carefully on the high tundra grasslands above timberline. In 1982 one of us (DAP) discovered this insect at over 3600 meters (approx. 12,000 ft.) on Mt. Goliath, a spur of the Mt. Evans massif west of Denver. Subsequent collecting at this locality produced a good series of both males and females, from which the species may now be described.

We thank Dr. Schaffner for the generous loan of material held in the collections of Texas A&M University, College Station (TAM). Types are deposited in the United States National Museum of Natural History, Washington, D.C. (USNM). Paratypes are held in the above collections and in the J. T. Polhemus collection, Englewood, Colorado (JTPC). All measurements are in millimeters.

Coquillettia (Procoquillettia) alpina n. subg. & n. sp.

Description—*Macropterous male*: Of moderate size, form elongate (fig. 2), length 6.24 mm; width across base of pronotum 1.44 mm. General coloration black; hemelytra brown with scattered white markings.

Head black, eyes dark reddish, frons and vertex set with scattered short pallid setae; tylus produced, vertical; frons convex, with oblique striations to either side of midline; width of vertex 0.43, subequal to 1.5 times the dorsal width of an eye; eyes protruberant, bulging, bearing scattered very short pale setae; antennae dark brown, clothed with very short recumbent pale setae intermixed with longer partially recumbent bristly black setae, lengths of segments I-IV:0.41; 1.80; 1.35; 0.77; segment two gradually enlarged apically, distal diameter equal to that of segment I.

Pronotum black, surface finely rugose with irregular transverse striae, bearing fine short recumbent pale setae; width of anterior collar subequal to diameter of antennal segment I; calli indistinct; lateral margins weakly concave, posterior margin weakly convex, posterolateral angles acute. Scutellum black, bearing short recumbent pale setae; mesoscutum broadly exposed, raised, bearing two shallow circular depressions to either side of midline basally.

Hemelytra brown, darker basally, bearing scattered short black bristly setae; yellowish white areas present on basal half of corium between clavus and costal

margin, on basal third of cuneus, and at extreme basal tip of membrane; remainder of membrane fumate.

Ventral surface black, abdomen bearing short recumbent pale setae; rostrum length 2.02 mm, attaining middle coxae; ostiolar peritreme black, narrow, vertical. Legs long, slender, dark brown, covered with short recumbent stout black setae intermixed with scattered erect black spines on tibiae and tarsi, length of tibial spines equal to diameter of middle tibia; claws slender, gently curving, parempodia hair-like, weakly convergent apically, pulvilli large, triangular, attached only at base of claw and reaching to tip.

Male genitalia typical phyline type, twisted to left in capsule as viewed from above; right paramere cup-like, with acuminate process (fig. 3); left paramere leaf-like, with small point at tip (fig. 4); vesica sclerotized, U-shaped, tip bearing small pointed process (fig. 5).

Micropterous female: Of moderate size, ant-like (fig. 1), length 4.13 mm; width across pronotum 0.77 mm; width across abdomen 1.44 mm. General coloration dull black.

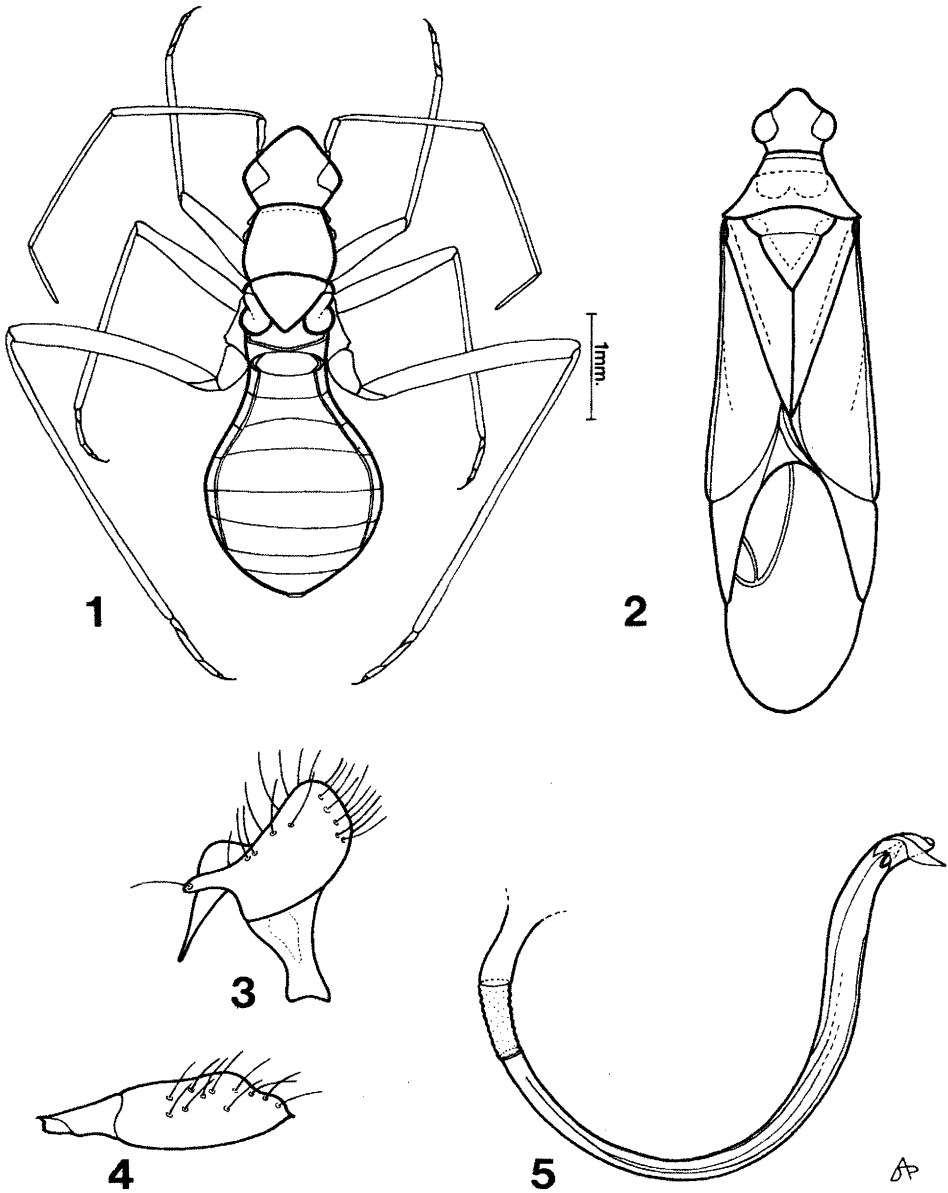
Head black, vertex and frons bearing short pale setae; tylus produced, oriented vertically; frons convex, elongate, with oblique striations; vertex width .50, over 1.8 times the dorsal width of an eye; eyes not as protrusive as in male, not bulging beyond general outline of head, bearing a few minute pale setae; antennae brown, segments III and IV darker, all segments clothed with short pale setae intermixed with slightly longer semirecumbent black bristly setae, lengths of segments I–IV:0.32; 1.39; 1.06; 0.72; segment II slightly enlarged apically, distal diameter equal to that of segment I.

Pronotum black, finely rugose, bearing short pale setae, shape roughly quadrate, convex dorsally and on lateral margins; anterior collar present but weakly defined; calli obscure; posterior margin weakly concave. Scutellum black, bearing short recumbent pale setae, convex, rising anteriorly to meet pronotum. Metanotum plate-like, posterior margin raised to a narrow lip, light brown, anterior margin reflexed downward beneath scutellum. Wing pads small, brown, rounded, bearing short pale setae, central portions weakly depressed; arising under lateral edges of scutellum and extending onto flattened metanotum.

Abdomen globose, constricted basally, black, connexival margins and posterior margin of tergite I white, surface bearing recumbent pale setae; tergites I and II forming pedicel, tergite I narrow with conspicuous transverse medial fold, broadly convex on anterior portion, tergite II narrow anteriorly, broadly expanded posteriorly, shape trapezoidal; tergites III–VIII arched convexly to form globose structure; conspicuous pleural fold present along lateral margins of tergites I–VII.

Ventral surface black, abdomen bearing pale recumbent setae; rostrum length 2.16, reaching nearly to base of ovipositor sheath; ostiolar peritreme brownish, narrow, vertical; ovipositor sheath beginning at posterior margin of abdominal ventrite V and extending to tip of abdomen. Legs brown, coxae blackish, all segments covered with short recumbent stout black setae; short erect bristly black setae present distally on femora; scattered erect black spines present on tibiae and tarsi.

Discussion.—*Coquillettia* (*Procoquillettia*) *alpina* n. sp. stands apart in the genus *Coquillettia* on the basis of several unusual morphological characters that we consider plesiomorphic, e.g. the short stout antennae, short abdomen, and differently formed female basal abdominal segments. It does not settle comfortably



Figures 1–5. *Coquillettia* (*Procoquillettia*) *alpina* n. sp. 1. Female, dorsal habitus. 2. Male, dorsal habitus, legs and antennae omitted. 3. Male right paramere. 4. Male left paramere. 5. Male vesica.

into the genus in spite of the similarities in general facies and structures of the head, pronotum and genitalia. The presence of wing pads is reminiscent of the closely related genus *Orectoderus*, but in that genus the wing pads are sharply reflexed upward and pointed at their apices while in *C. alpina* they are rounded and unreflexed. The vesica of *C. alpina* is typical of *Coquillettia*, being U-shaped with a

small hooked tip and a poorly developed gonopore located near the apex, and the claws are also of the *Coquillettia* type, with the long triangular pulvilli being attached to the claw only at the base, while in *Orectoderus* they are attached for a considerable distance along the inner edge of the claw. A few other *Coquillettia* species have relatively short antennae (e.g. *granulata*, *jessiana*) and females of *numata* have wing pads that are larger and better developed than those of *C. alpina*. The morphology of the basal abdominal segments is also somewhat plastic in the genus, since in females of *C. ajo* the anterior portion of segment I is produced sharply upward into an acute conical projection. *C. alpina*, however, differs sufficiently from these and all other *Coquillettia* species that we propose the subgenus *Procoquillettia* to hold it, with *alpina* as the type and only included species. The following will separate the two subgenera:

Character	<i>Coquillettia</i>	<i>Procoquillettia</i>
Length of abdominal tergites I-II combined	longer than pronotum	much shorter than pronotum
Abrupt widening of female abdomen (dorsal view)	commences with segment III	commences with segment II
Rostrum reaching:		
Female	between mid coxae	onto base of abdomen
Male	middle of mesosternum	between mid coxae
Male abdomen; ratio narrowest/widest	0.60 max.	0.75
Ratio; length antennal segment II/pronotum	male, 1.75 min. female, 2.0 min.	male & female, 1.7

In many respects *Coquillettia* (*Procoquillettia*) *alpina* would seem to be annectant between *Coquillettia* and *Orectoderus*, and would clearly be placed basally on any cladogram of *Coquillettia* species. The only other *Coquillettia* to show such marked annectant trends is *C. nicholi* from Wyoming, which has a campanulate pronotum quite similar to that of many *Orectoderus* species. This latter species, however, is known from but a single male type, thus an analysis of female characters to clarify its position within *Coquillettia* is at present impossible.

Coquillettia alpina occurs among tundra grasses and sedges in the cold and windswept areas above timberline on the Colorado mountains. The habitat is extremely inhospitable and the growing season very short, so that in many years there appears to be only a brief span of time during which the insects may be found. In 1982 we were able to collect the species from mid-July through mid-August, but during the same time period in 1984 and 1986 we found no sign of it. Like the flowering plants of the alpine tundra, *C. alpina* is probably adapted to opportunistically exploit whatever short and unpredictable summer season occurs at these very high elevations.

Several other mirids were found on the tundra, including *Chlamydatius wilkinsoni* Douglas and Scott, *Labops burmeisteri* Stal, and an unidentified *Hadronema* species. The former two taxa are palearctic species that have been previously recorded in North America only from the northern regions of the continent, indicating that the

high peaks of the Rockies have provided refugia for cold adapted taxa that formerly had more southerly ranges during the Pleistocene glaciations.

Etymology.—The name “alpina” refers to the high mountain habitat of this species.

Materials examined.—Holotype, male, and allotype, female: COLORADO, Clear Creek Co., Mt. Goliath nature area on Mt. Evans rd., 3658 m (12,000 ft.), VIII-21-82, D. A. and J. T. Polhemus (USNM). Paratypes: 1 male, 21 females, same data as types (USNM, JTPC); 4 males, 7 females, same locality as types, VII-14-82, D. A. and J. T. Polhemus (JTPC); 2 females, Gilpin Co., 1 mi. E. of Rollins Pass, VIII-16-69, J. C. Schaffner (TAM).