presence may be attributed by the human host to (1) "imagination," as the doctors would have us believe; (2) "summer heat," since the mites are most active during hot weather; or perhaps (3) "dandruff." A wide-open field exists for anyone enterprising enough to do some real investigation on this subject.

The presence of the mite *Bdellonyssus sylviarum* as a causative agent of dermatitis in the human scalp and on the human body is likewise reported. At last reports, the unfortunate host of this mite was still suffering from its depredations. In this case, the diagnosis had been: "Just a phobia." Here is another field in which to date there has been no competition in the matter of studying the mite as an occasional human parasite.

#### THE GENUS PROBEZZIA IN NORTH AMERICA

(DIPTERA, HELEIDAE)

By Willis W. Wirth, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture

The purpose of this paper is to call attention to the proper application of the generic name *Probezzia* Kieffer, to present descriptions of four new species from the United States, to include notes and distribution records for the seven previously known species and to offer a key for their separation.

Most of the material studied is from the U. S. National Museum collection (abbreviated USNM in the distribution lists). Short series were also examined from the California Academy of Sciences (CAS) through the courtesy of E. S. Ross and E. L. Kessel, from Curtis W. Sabrosky's collection of Michigan and Kansas Diptera, and from the writer's personal collection from Louisiana and California.

### Genus Probezzia Kieffer

Probezzia Kieffer, 1906, Gen. Insectorum, fasc. 42:57; Coquillett, 1910, Proc. U. S. Nat. Mus., 37:594; Malloch (part), 1914, Proc. Biol. Soc. Wash. 27:137; Malloch (part), 1915, Bull. Ill. St. Lab. Nat. Hist. 10:352. (Genotype: Ceratopogon venustus Meigen, desig. Coquillett, 1910).

Dicrobezzia Kieffer, 1919, Ann. Mus. Nat. Hungarici 17:127; Ingram & Macfie, 1921, Ann. Trop. Med. and Parasitol. 15:371; Edwards, 1926, Trans. Ent. Soc. London. 74:414; Johannsen, 1943, Ann. Ent. Soc. Amer. 36:785; Lane, 1947, Arq. Fac. Hig. S. Pub. U. São Paulo 1:232. (Genotype: Ceratopogon venustus Meigen, orig. desig.). New synonymy.

Diagnosis: Body slender and nearly bare. Eyes bare and usually well separated; antennae with flagellar segments elongate, verticils short and sparse, in male with plumes scanty; palpi slender. Mesonotum without anterior spine or tubercle; dorsum with short scattered erect bristles.

Femora slender and unarmed; fourth tarsal segment bilobed; fifth tarsal segment of female with blunt strong spines or batonnets below, the claws large and bifid. Wing with vein R<sub>2</sub> absent, thus with a single long radial cell, in female reaching nearly to wing tip; median fork broadly sessile. Female abdomen without eversible glands or internal sclerotized rods; eighth sternite with a pair of prominent submedian tufts of long fine hairs on posterior margin. Male genitalia with ninth sternite very short and deeply emarginate; ninth tergite long, slender, and tapered distad, with large dorso-lateral lobes; basistyles long and slender; dististyles short and pointed, aedeagus tapered, with short anterior arch and caplike posterior point; parameres slender, parallel sided, and fused more or less in middle.

Through some oversight or other circumstances, Probezzia has until now been recognized as distinct from Dicrobezzia and usually closely related to, or a subgenus of, Bezzia Kieffer. However, since the same species, venustus Meigen, is the genotype of both Probezzia and Dicrobezzia, the earlier name Probezzia must prevail for the group with the characters of venustus. This change, though unfortunate, is unavoidable if the rules of nomenclature are to be followed. The designation. with a question, of Ceratopogon albiventris Loew as the genotype of Probezzia by Macfie (1940), even if it were not invalid, would not alter this synonymy, since this American species is also a typical Dicrobezzia in the old sense. I prefer not to recognize a separate category for the species of Bezzia with unarmed femora which Macfie (loc. cit.), Johannsen (1943), and other authors erroneously call Probezzia, agreeing with Edwards (1926) that this criterion alone is an artificial one for splitting the genus Bezzia. Therefore, it is not necessary, in my opinion, to find a new name for the *Probezzia* of these authors.

As pointed out by Edwards (loc. cit.), Probezzia bears the same relationship to Bezzia that Johannsenomyia does to Palpomyia, with slender unarmed femora, fifth tarsal segment of female with ventral batonnets, and female abdomen without internal sclerotized rods.

The following key and descriptions refer primarily to female specimens, which are far more common in collections than the males. Males are much more difficult to separate, only slight differences being found in the genitalia of those species that have been examined. As a rule the males are much smaller, about half the size of the females, and the extent of dark markings is greater. The males lack the great prolongation of the radial cell to the wing tip, but several of the ventral batonnets are usually present on the ventral side of the dark-colored fifth tarsal segment, serving to distinguish them from males of *Bezzia*.

# KEY TO THE NEARCTIC SPECIES OF PROBEZZIA

1.	Knob of halteres black, stem yellow 2
	Knob of halteres yellow or white 5
2.	Femora black, sometimes narrowly yellow at base3
	Femora yellow except distal third black; abdomen yellow with
	segments 4, 5, and 6 black; wing with broad dark band from
	r-m crossvein to apexinfuscata Malloch
3.	Abdomen white except segments 8 and 9 dark; base of femora
	often yellowish; basal flagellar segments white; small, length
	less than 3 mm.; wing whitealbiventris (Loew)
	Abdomen all dark or with broad dark preapical band 4
4.	Abdomen white with tergites 4, 5, 8, and 9 dark; legs dark, only
	trochanters yellowish; basal flagellar segments whitish; an-
	terior wing veins yellowish ludoviciana Wirth
	Abdomen all dark; legs with trochanters dark; basal flagellar
	segments brownish annulated; wings milky white atriventris Wirth
5.	Thorax entirely yellowish; legs yellow to pale brownish
	pallida Malloch
	Thorax shining black, at least on posterior half; legs with dark
	brown bands 6
6.	Mesonotum yellow on anterior half; wings hairy on distal half
0.	unica (Johannsen)
	Mesonotum entirely shining black; wings bare7
7.	Legs dark except trochanters, extreme base of femora and tarsi
'	yellowish; wings infuscated more or less deeply, all veins dark
	brownishsmithii (Coquillett)
	Legs with at least basal third of femora white; wings with less
	than a fourth of the antherior margin lightly infuscated8
0	
8.	white, apical third of all femora black 9
	Abdomen white, intermediate three segments infuscated; wings
	whitish, more or less infuscated in an anterior median patch
	centering on r-m crossvein about a fourth of wing length, the
	veins brownish in that area; legs with apical third of mid and
	hind, and all except base or only a narrow apical band on fore femur black
0	fore femur black 10 Base of hind tibia yellow xanthogaster (Kieffer)
9.	Base of hind tibia with dark band sabroskyi Wirth
10	
10.	All except extreme base of fore femur black; basal two-thirds of
	hind tibia black, as well as narrowly at apex; fore and mid
	tibae darkened on basal fourth; wing veins black adjacent to
	crossvein, the membrane in this area infuscated; length
	about 2 mm. rosewalli Wirth
	Fore leg with only knee narrowly dark; hind tibia with narrow
	yellow band at base, then broadly black to mid-length, as
	well as narrowly at apex; wing veins very slightly infuscated
	near crossvein, the membrane clear; length about 3 mm.
	flavonigra (Coquillett)

#### Probezzia infuscata Malloch

Probezzia infuscata Malloch, 1915, Bull. Ill. St. Lab. Nat. Hist. 10:316; Johannsen, 1943, Ann. Ent. Soc. Amer. 36:785.

Length 3.5 mm. A large black and yellow species; thorax shining black; wings whitish hyaline on basal third, smoky brown with brown veins from **r-m** crossvein to apex; halteres with black knob; antennae yellow, last five segments dark; legs yellow, coxae, distal third of femora, all of tibiae and fifth tarsal segment brownish black; abdomen yellow with segments 4, 5, and 6 black.

Recorded Distribution: Malloch (1915) type locality, White Heath, Ill., type female in Illinois Natural History Survey, Urbana.

Material examined: MICHIGAN: E. Lansing, June 18, 27, 1936 (Sabrosky) 2 9 9.

ONTARIO: Fort Erie, July 4, 1910 (Van Duzee) (CAS) 12 QQ. Ridgeway, June 22, 1919 (Van Duzee) (CAS) 1 Q.

### Probezzia albiventris (Loew)

Ceratopogon albiventris Loew, 1861, Berlin. Ent. Ztschr. 5:311. (Cent. I. No. 7).

Bezzia albiventris, Kieffer, 1906, Gen. Insectorum, fasc. 42:58.

Probezzia albiventris, Johannsen 1908, N. Y. State Mus. Bul. 124:267; Malloch, 1914, Proc. Biol. Soc. Wash., 27:318; 1915, Bull. Ill. St. Lab. Nat. Hist. 10:356; Johannsen, 1943, Ann. Ent. Soc. Amer. 36:785.

Bezzia (Probezzia) albiventris, Kieffer, 1917, Ann. Mus. Nat. Hungarici 15:329.

Q. Length 3.0 mm. A large black and yellow species; thorax shining black; wings whitish hyaline, including veins; halteres with black knob; antennae whitish, last five segments dark; legs yellow, coxae, femora except at extreme base, tibiae ,and last two tarsal segments brownish black; abdomen yellowish, segments 8 and 9 brown.

Recorded Distribution: Loew (1861) type locality, Georgia, type female, presumably at the Museum of Comparative Zoology, Cambridge, Mass.; Malloch (1915) New Jersey, Illinois.

Material examined: LOUISIANA: Baton Rouge, Amite River, May 16, 1947 (Wirth) 1 ♀.

OKLAHOMA: Roff, July 15, 1937 (Standish-Kaiser) (USNM) 2 Q Q. Ardmore, June 8, 1939 (Kaiser-Nailon) (USNM) 1 Q.

MICHIGAN: Traverse City, July 9, 1941 (Sabrosky) 1 2.

#### Probezzia ludoviciana, new species

A large shining black and yellow species with thorax, femora, and tibiae, knobs of halteres and abdominal segments 4, 5, 8, and 9 black; wings white, the veins yellowish.

Q. Length 2.8 mm., wing 2.6 mm. by 0.8 mm. Head dark brown, vertex and clypeus with scattered long brown hairs; antennae brown, segments 3-10 extensively whitish at base; palpi brown. Thorax shining

black; mesonotum and scutellum with scattered strong black setae. Coxae brown, trochanters yellowish; femora except extreme bases and all of tibiae black, first three tarsal segments whitish, last two black; fifth segment stout, armed beneath with about eight long black spines, claws about half as long as segment, strong with stout outer basal tooth; proportions of segments of hind leg 22:10:100:75:45:20:7:5:15. Wings uniformly whitish hyaline, veins yellowish; costa to wing tip; halteres with knob black, stem brown. Abdomen yellowish, segments four, five, eight and nine black; eight sternite with a pair of prominent submedian dense tufts of long fine yellowish hairs on posterior margin.

Holotype female, Baton Rouge, La., May 6, 1947, W. Wirth (Type No. 59900, U.S.N.M.).

Allied to albiventris (Lw.), infuscata Mall. and atriventris n. sp. in the dark halteres, but readily distinguished by the banded abdomen, black femora and tibiae, and yellow trochanters.

# Probezzia xanthogaster (Kieffer), new combination

Ceratopogon elegans Coquillett (not Winnertz), 1901, Proc. U. S. Nat. Mus. 23:559.

Bezzia elegans, Kieffer, 1906, Gen. Insectorum, fasc. 42: 58.

Probezzia elegans, Johannsen, 1908, N. Y. St. Mus. Bul. 124: 267; Malloch, 1914, Proc. Biol. Soc. Wash., 27: 138; 1915, Bull. Ill. St. Lab. Nat. Hist. 10:356.

Bezzia (Probezzia) xanthogaster Kieffer, 1917, Ann. Mus. Nat. Hungarici 15: 329 (n. nom. for Ceratopogon elegans Coq. not Winn.). Dicrobezzia xanthogaster, Johannsen, 1943, Ann. Ent. Soc. Amer. 36:

785.

Length 2.5 mm. A rather small black and yellow species; thorax shining black; wings milky white including veins; halteres white; antennae yellow, last five segments black; legs yellow, coxae, distal third of all femora and fifth tarsal segment brownish black, abdomen yellowish.

Recorded Distribution: Coquillett (1901) type locality, Riverton, N. J., type female in U.S.N.M.; Malloch (1915), Illinois, Maryland.

Material examined: NEW YORK: Portage, July 1, 1917 (Van Duzee) (CAS) 19. Kearney, July 3, 1909 (Van Duzee) (CAS) 19.

D. C.: Washington, May 28 (Barber) (USNM) 8 9 9.

MARYLAND: Plummer's Island, May 14, June 11, 1914 (Shannon) (USNM) 2 9 9.

MICHIGAN: E. Lansing, May 26, 1936, and May 27, 1941 (Sabrosky) 2 \, \textsty. Ann Arbor, June 12, 1936 (Steyskal) 1 \, \textsty. Marble Lake, Quincy, May 31, 1942 (Sabrosky) 1 \, \textsty.

#### Probezzia smithii (Coquillett)

Ceratopogon smithii Coquillett, 1901, Proc. U. S. Nat. Mus. 23:600.

Bezzia smithii, Kieffer, 1906, Gen. Insectorum, fasc. 42:58.

Probezzia smithi, Malloch, 1914, Proc. Biol. Soc. Wash. 27:138;

Probezzia smithi, Malloch, 1914, Proc. Biol. Soc. Wash. 27:138; 1915, Bull. Ill. St. Lab. Nat. Hist. 10:357.

Bezzia (Probezzia) smithii, Kieffer, 1917, Ann. Mus. Nat. Hungarici 15:329.

Dicrobezzia smithi, Johannsen, 1943, Ann. Ent. Soc. Amer. 36:785.

Length 2.6 mm. A rather small black species; thorax and abdomen black; wings uniformly brownish hyaline, the veins brown; halteres white; antennae whitish, last five segments brown; legs black, except trochanters, extreme base of femora and first four tarsal segments yellowish.

Recorded Distribution: Coquillett (1901) type locality, Riverton, N. J., type female in U.S.N.M.; Malloch (1915, Illinois; Johannsen (1943) northeastern United States.

Material examined: D. C.: Washington, Sept. 7, 1907 (McAtee) (USNM) 1 \, \mathcal{Q}.

MAINE: Belfast, Sept. 18-22, 1948 (Sabrosky) 1 Q. LOUISIANA: Kilbourne, May 10, 1947 (Wirth) 5 & &, 12 Q Q.

# Probezzia unica (Johannsen), new combination

Lasiobezzia unica Johannsen, 1934, Jour. N. Y. Ent. Soc. 42:345; 1943, Ann. Ent. Soc. Amer. 36:784.

Q. Length 2.2 mm. A small black and yellow species; thorax shining dark brown, anterior half of mesonotum and above wing bases yellowish; abdomen yellow, intermediate segments darkened; antennae yellow, last five segments dusky; palpi yellow; legs yellow, apical half of all femora, a broad median ring and apex of hind tibia brown, fifth tarsal segment brown; wing hyaline, the veins pale, apical half of wing with sparse macrotrichiae; halteres pale (revised from original description).

Recorded Distribution: Johannsen (1934), type locality, Ithaca, N. Y., type female in Johannsen collection, Cornell University, Ithaca.

Although Johannsen referred this species to Lasiobezzia in 1934 and again in 1943 on the strength of the hairy wings, he pointed out that it differed from the genotype of that genus in several important features, including the lack of femoral spines, prolongation of the radial cell, armed fifth tarsal segment and the claws with a basal tooth, all of which strongly suggest that it is a Probezzia. The yellow markings on the mesonotum suggest affinities with pallida Malloch, while the leg and wing markings are similar to those of sabroskyi n. sp.

#### Probezzia pallida Malloch

Probezzia pallida Malloch, 1914, Proc. Biol. Soc. Wash. 27:138; 1915, Bull. Ill. St. Lab. Nat. Hist. 10:354; 1915, idem., 11:318; Muttkowski, 1918, Trans. Wis. Acad. Arts and Letters 19:408; Johannsen, 1943, Ann. Ent. Soc. Amer. 36:785.

Length 2.8 mm. A medium-sized, uniformly yellowish-white species; head brown, antennae yellow with last five segments brownish; fifth tarsal segment black.

Recorded Distribution: Malloch (1914) type locality, Muncie, Ill., type female in Illinois Natural History Survey, Urbana; Johannsen (1943), Eastern United States.

Material examined: MARYLAND: Plummer's Island, June 11, 1921 (Barber) (USNM) 1 Q.

NEW YORK: Lancaster, June 28, 1914 (Van Duzee) (CAS) 1 Q.

#### Probezzia atriventris, new species

A large shining black species with white tarsi and wings; antennae brown.

Q. Length 3.2 mm., wing 3.2 mm. by 1.1 mm. Head dull brownish black; vertex and clypeus with scattered long brown hairs; antennae brownish black, bases of segments 3-10 light brown; palpi light brown, slender. Thorax shining black. Legs black; trochanters brownish, first three tarsal segments whitish; fifth segment slender, with about eight long batonnets, claws about two-thirds as long as segment, with strong outer tooth at base; proportions of segments of hind legs 30:10:110:95:55:22:10:5:15. Wings milky white, including veins; halteres with knob black, stem brown. Abdomen entirely dull black, in type with grayish pruinosity.

Holotype female, Traverse City, Mich., July 12, 1939, C. W. Sabrosky (Type no. 59901, U.S.N.M.). Paratype 1 ♀, same locality as type, July 9, 1941 (to be returned to Kans. Univ. Coll.); 1 ♀, Cheboygan Co., Mich., July 4, 1940, R. I. Sailer.

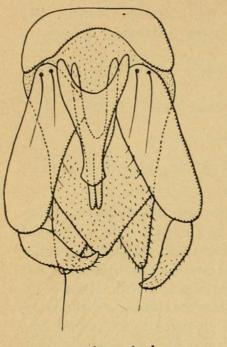
The dark halteres ally this species with albiventris (Lw.), infuscata Mall. and ludoviciana n. sp., but the uniform black body and legs and milky-white wings are distinctive.

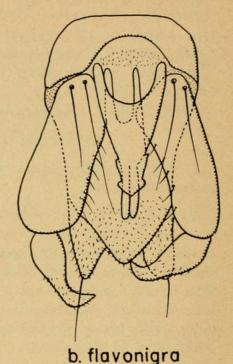
#### Probezzia sabroskyi, new species

A medium-sized black and yellow species; halteres white; apical third of all femora black, and hind tibia with broad subbasal black band.

Q. Length 2.8 mm., wing 2.7 mm. by 0.9 mm. Head dark brown; vertex and clypeus with scattered brown hairs; antennae brown, segments 3-10 whitish; palpi brown. Thorax shining black; legs yellowish, coxae brown; distal third of all femora, a sub-basal band a third the length of hind tibia and ends of hind tibia narrowly black; tarsi white, fifth segment black, with about eight long batonnets, claws about two-thirds as long as segment with long outer tooth at base. Wings milky white including veins; halteres white. Abdomen yellowish white, with sparse long white hairs.

Male genitalia (fig. 1, a); Ninth sternite deeply excavated, the posterior membrane spiculate; ninth tergite long, apex triangularly pointed and ventrally setose, with a pair of large triangular setose dorso-lateral lobes. Basistyles narrow, each with a pair of long hairs at





a. sabroskyi

b. Havoriigi a

Text Figure 1. Probezzia species, male genitalia. a, sabroskyi, n. sp.; b, flavonigra (Coquillett).

base; dististyles about half as long, apex slightly curved and pointed. Aedeagus about twice as long as broad at base, anterior arch not quite a third of total length, apex slender with caplike enlargement. Parameres **H**-shaped, the basal arms well separated, about half as long as the rodlike contiguous posterior arms.

Holotype female, Kinderhook, Branch Co., Mich., May 30, 1942, C. W. Sabrosky (Type no. 59902, U.S.N.M.). Allotype, E. Lansing, Mich., May 25, 1947, C. W. Sabrosky. Paratypes: MICHIGAN: 1 \(\rightarrow\), E. Lansing, May 17, 1936, C. W. Sabrosky; 1 \(\rightarrow\), Marble Lake, Quincy, May 31, 1942, C. W. Sabrosky; 1 \(\rightarrow\), Detroit, May 20, 1938, G. Steyskal; 1 \(\rightarrow\), Chebogan Co., July 4, 1940, R. I. Sailer (to be returned to Kans. Univ. Coll.); 1 \(\rightarrow\), Isle Royale, Aug. 3-7, 1936, C. W. Sabrosky.

This species is closely allied to xanthogaster Kieffer, from which it can be distinguished by the board sub-basal dark band on the hind tibia.

#### Probezzia rosewalli, new species

A small black and yellow species with the fore femora mostly black, mid and hind femora with distal half dark, hind tibia with broad basal dark band, halteres yellow, wings with broad median infuscated band; abdominal segments 3-5 dark.

§ Q. Length 2.1 mm., wing 1.9 mm. by 0.7 mm. Head dark brown, vertex and clypeus with scattered brown hairs; antennae with second segment brown, flagellum whitish, last five segments somewhat darker; paipi yellow. Thorax shining black; legs yellow, coxae brown, femora black distad, all but base on fore leg, distal half of mid-leg and distal third on hind leg; fore and mid tibiae with basal fourth brown, hind tibia with basal two-thirds brown, all tibiae with apices narrowly brown; tarsi white, fifth segment black, with about eight very long batonnets, the claws very slender and nearly as long as segment. Wings milky white, a broad smoky brownish band across middle fourth or third at level of r-m cross-vein, the veins brownish on the band; halteres white. Abdomen yellowish white, segments three to five brownish black.

Holotype female, Baton Rouge, La., May 6, 1947, W. W. Wirth (Type no. 59903, U.S.N.M.). Allotype, same, May 16, 1947 (Amite River). Paratypes: LOUISIANA: 4 9 9, same data as holotype; 1 &, 6 9 9., Kilbourne, May 10, 1947, W. Wirth. Other material: MASSACHUSETTS: 1 9, Wilmington, July 4, 1910, H. S. Barber (USNM). NEW YORK: 1 9, Indian Lake, Sabael, Aug. 25, 1938, H. G. Barber (USNM). MARYLAND: 1 9, Plummer's Island, July 11, 1922, H. S. Barber (USNM), 1 9, same, Aug. 18, 1912, J. R. Malloch. VIRGINIA: 1 9, Dead Run, Fairfax County, June 22, 1915, R. C. Shannon (USNM).

Very similar to flavonigra (Coq.), xanthogaster K., and sabroskyi n. sp., in the white halteres and black- and yellow-banded legs, but separated from the first by the basal dark markings on the fore tibia, and from the other two by dark abdominal and wing markings. I take great pleasure in naming this species in honor of my former graduate professor, Dr. O. W. Rosewall, of Louisiana State University, the dean of Louisiana entomology.

# Probezzia flavonigra (Coquillett)

Ceratopogon flavoniger Coquillett, 1905, Jour. N. Y. Ent. Soc. 13:60. Bezzia flavonigra, Kieffer, 1906, Gen. Insectorum, fasc. 42:58.

Probezzia flavonigra, Johannsen, 1908, N. Y. St. Mus. Bul. 124: 267;
 Malloch, 1914, Proc. Biol. Soc. Wash. 27:138; 1915, Bul. Ill. St.
 Lab. Nat. Hist. 10:358; Johannsen, 1943, Ann. Ent. Soc. Amer. 36:785.

Bezzia (Probezzia) flavonigra, Kieffer, 1917, Mus. Nat. Hungarici Ann. 15:329.

Q. Length 2.4 mm. A shining black and yellow species with thorax, five distal antennal segments, and abdominal tergites three to five, black; fore femur narrowly black at tip, mid-femur with distal fourth and hind femur with distal third black; tibiae with narrow apical black band, hind tibiae with sub-basal third black; fifth tarsal segment black, the claws nearly as long as segment; wings milky white on basal third, slightly infuscated on distal portion; halteres white.

3. Genitalia (fig. 1b): Ninth sternite deeply excavated, the posterior membrane with spiculate band; ninth tergite long and narrow, with slight preapical constriction, apex triangularly tapered and setose ventrally, with a pair of large triangular setose dorso-lateral lobes. Basistyles narrow, with a pair of long hairs at base on each side of aedeagus; dististyles about half as long as basistyles, with hook-like curved apex. Aedeagus about half as long as broad at base, anterior arch to a third of total length, gradually tapered to a trilobed apex. Parameres very slender, fused on middle third, with slender sub-parallel well separated anterior arms, and slender rodlike contiguous posterior arms exceeding tip of aedeagus by about half their length.

Recorded Distribution: Coquillett (1905) type locality, Bear Lake, B. C., type male in USNM.

Material examined: BRITISH COLUMBIA: Bear Lake, June 20, 1903 (Currie) (USNM) 1 & type.

MONTANA: Big Timber, July 14, 1917 (Dyar) (USNM) 4 ♀ ♀. NEVADA: Reno, July 21, 1915 (Dyar) (USNM) 1 ♀.

CALIFORNIA: Alturas, July 13-16, 1948 (Wirth) (at light) 32 Q Q. Alturas, July, Aug., 1948 (Coleman) 20 Q Q. Topaz Lake, Aug. 1, 1948 (Coleman) 1 Q. Yuba City, May 29, 1937 (Christenson) (USNM) 1 Q. Gridley, June 5, 1937 (Christenson) (USNM) 1 Q.

Malloch (1915) suggested that the type of this species might be the male of xanthogaster (= elegans), but with the examination of females, it is evident that flavonigra is a distinct western species.

#### LITERATURE CITED

- Coquillett, D. W., 1901. New Diptera in the U. S. National Museum. Proc. U. S. Nat. Mus. 23: 593-618.
- Jour. N. Y. Ent. Soc. 13: 56-69.
- Edwards, F. W., 1926. On the British biting midges (Diptera—Ceratopogonidae). Trans. Ent. Soc. Lond. 74: 389-426.
- Johannsen, O. A., 1934. New species of North American Ceratopogonidae and Chironomidae. Jour. N. Y. Ent. Soc. 42: 343-352.
- of the Americas, a bibliography, and a list of the North American species. Ann. Ent. Soc. Amer. 36: 774-783.
- Loew, H., 1865. Diptera americae septentrionalis indigena. Berlin Ent. Ztschr. 5: 309-315.
- Macfie, J. W. S., 1940. The genera of Ceratopogonidae. Ann. Trop. Med. and Parasit. 34: 13-30.
- Malloch, J. R., 1914. Synopsis of the genus *Probezzia* with description of a new species. Proc. Biol. Soc. Wash. 27: 137-139.
- ————, 1915. Some additional records of Chironomidae for Illinois. Bull. Ill. State Lab. Nat. Hist. 11: 303-363.



Wirth, Willis Wagner. 1951. "The genus Probezzia in North America (Diptera, Heleidae)." *Proceedings of the Entomological Society of Washington* 53, 25–34.

View This Item Online: <a href="https://www.biodiversitylibrary.org/item/54979">https://www.biodiversitylibrary.org/item/54979</a>

Permalink: <a href="https://www.biodiversitylibrary.org/partpdf/56187">https://www.biodiversitylibrary.org/partpdf/56187</a>

# **Holding Institution**

Smithsonian Libraries and Archives

# Sponsored by

Smithsonian

### **Copyright & Reuse**

Copyright Status: In copyright. Digitized with the permission of the rights holder.

Rights Holder: Entomological Society of Washington

License: http://creativecommons.org/licenses/by-nc-sa/3.0/

Rights: <a href="https://biodiversitylibrary.org/permissions">https://biodiversitylibrary.org/permissions</a>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at https://www.biodiversitylibrary.org.