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THE NORTH AMERICAN SPECIES OF LABOPS (HETEROPTERA—MIRIDAE).[1]

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KEY TO THE SPECIES OF LABOPS

1. Hairs on hind tibiae shorter than the true spines; hind tibiae uniformly black 2
   Hairs on hind tibiae prominent, in length exceeding the true spines, length of hairs also greater than diameter of tibia; tibiae largely pale or yellowish ..... *hirtus* n. sp.
2. Juga of male strongly inflated, thus concealing base of tylus when viewed from lateral aspect, frons scarcely convex, median line pale; female with frons more prominent but vertex sloping sharply downward in front, median line of frons pale; larger, length 3.5—6 mm. ..... *hesperius* Uhl.
   Juga of male moderately prominent, base of tylus visible as seen from lateral aspect; both sexes with frons strongly convex, meeting the nearly horizontal vertex well forward of the eyes; small, length 3—3.4 mm. .... *tumidifrons,* n. sp.

Labops hesperius Uhler.

Hayden's Surv. Terr., Rept. for 1871, p. 416, (1872).

This species is best distinguished in the original description by the following: "Legs black; the apex of the femora and base and apex of the coxae orange yellow. Scutellum and hemelytra with grayish, prostrate pubescence;.... ....Abdomen densely sericeous pubescent, ... the posterior segments more or less hairy." A study of considerable material shows that the type of pubescence, as well as coloration of the legs, are constant and distinctive characters.

Our eastern form of *Labops* has usually been determined as *hesperius* Uhler, and although it occurs in Colorado and Montana, the original description clearly indicates which one of the two species the author had before him when drawing up the description.

Specimens examined: MONTANA—♀ June 30, 1900, Bozeman. ♂ June 26, 1903, Forsyth. ♀ June 27, 1913, Monida. ♂ ♀ June 19, 1921, Willow Creek, Gallatin County (Wm. C. Cook). SOUTH DAKOTA—♂ June 1, 1921, Capa (H. C. Severin). WYOMING—2 ♂ 2 ♀ July 20—25, 1920, Yellowstone National Park (A. A. Nichol). ALBERTA—18 ♂ ♀ July 1—3, 1915, Maligne Lake (E. L. Diven).

Labops hirtus new species.

Male. *Brachypterous form*, length 4.3 mm., width 2 mm. *Head*: width across eyes 1.7 mm., vertex 1.03 mm.; clothed with prominent, erect, pale yellowish hairs, and intermixed with a few silvery scale-like hairs on vertex and front; juga moderately prominent but not obscuring the base of tylus when viewed from lateral aspect; black, shining, with juga, genae, spot beneath eye, mark on median line of front, spot each side of vertex and extending mesad along base,

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pale to yellowish. *Rostrum*, length 1.5 mm., extending upon middle of hind coxae, black.

Antennae: segment I, length .63 mm.; II, 1.73 mm.; III, .76 mm.; IV .81 mm.; black.

Pronotum: width at base 1.45 mm., anterior angles 1.09 mm.; clothed with prominent, erect, pale yellowish hairs and intermixed with closely appressed scale-like pubescence; black, lower margins of pleura pale. *Scutellum* black, triangular, mesoscutum moderately exposed; clothed like the pronotum. *Sternum* and pleura black, clothed with prominent erect pilose hairs; posterior half of ostiolar peritreme and slender margin bordering intermediate coxae, pale.

Hemelytra: embolar margin arcuate; cuneal fracture present but cuneus poorly developed; membrane absent in brachypterous form; black, embolium and outer margin of corium, and extending beyond the cuneal fracture, pale yellowish; thickly clothed with erect, stiff yellowish hairs, and intermixed with closely appressed, silvery, scale-like hairs.

Legs: coxae black, apices and a spot near base yellowish; femora black, apices yellowish, more or less yellowish at middle but with black color continuous on dorsal surface, the yellow on hind pair forming a line on anterior and on the posterior aspect; tibae yellowish, with base and apex blackish, front pair more nearly black; tarsi black.

Venter: black, shining, clothed with prominent, erect yellowish hairs, and with a few scale-like hairs near base.

Macropterous form, length 5.7 mm., width 2.3 mm.; similar to the brachypterous form but with membrane fully developed and fuscous to black in color.

Female. *Brachypterous form*, length 4.6 mm., width 2.3 mm.; more robust but very similar to the male in structure and coloration.

Macropterous form, length 5.7 mm., width 2.6 mm.; similar to the brachypterous form but with membrane fully developed.

Holotype: ♂ July 11, 1917, Cranberry Lake, New York (C. J. Drake); author's collection. *Allotype*: same data as the type. *Paratypes*: MAINE—1 ♂ 1 ♀, July 4, 1915, Paris (C. A. Frost). MONTANA—♂, July 1, 1901, Bozeman, alt. 4800 ft. (E. J. Moore). NEW HAMPSHIRE—1 ♂ 1 ♀, June, 1908, Claremont. ♂, July 6, 1914, Mt. Washington (C. A. Frost). NEW YORK—2 ♂, July 2, ♂, July 3, 2 ♂, July 6, ♂, July 11, ♂, July 22, Cranberry Lake (C. J. Drake). 2 ♀, June 21, 1915, Wilmington (Wm. T. Davis). VERMONT—♂ June 23, 1913, Stowe (G. P. Englehardt). ♀ July 10, 1913, Stratton (P. W. Whitney). WYOMING—2 ♂ 7 ♀ (brachyp.), 5 ♂ 4 ♀ (macropt.), July 20—25, 1920, Yellowstone National Park (A. A. Nichol). CANADA: ALBERTA—♀ June 18, 1919, Edmonton (F. S. Carr). BRITISH COLUMBIA—♂ 2 ♀, July 28, 1920, Chilcotin (E. R. Buckell). ONTARIO—14 ♂ ♀, June 23—July 15, 1915, Parry Sound (H. S. Parish). 2 ♀, June 11—14, 1913, Guelph; ♂, June 12, 1915, Simcoe (H. Caesar). ♂ 4 ♀, June 16, 1917, Strathroy (H. G. Crawford).

Labops tumidifrons new species.

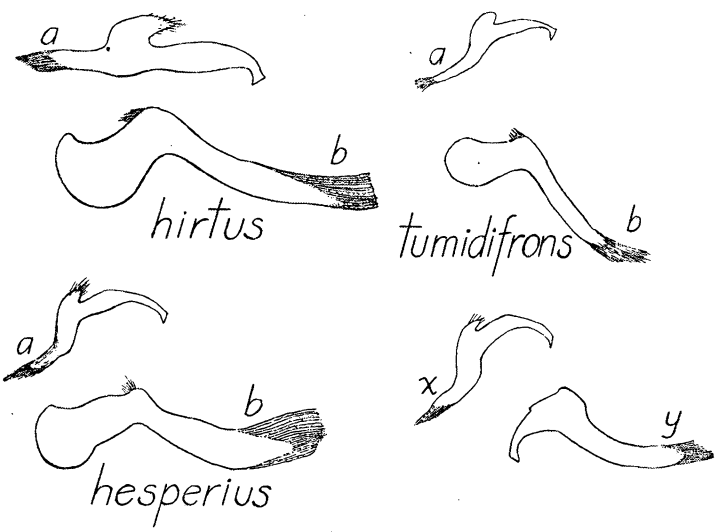
Male. Length 3.4 mm., width 1.3 mm. *Head*: width 1.17 mm., vertex .66 mm.; frons strongly convex, meeting the nearly horizontal vertex at a point just before front margin of eyes; clothed with erect pale hairs, longest on tylus,

front rather thickly covered with closely appressed, silvery, scale-like hairs; black, moderately shining, a white mark each side of vertex and extending mesad along base; juga white, much less prominent than in *hesperius*. *Rostrum*, length .97 mm., reaching to middle of hind coxae, black.

Antennae: black; segment I, length .36 mm.; II, 1mm.; III, .53 mm.; IV, .61 mm.

Pronotum: length .60 mm., width at base 1.14 mm., anterior angles .74 mm.; black, lower margins of pleura pale; clothed with erect pale hairs, intermixed with closely appressed, silvery scale-like hairs, the same extending to cover sides of thorax and abdomen; ostiolar peritreme black, scarcely paler along posterior margin; slenderly pale bordering base of intermediate coxae.

Hemelytra: fully developed, black, embolium and outer margin of cuneus pale, membrane uniformly blackish; clothed with erect, pale yellowish hairs, and intermixed with scale-like hairs, the latter thickest on clavus and corium.



Male genital claspers of species of Labops, a, left clasper, lateral aspect. b right clasper, lateral aspect. x, y, left and right claspers, y, showing aberrant form of right clasper in two specimens of *Labops hesperius*.

Legs: black, apices of femora, and tips of coxae, pale; femora beset with prominent erect hairs, pubescence on tibiae short, not equal to length of true spines.

Venter: black, clothed with erect pale yellowish hairs, the sides bearing scale-like hairs; genital claspers distinctive although showing a close relationship with *hesperius*.

Female. length 3.1 mm., width 1.4 mm.; brachypterous, hemelytra reaching to near tip of abdomen, cuneal fracture present but membrane scarcely developed; shape of head, pubescence, and color, similar to that of male although the body slightly more robust.

Antennae: segment I, length .34 mm.; II, .85 mm.; III, .50 mm.; IV, .61 mm. *Head*: width 1.2 mm., vertex .71 mm.

Holotype: ♂, June 15, 1920, Chilcotin, British Columbia (R. C. Treherne); Canadian National Collection. *Allotype*: taken with type; author's collection. *Paratypes*: 3 ♂, taken with the types.

Labops burmeisteri (Stal) has been recorded from this continent but the writer has not seen specimens that have been collected in North America. There is at hand for comparison and study, a specimen of *burmeisteri* determined by Reuter (♀, Shigansk, Lena infer. Russia, B. Poppius), which comes from a region near the type locality of the species. *Burmeisteri* comes nearest to *hirtus* but differs somewhat in form as well as in pubescence and color of the legs.

In the above figure, left and right genital claspers are illustrated, drawn from two specimens which in all other respects should be referred to *hesperius* Uhler. It seems worthy of remark that two specimens should be found, both showing the right clasper modified to a form very similar to the left clasper. The most logical explanation for these unusual specimens would seem to be that they represent a reversion of the right clasper back toward the primitive, bilaterally symmetrical form of clasper. In *Labops, Lopidea, Orthotylus,* and several other genera of Miridae, the left clasper is very little modified throughout the species in each genus. In other words, the left clasper is generic in character while the right clasper is indicative of the species. From this it would seem that the left clasper has remained more primitive while the right clasper exhibits great change in form with the development of new species. The above figured specimens of *Labops* seem to show that sudden reversion of the right clasper may take place, probably in a single generation, for among eighteen specimens of *hesperius* taken at the same time, all other male specimens were normal for the species. The writer has also found a single male of *Lopidea,* taken with a large series of *L. arizona*, which exhibits a similar condition of claspers. The right clasper is almost identical with the left clasper, or at least its bilaterally symmetrical counterpart. This specimen differs from the typical *L. arizona* in being much smaller, although quite similar in coloration. Thus we have two examples of species in different genera, each exhibiting reversion of the right genital clasper toward a more primitive form. The question naturally arises,—have not new species of plant bugs been created with the same sudden change, but by modification of the genital clasper in a different direction, or away from the bilaterally symmetrical type? The numerous species of the genus *Lopidea* would seem to support this view, yet nearly every species has its own particular food plant.