

New North American species of Dolichopodidae (Dip.).

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Key to the North American Species of Mesorhaga.

- 1 Femora wholly yellow; (females) 5
Femora more or less black..... 2
- 2 All tibiae and tarsi black or brown (fore pair somewhat yellowish
in the females) **nigripes** Ald. 3
Tibiae yellow (males) 3
- 3 Hypopygium with small yellow appendages..... **albiciliata** Ald. 4
Hypopygial appendages fully one-third as long as the hypopy-
gium 4
- 4 Fore and middle femora black or green but yellow at base and
tip **caudata** V. D. 5
Fore femora wholly yellow, middle femora black at base on the
lower side **varipes** sp. nov. 6
- 5 All coxæ black **albiciliata** Ald. 6
Fore coxæ yellow 6
- 6 Bristles of the thorax mostly pale, hairs of abdomen pale.....
townsendii Ald. 7
Bristles of the thorax and hairs on the base of the abdomen
above black **borealis** Ald. 8

Mesorhaga varipes sp. nov.

♂. Length 4 mm. Face and front green, the former broad with thick coarse white pollen which almost conceals the ground color in some lights; antennæ black, bristles of second joint yellowish; ocellar bristles black with a bunch of small pale hairs back of them; a few long yellowish bristly hairs on each side at the upper corners of the eyes; a few of the orbital cilia at the upper corner of the eye long and blackish, lower orbital cilia white.

Thorax blue-green; pleuræ with white pollen; bristles on the anterior portion of the dorsum blackish, those on the posterior part and the four on the margin of the scutellum yellowish.

Abdomen blue-green, its incisures very narrowly yellow; hairs on the dorsum of the abdomen short and yellow, those on the venter long and white; hypopygium and its appendages shining black, the latter long and fringed with short pale hairs.

Coxæ black or green with white pollen; fore pair with long white hairs on the front surface; tips of coxæ and the trochanters yellow; fore femora wholly yellow; middle femora with a black streak below from the base to about the middle; hind femora black with yellow tips; all femora with long white hairs below; tibiae yellow, the tips of the hind pair a little brownish; tarsi infuscated from the tip of the first

joint; fore metatarsi three-fourths as long as their tibiae and longer than the remaining four joints together; middle metatarsi about four-fifths as long as their tibiae and one and one-fourth times as long as the remaining four joints.

Knob of the halteres yellow, stem brown; tegulae white with black tips and long white cilia. Wings nearly hyaline; costa rather thick and black from the tip of the first vein; veins yellowish at the root of the wing.

Described from two males taken at Eastham, Massachusetts, June 27th, by C. W. Johnson. Type in the collection of the Boston Society of Natural History.

Mesorhaga nigripes Ald.

Two females and four males that seem to belong to this species are in the Cornell University material sent me for study. They come from Blue Lake, Humboldt County, California, and were taken by J. C. Bradley.

Prof. Aldrich described this species from females. I give the characters of the male below. The females differ from his description only in having all the tibiae and tarsi uniformly brown, and there is a small black bristle at the upper corner of the eye not mentioned by him.

♂. Hypopygium rather long, shining black, with a few long hairs on the outer or dorsal surface; appendages becoming more yellowish towards the apex, rather thick and tipped with two stout, black bristles. Femora ciliate below with long white hairs, these hairs as long as the thickness of the femora; in the female these hairs are much shorter, less than one-half the thickness of the femora. Third antennal joint rounded at tip, about as long as wide, second joint with a very long stout bristle below; in the female the antennae are formed about as in the male and of nearly the same size, but the bristles of the second joint are much smaller. The fore and middle metatarsi of both sexes are nearly as long as the four remaining joints.

Table of Males of the North American Species of Campsicnemus.

1	Middle tibiae not or but little incrassated.....	2
	Middle tibiae incrassated at least at base.....	4
2	Middle tibiae yellow, not flattened.....	degener Wh.
	Middle tibiae mostly or wholly black and somewhat flattened....	3
3	Femora mostly yellow	arcuatus sp. nov.
	Femora mostly black	nigripes sp. nov.

- 4 Middle tibiæ thickened only near the base.....**hirtipes** Loew.
Middle tibiæ incrassated throughout..... 5
5 Middle tibiæ with a pedunculated knob near their apices.....
philoctetes Wh.
Middle tibiæ without a knob..... 6
6 Middle tibiæ entirely black **oedipus** Wh.
Middle tibiæ in large part yellow..... 7
7 Middle metatarsi bent semicircularly..... **thersites** Wh.
Middle metatarsi not strongly curved..... **claudicans** Loew.

Campsicnemus arcuatus sp. nov. (Fig. 1).

♂. Length 2 mm., of wing 2.5 mm. Face narrow above, wider below, covered with dark yellowish brown pollen; front shining black; antennæ black, third joint larger than wide, rounded at tip.

Thorax shining black on the dorsum with purple reflections and an obscure green vitta visible on the posterior part. Scutellum bluish black with a reddish border; it has one pair of large bristles and between these are six hairs on the margin. Abdomen dull black; hypopygium concealed.

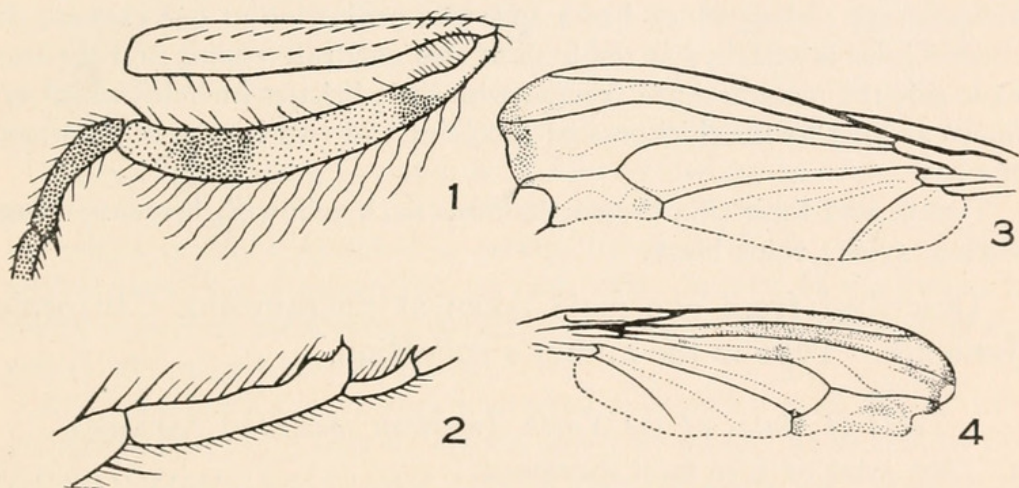


Fig. 1.—Tibia and metatarsus of middle leg of *Campsicnemus arcuatus* sp. nov.

Fig. 2.—First and second joints of middle tarsus of *C. nigripes* sp. nov.

Fig. 3.—Wing of *Liancalus hydrophilus* Ald.

Fig. 4.—Wing of *L. limbatus* sp. nov.

Fore coxæ yellow with silvery pollen and minute black hairs on the front surface; middle and hind coxæ black; all femora yellow, the fore pair a little blackened at base; middle pair narrowed near the apex; fore and hind tibiæ blackened at tip for one-third their length, also somewhat darkened at base, more yellowish in middle; middle tibiæ narrowed and briefly yellow at base, the remainder dull black, somewhat flattened, strongly and evenly arcuate, fringed with long delicate hairs above, these hairs curled at their tips; middle metatarsi curved upwards and with a stout sharp spur at tip (Fig. 1).

Tegulæ brownish with black cilia; knob of halteres yellow. Wings dark grayish with black veins.

Described from one male taken at Victor, Colorado, June 11th, at an elevation at 9800 feet. Type in the author's collection.

Campsicnemus nigripes sp. nov. (Fig. 2).

♂. Length 2 mm., of wing 2.5 mm. Face narrow with nearly parallel sides, covered with yellowish brown pollen which is darkened on the upper portion of the face; front black; antennæ black, third joint longer than wide, rounded at tip.

Thorax shining black with a trace of a green vitta on the posterior part; scutellum bluish black with a few delicate hairs on the margin (if there have been bristles on the margin, as no doubt there have been, they have been broken off). Abdomen black with green reflections.

Coxæ and legs altogether black, except the tips of the middle femora which are yellowish; the four hinder femora ciliated with short stout hairs below; middle tibiæ long, flattened, with a few rather long bristles above; middle metatarsi (Fig. 2) slightly arched with a large subquadrate ending which has a spur-like projection at one corner; the second joint is attached at the base of this quadrate ending; on the concave side the metatarsi are fringed with little bristles or hairs which are about as long as the thickness of the joint and two longer bristles near the base.

Tegulæ and their cilia brown; halteres dark yellowish brown. Wings dark grayish; veins black.

Described from one male taken at Sacramento, California, June 4th. Type in the author's collection.

Table of Males of the North American species of Liancalus.

- | | | |
|---|---|--------------------------|
| 1 | First joint of fore tarsi shortened..... | 2 |
| | Second joint of fore tarsi shortened..... | 3 |
| 2 | Last three joints of fore tarsi of nearly equal length.. | similis Ald. |
| | Third joint of fore tarsi as long as fourth and fifth together. | querulus O. S. |
| 3 | The opaque white spot at the tip of the wing circular. | genualis Loew. |
| | The opaque white spot at apex of wing oval or semicircular..... | 4 |
| 4 | Wing deeply excised back of fourth vein and with two bristle-like pencils of hairs one either side of the excision (Fig. 3) | hydrophilus Ald. |
| | Wings deeply excised back of fourth vein but without the pencils of hairs, (Fig. 4) | limbatus sp. nov. |

Liancalus hydrophilus Ald. (Fig. 3).

I took a single male of this species at Colorado Springs. It was resting on rocks over which water was trickling, in South Cheyenne Canon. It measures but 7 mm. in length, which is about 2 mm. less than Prof. Aldrich's type specimens from the Black Hills, South Dakota, but the length of the wing is 7 mm., while the wings of his measured 7.5 mm. The knees of this specimen are distinctly but narrowly yellow. The other characters are as he gives them (*Psyche*, Vol. 6, p. 569). The drawing of the wing is from my specimen (Fig. 3).

Liancalus limbatus sp. nov. (Fig. 4).

♂. Length 9 mm., of wing 7.5 mm. Face bright green with silvery pollen which is quite thick along the orbits, divided a little below the middle by a transverse ridge; palpi thickly covered with silvery pollen and with small black hairs; proboscis dark brown; antennæ black, third joint only a little longer than wide, somewhat triangular; front dark greenish gray with a little white pollen; ocelli placed on a small brown spot; the black orbital cilia extending down to about the middle of the eye; below these are a few fine white cilia which are difficult to distinguish from the long yellowish hairs which cover the lower half of the occiput; the two post-vertical bristles are prominent but not very large.

Thorax bright metallic green with four golden-green vittæ, the outer ones broken at the suture; thorax quite thickly covered with white pollen which is almost invisible in certain lights; a single row of acrostichal bristles; six dorsocentrals on each side; bristles of the thorax inserted in minute black dots; metanotum green with white pollen; scutellum with six marginal bristles.

Abdomen green but so thickly covered with pollen as to appear whitish in certain lights; base of second and hind margin of second to fifth segments brown, which color extends forward along the center of the dorsum and reaches the base on the second and fourth segments; this brown color is due to pollen and the shining green ground color shows through it in certain lights; sixth segment green; abdomen with minute black hairs and more abundant and longer fine yellowish hairs, those on the sides and on the first segment longest; first segment with a few slender black bristles near the hind margin above; hypopygium mostly brown with two flattened filaments which are sparsely fringed with pale hairs and are two-thirds as long as the abdomen.

Fore coxæ green with white pollen and fine white hairs on the front surface and two small black bristles near the tip; middle and hind coxæ more blackish; legs green; knees slightly yellowish; tarsi black; fore tarsi with the first joint long, second joint only a little longer than wide, slightly dilated and fringed below with short bristles as in *genualis* and *hydrophilus*, third joint longer than fourth.

Tegulæ white with sharply defined yellow border and yellowish cilia; halteres yellow. Wings hyaline with brown clouds, one bordering the costa faint from the tip of the first vein to the tip of second vein more distinct from there to the apex of the wing, one along the second and third veins filling the cell between them except in outer part, one on last section of fifth vein; also a brown streak between third and fourth veins which has the appearance of a spurious vein; this streak is bent and has a cloud extending forward at about its first third; tip of wing dark brown with a somewhat semicircular opaque white spot at apex, this spot extending nearly from the tip of the third vein to the tip of the fourth vein; third vein ending in the apex of the wing; fourth vein a little angulated at the cross vein; there is a very small square cell at the inner angle of fifth vein and cross-vein; this cell is not quite complete in the right wing from which the drawing was made but is perfect in the left wing; cell between first vein and costa yellowish.

♀. Face and front with yellowish brown pollen; vittæ of thorax more coppery; a few stout black bristles near the hind margin of the third abdominal segment towards the sides; feet simple; wings simple with a large brown cloud on fourth vein before the cross-vein on last section of fifth vein and along the costa from tip of second vein to apex of wing.

Described from one male and one female taken at Berkeley, California, May 8th, on a wall of rock in a little canyon; the rock was covered with water-soaked moss. Type in the author's collection.

This species is very much like the European species *virens* Scop., but I think it is distinct. I have not seen *virens*, but Dr. Lundbeck has a drawing of the wing of that species, which does not show the deep emargination back of the fourth vein, nor does he mention it in his description, and he does not show any cloud on last section of fifth vein. The little cell at the inner angle of the fifth vein and the cross-vein in the male of *L. limbatus* do not appear in his figure. This cell may not be a constant character, but only accidental.

Photographs Received for the Album of the American Entomological Society.

During the year 1916 photographs for the Album were received and acknowledged from the following, and the members of the Society wish again to thank the donors for their gifts, which are much appreciated:

Mrs. Annie Trumbull Slosson, J. R. Malloch, F. Haimbach, M. S. Royal, of India, and Louis Laplace.



Van Duzee, M. C. 1917. "New North American species of Dolichopodidae (Dip.)." *Entomological news, and proceedings of the Entomological Section of the Academy of Natural Sciences of Philadelphia* 28, 123–128.

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