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THE STATUS OF THE GENUS *PARABEZZIA* MALLOCH

(DIPTERA, HELEIDAE)

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Malloch proposed the genus *Parabezzia* for three Nearctic species, *petiolata* n. sp., which he made the genotype, *Ceratopogon inermis* Coquillett, and *Bezzia elegantula* Johannsen. He distinguished these species from *Probezzia* Kieffer by their petiolate media, a character which is now known to exhibit variation in other related genera. Unfortunately the generic classification of the Heleidae rests largely on female characters. Since the female of *petiolata* has not been known, it has been impossible to do more than guess at the generic relationships of *Parabezzia*. Moreover, the male genitalia, which usually offer good generic characters, have never been described for *petiolata*.

The male lectotype and a male paratype of *petiolata* have been borrowed from the Illinois Natural History Survey through the kindness of H. H. Ross, and the female holotype of *Stilobezzia uncinata* Johannsen was borrowed from Cornell University through the courtesy of Henry Dietrich. The synonymy presented here is primarily a result of the study of this type material.

The genitalia of *petiolata*, which are here figured and described, indicate that *Parabezzia* is not closely related to *Stilobezzia*, as has been believed by recent workers, and that several species that have been assigned to *Parabezzia* do not belong there. Malloch's inclusion of *elegantula* was erroneous, this species falling within the subgenus *Eukraiohelea* of *Stilobez-*



zia. *Parabezzia poikiloptera* Ingram and Macfie, from West Africa, is also an *Eukraiohelea*. *Palpomyia fuscivenosa* Lutz from Brazil, which Lane (1945, Rev. Ent. 16:370) assigned to *Parabezzia*, appears to belong to the subgenus *Isohelea* of *Helea*. On the other hand, Malloch's inclusion of *inermis* in *Parabezzia* was well founded, if the present association of *Stilobezzia uncinata* Johannsen as the female of *petiolata* is correct. Ingram and Macfie's *Diaphanobezzia pellucida*, from Argentina, has genitalia strikingly similar to those of *petiolata*, and it is believed that the two species are congeneric.

#### Genus *Parabezzia* Malloch

*Parabezzia* Malloch, 1915, Bull. Ill. St. Lab. Nat. Hist. 10: 358; Kieffer, 1919, Bull. Soc. Ent. France, p. 193; Johannsen, 1934, Jour. N. Y. Ent. Soc. 42: 344; de Meillon, 1938, Proc. R. Ent. Soc. London (B) 7: 266; Johannsen, 1943, Ann. Ent. Soc. Amer. 36: 782; 1946, Bull. B. P. Bishop Mus. 189: 191 (Genotype: *Parabezzia petiolata* Malloch, by orig. desig.).

*Diaphanobezzia* Ingram and Macfie, 1931, Dipt. Pat. & S. Chile, pt. 2, fasc. 4, p. 223 (Genotype: *Diaphanobezzia pellucida* Ingram and Macfie, monobasic). NEW SYNONYMY.

*Diagnosis*.—Body rather stout, nearly bare. Eyes bare. Female antennae with segments 3-10 oval, 11-15 long and cylindrical; male antennae with well developed plumes. Mesonotal pits absent. Mesonotum without anterior spine or tubercle, with some strong erect bristles in addition to short pubescence. Legs all slender, with or without spines; tarsi with or without ventral spines; fourth segment cordate; fifth segment stout and laterally compressed; empodium absent; claws of female long and curved, equal or slightly unequal, of male small and equal. Wing broad in female, narrower in male, surface with or without microtrichiae; macrotrichiae absent. In female a single long radial cell nearly to wing tip, costa prolonged to wing tip halfway between ends of  $R_s$  and  $M_1$ ; in male ending at 0.6 wing length; r-m slightly oblique, tip placed slightly past base of  $R_1$ ; media petiolate, the petiole about as long as crossvein; fringe on anterior margin very short or absent before middle of wing. Male genitalia with aedeagus large and conical, parameres fused in a small, pointed, triangular, median sclerite hidden by aedeagus.

*Parabezzia* should be removed from the *Stilobezziini* and placed in the *Bezzia* Group of the *Stenoxenini* where it is probably closest to *Probezzia* (= *Dicrobezzia* auct.). The following species are currently considered as members of this genus.

#### *Parabezzia petiolata* Malloch

(Text Figure)

*Parabezzia petiolata* Malloch, 1915, Bull. Ill. St. Lab. Nat. Hist. 10: 359 (♂, Ill.); Johannsen, 1934, Jour. N. Y. Ent. Soc. 42: 344; 1943, Ann. Ent. Soc. Amer. 36: 782.



*Stilobezzia uncinata* Johannsen, 1943, Ann. Ent. Soc. Amer. 36:761 (♀, Ala.). NEW SYNONYMY.

*Female*.—Length 1.4 mm., wing 1.2 mm. by 0.5 mm. Color black including head, thorax, abdomen, coxae, antennae and palpi; vertex grayish pruinose; thorax polished black; legs brownish, tarsi yellowish; wing hyaline, anterior veins brown, halteres reddish brown.

Mesonotum very broad, convex, with sparse, black, erect bristles in rows; scutellum with four black, marginal bristles. Proportions of segments of hind leg 20:10:50:45:22:8:4:3:10; legs with sparse, fine hairs; basitarsi unspined; fifth segment unspined, rather swollen in side view and compressed in dorsal view, with dense ventral fringe of long, whitish pubescence; claws slender, curved and unequal, longer claw nearly as long as fifth segment, other about three-fourths as long.

Wing with one long radial cell,  $R_1$  ending at 0.55 way to wing tip,  $R_s$  curving parallel to costa and meeting it nearly at wing tip, the costa prolonged to apex halfway between apices of  $R_s$  and  $M_1$ ; r-m crossvein nearly vertical; radius forking just before crossvein;  $R_1$  about twice as long as crossvein; petiole of media about as long as crossvein; vein  $M_1$  bowed upward in middle.

*Male*.—Length 1.25-1.5 mm., wing 1.2 mm. Head and thorax shining black; legs brownish, tarsi yellow; wings hyaline, halteres white; antennal plumes brownish, with apices white. Mesonotum with sparse, black, erect bristles in rows; scutellum with four strong black marginal bristles. Hairs of legs fine and dark; proportions of segments of hind leg 20:10:45:40:18:9:4:3:5; basitarsi unspined, fifth segment short, stout, unspined, with short equal claws. Radial cell of wing very short, vein  $R_1$  ending at 0.55 wing length,  $R_s$  ending at half its length beyond which is at 0.6 wing length; radial veins nearly parallel beyond junction of r-m crossvein.

Genitalia (*see figure*). Ninth sternite about four times as broad as long, with broad, shallow, posterior excavation, the posterior membrane spiculate; ninth tergite long and rounded caudad with inconspicuous, setigerous, apicolateral lobes. Basistyles short and oval, about twice as long as broad; dististyles slightly longer than basistyles, slender and curved, with apices pointed and each bearing a transverse, subapical row of three setigerous tubercles. Aedeagus conical, half again as long as broad at base; a straight, transverse, sclerotized bar at base; apex with open ventral channel and extreme tip rounded. Parameres forming a narrow, transverse, sclerotized band bearing a median, sharp-pointed, triangular sclerite a third as long, and with same proportions as aedeagus, behind which it is hidden in natural position.

*Material examined*: ILLINOIS: Muncie, July 5, 1914, C. A. Hart & J. R. Malloch, 2 ♂♂ (holotype and paratype of *petiolata*). ARKANSAS: Little Rock, July 13, 1904, H. S. Barber, 1 ♀. ALABAMA: La Place, June 9, 1917, J. C. Bradley, 1 ♀ (holotype of *uncinata*).

JAMAICA: Bath St. Thomas, Chapin and Blackwelder, 1 ♀. Spa Town, February 3, 1937, Chapin and Blackwelder, 1 ♀.



The Jamaica females, which had been pinned after preservation in alcohol, have the halter knobs white as in the male paratype.

I strongly believe, after carefully comparing the original descriptions as well as my specimens of *petiolata* and *uncinata*, that the two represent the male and female respectively of the same species, for which the name *petiolata* has priority. There is no way of knowing positively without definitely associated sexes from the same collection, that this synonymy is valid. However, except for the usual sexual differences, the body proportions including the proportions of the segments of the legs, details of coloration, the well-developed, erect, mesonotal bristles as in *Probezzia*, and the wing venation, are practically identical in the two. The lengths and angles of the crossvein r-m and the anterior branch of the radius correspond especially well. In the known species of *Probezzia*, where the radial sector is prolonged to the wing tip in the females, the males show a similar dimorphism with a very short, straight  $R_s$  as in *Parabezzia*. The female tarsal claws of *petiolata* are nearly equal, not at all as in typical *Stilobezzia*, and the structure of the fifth tarsal segment is much as in *inermis* (Coquillett), in which the claws are long and equal.

***Parabezzia inermis* (Coquillett)**

*Ceratopogon inermis* Coquillett, 1902, Proc. U.S. Natl. Mus. 25: 86 (♀ Ariz.).

*Bezzia inermis*, Kieffer, 1906, Gen. Insectorum, fasc. 42: 58.

*Probezzia inermis*, Malloch, 1914, Proc. Biol. Soc. Wash. 27: 137.

*Parabezzia inermis*, Malloch, 1915, Bull. Ill. St. Nat. Hist. 10: 359;

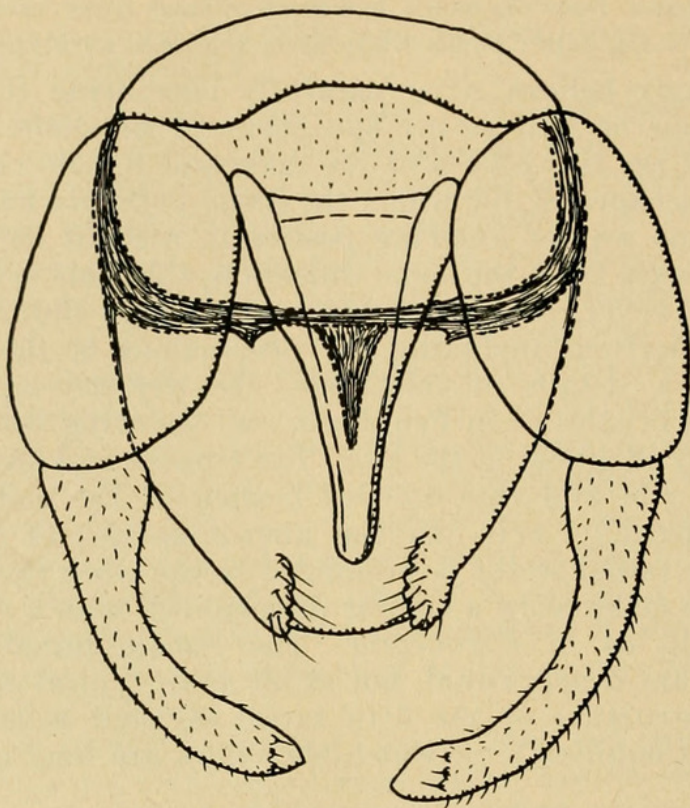
Johannsen, 1943, Ann. Ent. Soc. Amer., 36: 782 (? *Probezzia*).

*Allobezzia inermis*, Kieffer, 1917, Ann. Mus. Nat. Hung. 15: 328.

*Female*.—Length 1.0 mm., wing 1.2 by 0.4 mm. Dark pollinose brown, vertex and humeral corners of mesonotum silvery pruinose; antennae and legs brown; palpi and tarsi yellowish; scutellum dull yellow with four marginal bristles; halteres white. Legs moderately slender, without spines, only fine hairs; proportions of segments of hind leg 20:10:40:-35:18:8:5:2:8: basitarsi unspined, fourth segment cordate; fifth rather stout and laterally compressed, with fringe of fine pubescence below; claws long, and equal, slender and curved, without basal tooth, nearly as long as fifth segment. Wing grayish hyaline, anterior veins brownish, no macrotrichiae, fringe on anterior margin very fine, apparently absent from basal fourth to half; crossvein r-m nearly perpendicular, ending in  $R_s$  just past fork of radius,  $R_1$  to a fourth the length of  $R_s$ , latter to over 0.9 wing length, closely following anterior margin of wing forming a narrow radial cell; costa prolonged past tip of  $R_s$  to wing tip; petiole of media about as long as crossvein r-m.

*Material examined*.—ARIZONA: Hot Springs, Yavapai Co., June 27, H. S. Barber, 1 ♀ (type).





*Parabezzia petiolata* Malloch, male genitalia, ventral view.

The dull pollinose mesonotum, with yellow scutellum and equal tarsal claws, will separate this species from *petiolata* Malloch, which it closely resembles in wing venation.

***Parabezzia pellucida*** (Ingram and Macfie), new combination  
*Diaphanobezzia pellucida* Ingram and Macfie, 1931, Dipt. Pat. & S. Chile,  
pt. 2, fasc. 4, p. 223 (♂, Argentina).

The wing venation and male genitalia of the single known specimen are nearly identical with those of *petiolata* Malloch. The only apparent differences between the two species are the sharper-pointed male aedeagus, absence of microtrichiae from the wing, pruinose thorax, femora each with a distal spine and tibiae with long scattered spines, and basitarsi with ventral spines, in *pellucida*. These differences seem to me to be more on a specific level, and *Diaphanobezzia* may be regarded as a synonym of *Parabezzia*.



Wirth, Willis Wagner. 1952. "The status of the genus *Parabezzia* Malloch (Diptera, Heleidae)." *Proceedings of the Entomological Society of Washington* 54, 22–26.

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