

# New North American species of the genus *Gonomyia* Meigen (Tipulidae, Diptera)

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NEW NORTH AMERICAN SPECIES OF THE  
GENUS *GONOMYIA* Meigen.

(TIPULIDÆ, DIPTERA)

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The species herewith described as new belong to the subgenus *Gonomyia*, the members of which have the cell  $R_2$  of the wings present. As has been indicated in earlier papers it is almost impossible to identify isolated females in this genus and in most of the related Eriopterine genera, but the genitalia of the male sex offer remarkably clear-cut characters for the separation of closely related species.

Genus *Gonomyia* Meigen.***Gonomyia* (*Gonomyia*) *florens*, sp.n.***Male*—Length 4-4.1 mm.; wing 5.4-5.6 mm.*Female*—Length 5.8 mm.; wing 6.8 mm.

Rostrum yellowish brown, the palpi dark brown. Antennæ long and slender, the scapal segments yellow, the first flagellar segment brown, yellowish at the base, remainder of the antennæ dark brown; flagellar segments rather elongated, slightly enlarged just beyond the base. Head yellow with a brown median line.

Mesonotal præscutum light yellow with three dark chestnut-brown stripes which are almost confluent behind; pseudosutural foveæ very large and prominent; lateral margin of the sclerite yellowish becoming more whitish beyond the pseudosutural foveæ; scutum with the lobes rich chestnut brown, the inner edge adjoining the median area yellow, the lateral margin yellowish; scutellum and postnotum light yellowish to a large extent. Pleura pale yellow with a dark brown stripe from the ventral portion of the cervical sclerites running back to the base of the abdomen, enclosing the base of the halteres; mesosternum pale brown; the pale pleural stripe with a sparse whitish bloom. Halteres light brown, the knob pale. Legs with the coxæ pale yellow; trochanters brown; femora light brownish yellow; tibiæ yellowish brown; tarsi brown. Wings with a strong yellowish tinge, the stigma indistinct, the costa yellow, remaining veins brown. Venation: *Sc* moderately long, ending just before or opposite the origin of *Rs*; *Rs* gently

curved;  $R_2$  a little shorter than  $R_{2+3}$ ;  $R_2$  half again as long as the cross-vein  $r-m$ ; outer deflection of  $M_3$  obliterated so that cell 1st  $M_2$  is confluent with cell  $M_3$ ; basal deflection of  $Cu_1$  at the fork of  $M$ .

Abdominal tergites brown, broadly margined with yellow; sternites yellow, the hypopygium concolorous. Hypopygium with the ninth tergite short, broad, the caudal margin transverse. Ninth pleurite very short and stout, the inner dorsal angle produced caudad into a blunt, fleshy lobe, whose inner margin is fringed with numerous long hairs; a short, blunt, fleshy knob at the base of this lobe, this knob provided with five long hairs on the margin; dorsal pleural appendage slender, originating just below the knob described above, directed proximad, the base enlarged with two or three stout hairs, the tip slightly bifid, the caudal arm with two bristles, the cephalic arm with one bristle; a stout bristle just before the tip on the inner or cephalic side; second pleural appendage a powerful chitinized hook, slightly curved, directed proximad, toward the apex bent strongly cephalad; ventral pleural appendage a slender fleshy rod, beyond the slightly enlarged base bent strongly dorsad so that it lies above the second appendage, at the tip directed caudad and here capped with a short, blunt, chitinized spine. Ninth sternite with a prominent median knob on the caudal margin, this knob with numerous setigerous tubercles.

*Habitat*—Eastern United States.

*Holotype*—♂, Indian Castle, Herkimer Co., N.Y., June 9, 1915, (Alexander).

*Allotype*—♀, topotypic.

*Paratypes*—3♂ ♀, topotypic.

The types are in the collection of the author.

*G. florens* may be distinguished from the closely related *G. cognatella* O. S. by its slightly larger size, brighter colouration, and the male genitalia (the powerful curved second appendage, the short, black apex to the ventral appendage, etc.).

### **Gonomyia (Gonomyia) flavibasis, sp. n.**

*Male*—Length 5.2 mm.; wing 5.3 mm.

Rostrum and palpi dark brown. Antennæ with the two basal segments bright pale yellow; flagellar segments brown with a dense

pale pubescence that is most noticeable on the basal segments. Head yellow with a dark brown median mark.

Pronotum yellow, slightly darkened medially. Mesonotal præscutum yellow with three dark brown stripes, the lateral pair being almost confluent with the broad middle stripe; lateral stripes removed from the margin of the sclerite and beginning just back of the pseudosutural foveæ; the latter is elongate rectangular, chestnut in colour; scutum yellow, the greater portion of each lobe brown; scutellum brown basally, the caudal half yellow; postnotum brown, the sides of the sclerite yellow. Pleura light yellow with two dark brown stripes as follows: dorsal stripe narrow, clear-cut, beginning on the cervical sclerites, running backward just above the base of the fore coxæ and above the base of the halteres; the ventral stripe occupies the mesosternum and is of a much paler brown than the other stripe; the yellow stripe enclosed is very pale, suffused with whitish. Halteres pale, the knobs slightly infuscated. Legs with the coxæ and trochanters light yellowish brown, the fore coxæ whitish yellow on the outer face; femora, tibiæ and tarsi very pale brown, the latter dark brown on the last three segments. Wings nearly hyaline, the stigma indistinct, the veins brown. Venation: *Sc* short, ending far before the origin of *Rs*, this distance about equal to vein *R*<sub>2</sub> alone; basal deflection of *R*<sub>4+5</sub> very short or lacking; basal deflection of *Cu*<sub>1</sub> beyond the fork of *M*, this distance a little shorter than the first deflection of *M*<sub>1+2</sub>; cell 1st *M*<sub>2</sub> open.

Abdominal tergites dark brown, the terminal segments slightly margined with yellowish; sternites light yellow. Hypopygium with the pleurites rather long and slender, the dorsal angle produced caudad as a flattened, fleshy lobe that bears many hairs on the dorsal face; appendages two, the first appendage very long, flattened, the apex bent, the surface of the arm with many long hairs; second appendage complex consisting of a chitinized hook that is slightly bent; underneath the base of this hook is a fleshy lobe with several short bristles on the outer face; above the base of the hook is a slender subchitinized rod that is darkened at the tip.

Habitat—Western United States.

Holotype—♂, Monterey Co., California; July 18, 1896.

Part of the W. M. Wheeler collection in the American Museum of Natural History.

This fly belongs to the *cognatella* group and is closest to *G. delicata* Alexander (Guatemala) but the venation is quite different in the longer subcosta, the different shape of the sector and other venational details.

**Gonomyia (Gonomyia) noveboracensis, sp. n.**

*Male*—Length 4 mm.; wing 4.9 mm.

Rostrum light yellowish brown, the palpi dark brown. Antennæ black throughout, the basal segments enlarged, the flagellar segments very short, tapering suddenly to the tip of the appendage. Head light gray.

Pronotal scutellum white, dark brown medially. Mesonotal præscutum plain grayish brown, the area behind the pseudosutural foveæ paler, more yellowish; scutum similar; scutellum brownish yellow; postnotum brown with a sparse grayish bloom. Pleura white with two brown stripes, the dorsal one beginning on the cervical sclerites and continuing back to the wing basis; the ventral stripe occupying the mesosternum. Halteres pale. Legs with the coxæ and trochanters brownish yellow; femora, tibiæ and tarsi uniform dark brown. Wings light gray, the stigma not indicated; costal vein yellow, the remaining veins dark brown. Venation: *Sc* short ending far before the origin of *Rs*, this distance sub-equal to the cross-vein *r-m*; *Rs* rather short, rather sharply bent just beyond the base, a little shorter than *R*<sub>2+3</sub>; *R*<sub>2</sub> oblique, a little longer than the cross-vein *r-m*; basal deflection of *Cu*<sub>1</sub> at or just beyond the fork of *M*.

Abdominal tergites dark brown, broadly margined with silvery; sternites similar, narrowly ringed caudally with silvery; hypopygium reddish yellow. Hypopygium with the ninth tergite having the caudal margin with a broad rounded concavity. Ninth pleurite prominent, elongate, the dorsal inner edge with a prominent tubercle that bears several hairs, the ventral inner edge with a row of large setigerous tubercles; three small pleural appendages, a small, inner, dorsal, cylindrical appendage directed cephalad, slightly enlarged basally, at the apex bearing three or four prominent hairs; a dorsal apical appendage directed proximad, flattened,

enlarged at the apex which bears a row of delicate hairs; a slender subchitinized ventral apical appendage that is directed proximad, slightly toothed at the tip and on the lower side just before the tip. Gonapophyses and the penis-guard fused into a very large, prominent, cylindrical tube that is armed with chitinized horns and fleshy lobes; the dorsal surface of the tube with two subpendulous, fleshy lobes that are approximated along the median line and densely provided with short, pale hairs; the horns of the cylinder are directed caudad and slightly ventrad; the outermost horns are very broad at the base tapering to the acute apices which are curved proximad; the next inner pair of horns slender, chitinized, bifid at the apex; innermost pair of horns slender, slightly twisted, narrowed to the apex. Ninth sternite with a broad V-shaped median notch, the adjacent angles produced caudo-laterad as fleshy lobes that are provided with numerous setigerous punctures.

*Habitat*—Eastern United States.

*Holotype*—♂, Sacandaga Park, Fulton Co., New York; June 11, 1914, (Alexander).

*Paratype*—♂, topotypic.

The types are in the collection of the author.

### **Gonomyia (Gonomyia) filicauda, sp. n.**

*Male*—Length 4.8-5.2 mm.; wing 6.3-6.4 mm.

*Female*—Length 5.4 mm.; wing 6.6 mm.

Rostrum and palpi dark brown, the last palpal segment slender, equal to the preceding two together. Antennæ dark brownish black throughout, the flagellar segments elongate-oval with an abundant pale pubescence and a few stout, black hairs. Head blackish with a dark gray bloom, slightly paler around the occiput.

Pronotum pinkish, the median line broadly dark brown. Mesonotal præscutum dark grayish brown without apparent stripes; sides of the præscutum, median area of the scutum, posterior half of the scutellum and sides of the postnotum light yellow. Pleura light yellow with large dark brown areas representing two interrupted stripes, as follows: on the proepisternum, mesepisternum, mesosternum, a narrow area just in front of the base of the halteres, the anterior face of the fore coxæ and the lateral

face of the posterior coxæ. Halteres very long and slender, pale. Legs with the coxæ yellow marked with brown as described above; trochanters brownish yellow; femora brown, slightly paler at the extreme base; tibiæ and tarsi dark brown. Wings with a strong grayish brown tinge; stigma pale brown; veins dark brown; venation: *Sc* rather long, ending slightly beyond the origin of *Rs*; *Rs* very long, longer than *R*<sub>2+3</sub>; basal deflection of *R*<sub>4+5</sub> very short or lacking; *r-m* very long, arcuated.

Abdominal tergites dark brown, the extreme lateral margins and the parts of the hypopygium largely yellowish; sternites light brown, the caudal margin very broadly ringed with yellow. Hypopygium with the pleurites moderately long, the dorsal angle produced caudad and slightly dorsad as an elongated fleshy lobe that is sparsely hairy, the hairs on the outer face strong, those on the inner face weak; dorsal pleural appendage a short, fleshy lobe whose caudal margin is produced into a powerful, curved, heavily chitinized hook, directed inward and dorsad; at the tip of the fleshy portion of the lobe are two stout hairs and a group of about eight smaller ones; ventral pleural appendage very long, slender, beyond the base slightly expanded, the apical portion slender, slightly expanded toward the tip, dusky in colour and provided with an abundance of long, delicate hairs. Penis-guard pale in colour, simple, slender from an enlarged base, the apex split by a deep, rounded notch.

*Habitat*—Rocky Mountain Region.

*Holotype*—♂, Webster, Colorado, near Platte Cañon; August 24-26, 1915; altitude 9,500 feet (E. J. Osler).

*Allotype*—♀, topotypic.

*Paratypes*—30 ♂ ♀, topotypic.

The types are in the collection of the author.

Belongs to the *subcinerea* group; a long-winged, dark-winged fly with exceedingly elongate halteres. In some specimens the pale colour on the sides of the mesonotal præscutum is obscured by the gray-brown of the dorsum.

### **Gonomyia (Gonomyia) mexicana**, sp.n.

*Male*—Length 6.1 mm.; wing 6.8 mm.

*Female*—Length 7 mm.

Similar in colour to *Gonomyia unicolor* Alexander (Guatemala) but larger, the mesonotum more grayish, pseudosutural foveæ and tuberculate pits black, conspicuous, and the venational details slightly different.

Antennæ uniformly dark brown throughout. Pronotal scutellum light yellow. Mesonotal præscutum grayish brown, shiny, without apparent stripes; a rather light yellow area before the pseudosutural foveæ; a dull yellow area between this foveæ and the transverse suture and a small yellow spot on the sides of the scutal lobes above the wing-root. Wing-venation:  $R_{2+3}$  twice the length of  $R_2$  and much longer than  $Rs$ ;  $r-m$  nearly as long as the basal deflection of  $Cu_1$ , the latter inserted at from one-quarter to one-third the length of cell 1st  $M_2$ . Male hypopygium with the ninth tergite rather short, the caudal margin straight or nearly so; ninth pleurite elongate, rather stout, the dorsal pleural appendage rather short, cylindrical, fleshy, the cephalic or inner angle of the apex with two strong, powerful bristles, the caudal or outer angle with two smaller hairs; second pleural appendage strongly chitinized, the tip acute, curved; ventral pleural appendage a long, pale lobe, subcylindrical, blunt at the apex and bearing sparse elongate hairs; penis-guard very long and pale, the apex bifid by a deep U-shaped notch, each of the lobes thus formed with long hairs; on the ventral face of this arises a slender, rod-like median appendage, sparsely short-hairy at the apex and down the ventral face; the divergent subtending arms are slender, somewhat flattened, the apices produced into a slender cylindrical point, the outer or ventral margin with a few sharp, appressed teeth.

*Habitat*—Mexico.

*Holotype*—♂, Cordoba, Mexico; May 8, 1908 (Frederick Knab).

The type is in the United States National Museum.

This species was earlier determined as being *Gonomyia unicolor*, variety, (Proceedings of the United States National Museum, vol. 44, p. 507, 1913); the differences between these closely allied forms will be indicated in connection with the next species, *Gonomyia æqualis*, n.



**Gonomyia (Gonomyia) æqualis**, sp.n.

*Male*—Length 6.1 mm.; wing 6.6 mm.

In all general features quite similar to *Gonomyia mexicana*, the main differences lying in the genitalia of the male, these being as follows: Ninth tergite almost straight across or slightly concave; ninth pleurite moderately stout, the dorsal angle produced caudad as a very slender, finger-like lobe, which is provided with numerous setigerous tubercles; at the base of this lobe on the inner side is a tiny, fleshy protuberance directed proximad; dorsal pleural appendage irregular, fleshy, directed proximad, the caudal or outer face near the apex with a strong, curved, chitinized hook, which is directed dorsad and cephalad, the cephalic or inner face with a row of strong bristles which are longer and more approximated at the tip; ventral pleural appendage a pale, fleshy lobe densely covered with short, pale hairs; penis-guard rather long, compressed, the median appendage pale, slightly curved; anal tube broad, prominent, subtended on either side by a concave wing that bears on the caudal outer angle a fimbriate tuft of yellow bristles.

*Habitat*—Guatemala.

*Holotype*—♂, Totonicopan, Guatemala; July, 1902; (G. Eisen).

*Allotype*—♀, topotypic.

The types are in the United States National Museum. This species was earlier determined as being a variety of *Gonomyia unicolor* (Proceedings of the United States National Museum, vol. 44, p. 507, 1913), but is readily separated from both *unicolor* and *mexicana* by the structure of the male genitalia. In *G. unicolor* the hypopygium may be described as follows: Ninth tergite almost straight across or slightly concave; ninth pleurite moderately stout, elongated, the dorsal angle not produced; dorsal pleural appendage a subcylindrical, fleshy lobe from an enlarged base, at the apex, with two powerful bristles, the cephalic or inner face with four small hairs that are evenly spaced; ventral pleural appendage a double lobe, dark-coloured, subchitinized, the inner arm stout, cylindrical, with the tip acute, the inner side with two or three hairs, the outer or more ventral arm is slender, curved, and bears

near the tip two stout divergent hairs; penis-guard seen from beneath, a powerful, quadrangular, chitinized base whose caudal angle is a ventrally directed hook, the base on either side subtended by short gonapophyses that end in sharp, chitinized, conical spines; from above and dorsal of the quadrangular base arise two divergent, cylindrical, pointed, chitinized arms.

**Gonomyia (Gonomyia) californica**, sp.n.

*Male*—Length 7 mm.; wing 6 mm.

*Female*—Length 7-9 mm.; wing 6.6 mm.

Rostrum and palpi dark brown. Antennæ with the first segment dull yellow above, the flagellum dark brown. Head bright, pale yellow passing into brown on the sides of the occiput and vertex; a narrow, dark brown median vitta.

Pronotum pale with two divergent brown lines that are connected at the anterior end. Mesonotal præscutum dull yellow with three dark brown stripes that are confluent, only the areas about the pseudosutural foveæ and backward along the margin of the sclerite being of the ground colour; scutum light brown, the lobes dark brown, a dull yellow spot on the lateral margin above the wing-root; scutellum mostly brown, margined caudally with yellow; postnotum dark brown, the basal portions yellowish. Pleura light yellow with two dark brown bands, the dorsal one beginning on the propleura and including a small spot at the base of the fore coxa, continuing backward as a broad band that surrounds the base of the halteres and becomes confluent with the brown of the mesonotal præscutum; the ventral band begins behind the fore coxa, occupies the mesosternum and includes the base of the middle and hind coxæ. Halteres pale, the knob brown. Legs with the coxæ as described above; trochanters pale yellow; femora dull yellow with a dark brown anteapical annulus; remainder of the legs broken. Wings subhyaline, the costal veins yellowish, the remaining veins brown; dark brown spots on the wing-disk as follows: at the humeral cross-vein; at the arculus; at the origin of  $R_5$ ; at the tip of  $Sc_1$ ; along the basal deflection of  $Cu_1$ ; at the basal deflection of  $R_{4+5}$ ; cross-vein  $m$ ; a large stigmal area; at the fork  $R_{2+3}$ ; at the tips of cells  $R_3$  and  $R_5$ ,

and a faint seam along the cross-vein *r-m*; venation: *Sc* long, extending beyond mid-length of the long sector; *R*<sub>1</sub> and *R*<sub>2</sub> scarcely contiguous at the wing-margin; basal deflection of *Cu*<sub>1</sub> before the fork of *M*; basal deflection of *M*<sub>3</sub> absent.

Abdominal tergites dark brown, the caudal and lateral margins dull yellow; segment eight largely yellow except the extreme base which is brown; segment nine yellow with a narrow basal ring with a slight median projection caudad; sternites dark brown, deepest sublaterally, the caudal and lateral margins dull yellow. Hypopygium having the ninth tergite with a deep, narrow median notch, the lateral angles rounded. Ninth pleurite stout, the outer angle produced caudad into a slender fleshy lobe that is pointed at the apex and sparsely provided with setigerous tubercles; dorsal pleural appendage a triangular fleshy lobe that is provided with long coarse hairs; ventral pleural appendage, a two-armed chitinized rod whose outer ventral arm is stout basally, narrowed toward the apex which is again expanded into a blunt tip; the inner arm bends dorsad, slender, tapering into an acute blackened apex. Penis-guard prominent, the sides subparallel, the apical half on the dorsal surface with numerous hairs, the apex produced ventro-caudad into a prominent median lobule.

*Habitat*—Western America.

*Holotype*—♂, Blue Lake, Humboldt Co., California; June 20-27, 1907 (J. Chester Bradley).

*Allotype*—♀, topotypic.

*Paratypes*—1♂, 1♀, topotypic; 1♀, Peachland, British Columbia, May 19, 1912; 1♀, topotypic, June 24, 1903.

The type is in the collection of Cornell University, paratypes in the collection of the author. The two last-named paratypes were earlier determined as *G. blanda* O. S. (Proceed. Acad. Nat. Sci. Phila., October, 1914, p. 286, 287).

This interesting species is nearest to *G. blanda* O. S. differing in the striped pleura, the long subcosta with a dark blotch at its tip, the slight amount of dark colour in the apices of cells *R*<sub>3</sub> and *R*<sub>5</sub>, and in conspicuous details of the male hypopygium.