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KEY TO THE FEMALES OF NEARCTIC *DOLICHOPUS* LATREILLE (DIPTERA)

By M. C. VAN DUZEE AND C. H. CURRAN

In a recent number of the American Museum Novitates we presented a key to the males of the species belonging to this genus. The females are less well known, and many of the species have been recognized from only the male sex. Females of a few species are so similar that no characters have yet been found for their separation, but almost all can be recognized once the two sexes have been associated.

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aequalis Van Duzee.
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 All tibiae yellow, at least at base on upper edge for a considerable distance; posterior tibiae black at tip.....78.
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- 91.—Posterior femora black on basal half or more.....92.
Posterior femora mostly yellowish.....97.
- 92.—Middle femora largely or wholly yellow; anterior and posterior femora black
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Anterior and middle femora yellow, posterior ones black.....101.
- 93.—Middle and hind femora each with two preapical bristles; hind tibiae black
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remus Van Duzee.
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- 97.—Orbital cilia wholly black; antennae wholly black; middle and hind femora
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- 111.—Antennae wholly black, the posterior tibiae always broadly black apically. . . 112.
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- 114.—Cilia of the calypters pale. 115.
 Cilia of the calypters black. 141.
- 115.—Antennae black, although the first and second segments may be yellow below. 116.
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 Anterior coxae yellow, at least on anterior surface. 120.
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 Third antennal segment largely yellow. *longicornis* Stenhammar.

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- 136.—Face slightly yellowish. *dakotensis* Aldrich.
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- 137.—Middle tarsi wholly deep black. Undescribed species from Alaska.
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- 138.—Basal segment of middle tarsi with a large bristle above. . . *variabilis* Loew.
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- 147.—First antennal segment yellow below. *discolor* Van Duzee.
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¹The main characters separating these species are unsatisfactory.

- 166.—Front coxae nearly half black.....*pilatus* Van Duzee.
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obcordatus Aldrich.
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pollex Osten Sacken.
- 169.—Antennae wholly black, or nearly so.....170.
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brunneus Aldrich.
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pantomimus Melander and Brues.
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melanocerus Loew.
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decorus Van Duzee.
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- 177.—Middle tibiae with more than one bristle below.....178.
 Middle tibiae with only one bristle below.....179.
- 178.—Middle tibiae with three bristles below, two near apical third, one near basal third; front tarsi black from tip of first segment..*canadensis* Van Duzee.
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sicarius Van Duzee.
- 179.—Front tarsi yellow with fifth segment black, or wholly yellow.
sicarius Van Duzee.
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- 180.—Front tibiae with two large bristles below; rather large species with large bristles on tibiae.....181.
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- 181.—Front coxae wholly yellow.....*setosus* Loew.
 Front coxae with a blackish spot on outer surface at base...*serratus* Van Duzee.
- 182.—Fifth segment of front tarsi yellowish, paler than those preceding it.
socius Loew.
 Front tarsi black from tip of first segment.....183.
- 183.—Front coxae wholly yellow.....*indigena* Van Duzee.
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- 184.—Third antennal segment wholly black.....185.
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- 185.—Second antennal segment more or less yellow, usually largely yellow.
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 Second antennal segment wholly black, or nearly so.....186.
- 186.—Bend in last section of fourth vein at basal third; tips of third and fourth veins
 rather widely separated.....*compactus* Van Duzee.
 Bend in last section of fourth vein a little beyond basal third; tips of third and
 fourth veins rather close together.....*blandus* Van Duzee.
- 187.—Last section of fourth vein with a stump-vein at its bend.....188.
 Last section of fourth vein without a stump-vein at its bend.....191.
- 188.—Front shining metallic.....*reflectus* Aldrich.
 Front opaque with pollen.....*bifractus* Loew.
- 189.—Tips of middle tibiae blackish.....*hastatus* Loew.
 Tips of middle tibiae not at all infuscated.....190.
- 190.—Front violet.....191.
 Front green.....192.
- 191.—Basal segment of middle tarsi with a large bristle above.....*vigilans* Loew.
 Basal segment of middle tarsi without a bristle above.....*pugil* Loew.
- 192.—Bend in last section of fourth vein at basal third.....*plumipes* Scopoli.
 Bend in last section of fourth vein a little before its middle.
carolinensis Van Duzee.
- 193.—Hind tarsi wholly black, or only a little yellowish at base.....194.
 Hind tarsi considerably yellow at base, usually the first segment yellow with a
 black tip.....227.
- 194.—First antennal segment black, at least on upper edge.....195.
 First antennal segment wholly yellow.....209.
- 195.—Middle tarsi wholly black.....*dasypodus* Coquillett.
 Basal segment of middle tarsi yellow with a black tip.....196.
- 196.—Front violet or blue.....197.
 Front green or bronze color.....202.
- 197.—Coxae yellow, middle pair more or less blackened on outer surface; basal
 segment of middle tarsi with a large bristle above.....198.
 Middle and hind coxae black with yellow tips, or with outer side largely
 black.....199.
- 198.—Middle tibiae with two long slender bristles below.....*flavicoxa* Van Duzee.
 Middle tibiae with three bristles below.....*porphyrops* Van Duzee.
- 199.—Middle and sometimes hind femora with two preapical bristles; antennae
 wholly black.....*bakeri* Cole.
 Middle and hind femora each with one preapical bristle; first antennal seg-
 ment yellow below.....200.

- 200.—First and second antennal segments yellow with a black line above.
marginatus Aldrich.
 Antennae black with only first segment yellow below..... 201.
- 201.—Front tarsi wholly yellow, or with fifth segment more or less black and shorter than fourth; third and fourth veins convergent at tips; middle tibiae with one bristle below.....*nigricornis* Meigen.
 Front tarsi infuscated from tip of first segment, the fourth and fifth segments of nearly equal length; third and fourth veins parallel; middle tibiae with three bristles below.....*porphyrops* Van Duzee.
- 202.—Basal segment of middle tarsi without a bristle above..... 203.
 Basal segment of middle tarsi with a large bristle above..... 206.
- 203.—Hind femora with a row of bristles of increasing length, ending in the usual preapical bristle; front femora blackened a little at base.
californicus Van Duzee.
 Hind femora with one preapical bristle..... 204.
- 204.—Front tarsi wholly black.....*boreus* Van Duzee.
 Front tarsi yellow, at least first segment mostly yellow..... 205.
- 205.—Front tarsi yellow, usually with fifth segment black, the fifth segment shorter than fourth; wings with third and fourth veins convergent.
nigricornis Meigen.
 Front tarsi black from tip of first segment, the fifth segment yellowish.
socius Loew.
- 206.—Basal segment of middle tarsi wholly black..... 207.
 Basal segment of middle tarsi yellow with a black tip..... 208.
- 207.—Second and third antennal segments wholly black...*dasypodus* Coquillett.
 First, second, and part of third antennal segments yellow...*uxorcula* Van Duzee.
- 208.—Last section of fourth vein bent near its middle.....*walkeri* Van Duzee.
 Last section of fourth vein bent considerably before its middle.
procerus Van Duzee.
- 209.—Front violet or blue..... 210.
 Front green or bronze color..... 214.
- 210.—Second antennal segment wholly black.....*sufflavus* Van Duzee.
 Second antennal segment partly or wholly yellow..... 211.
- 211.—Second segment of middle tarsi longer than first.....*pugil* Loew.
 Second joint of middle tarsi about half as long as first..... 212.
- 212.—Basal segment of middle tarsi without a bristle above..*marginatus* Aldrich.
 Basal segment of middle tarsi with a large bristle above, a little beyond its middle; small species..... 213.
- 213.—Antennae almost wholly yellow.....*wheeleri* Melander and Brues.
 Antennae with third segment and outer surface of second wholly black.
amphericus Melander and Brues.
- 214.—Third antennal segment wholly black..... 215.
 Third antennal segment partly or wholly yellow..... 224.
- 215.—Second antennal segment wholly black..... 216.
 Second antennal segment yellow, at least on inner side..... 221.
- 216.—Hairs on front coxae mostly yellow and rather long..... 217.
 Black hairs on front coxae conspicuous and covering most of anterior surface..... 218.

- 217.—Hairs on inner edge of front coxae and those near tip black, also a cluster of longer black hairs at base on inner edge. *lobatus* Loew.
Hairs on front coxae almost wholly yellow. *omnivagus* Van Duzee.
- 218.—First segment of front tarsi not or but slightly longer than the two following segments taken together. *completus* Van Duzee.
First segment of front tarsi nearly equal to the three following segments taken together. 219.
- 219.—Tip of third vein considerably bent backward; first segment of front tarsi distinctly longer than fourth. 220.
Tip of third vein only bent back a little; fifth segment of front tarsi scarcely longer than fourth. *procerus* Van Duzee.
- 220.—Basal segment of middle tarsi with a large bristle above at apical third and another rather large bristle near it on anterior surface. *aeratus* Van Duzee.
Large bristle on basal segment of middle tarsi placed before apical third and without another bristle near it. *sufflavus* Van Duzee.
- 221.—Basal segment of middle tarsi with a bristle above. 222.
Basal segment of middle tarsi without a bristle above. *plumosus* Aldrich.
- 222.—Bristle on basal segment of middle tarsi large. 223.
Bristle on basal segment of middle tarsi small. *dorsalis* Van Duzee.
- 223.—Front coxae with their hairs mostly yellow; hind margin of wing with a very small, but distinct lobe or expansion at tip of sixth vein. *lobatus* Loew.
Front coxae with black hairs; wings with scarcely a trace of an expansion at tip of sixth vein. *coloradensis* Aldrich.
- 224.—Front and dorsum of thorax opaque with pollen; last section of fourth vein with a stump-vein at its bend. *bifractus* Loew.
Front and dorsum of thorax shining metallic; last section of fourth vein without a stump-vein at its bend. 225.
- 225.—Middle tarsi wholly black. *plumipes* Scopoli.
Middle tarsi broadly yellow basally. 226.
- 226.—Face wide, yellowish or grayish white. *fulvipes* Loew.
Face silvery white, not very wide. *gracilis* Aldrich.
- 227.—First antennal segment black, at least on upper edge. 228.
First antennal segment wholly yellow. 248.
- 228.—Anterior coxae wholly yellow or very narrowly blackened at base or with a dark basal spot on outer side. 238.
Anterior coxae either broadly blackened basally or black or green on the outer side. 229.
- 229.—Front coxae considerably blackened at base. *californicus* Van Duzee.
Front coxae yellow with a blackish or green stripe on outer posterior edge, which is wide above, usually tapering to a point below. 230.
- 230.—Hind femora with only one preapical bristle. *penicillatus* Van Duzee.
The main preapical bristle ending a row of bristles of increasing length. 231.
- 231.—One or more of the lower orbital cilia black, above these are from four to ten orange colored cilia, the rest all black. *consanguineus* Wheeler.
Lateral and inferior orbital cilia all yellowish. 232.
- 232.—First antennal segment long, with long bushy hair; first and second antennal segments broadly yellow below on inner side; arista thickened. 233.
First antennal segment and arista normal. 234.

- 233.—Lower orbital cilia long, golden yellow, flattened.....*andersoni* Curran.
Lower orbital cilia normal, yellowish.....*crenatus* Osten Sacken.
- 234.—Second antennal segment, as well as first, conspicuously yellow below....235.
Second antennal segment wholly black, or only a little yellow on inner side.237.
- 235.—Cross-vein distinctly oblique.....*californicus* Van Duzee.
Cross-vein nearly or quite perpendicular with fourth vein.....236.
- 236.—Third vein abruptly bent backward at tip.....*afflictus* Osten Sacken.
Third vein gradually bent backward at tip.....*idahoensis* Aldrich.
- 237.—Bend in last section of fourth vein not farther from the cross-vein than the
length of that vein.....*aurifex* Van Duzee.
Bend in last section of fourth vein distinctly farther from the cross-vein than
the length of that vein.....*aldrichii* Wheeler.
- 238.—Antennae wholly black; middle femora with two preapical bristles. *bakeri* Cole.
First antennal segment yellow below.....239.
- 239.—Basal segment of middle tarsi without a bristle above.....240.
Basal segment of middle tarsi with a conspicuous bristle above.....242.
- 240.—Front tarsi yellow with fifth joint black.....*nigricornis* Meigen.
Front tarsi black from the tip of first segment.....241.
- 241.—Wings with a clouded spot at tip in front of third vein. *harbecki* Van Duzee.
Wings grayish hyaline, without a spot in front.....*slossonae* Van Duzee.
- 242.—Inferior orbital cilia with a prominent black bristle near the proboscis....243.
No black bristle on lower part of head near the proboscis.....244.
- 243.—Front coxae black at base on outer surface.....*scoparius* Loew.
Front coxae wholly yellow.....*quadrilamellatus* Loew.
- 244.—First two segments of front tarsi yellow, the last three black; hind tibiae and
first segment of their tarsi with many large bristles. *quadrilamellatus* Loew.
Front tarsi infuscated from tip of first segment.....245.
- 245.—Basal segment of front tarsi yellowish brown, the black at tip not sharply
defined, but shading into the yellowish color.....*talus* Van Duzee.
Basal segment of front tarsi yellow, the black at tip sharply defined, but base
of second segment usually a little yellowish.....246.
- 246.—Bend in last section of fourth vein very close to its middle. *procerus* Van Duzee.
Bend in last section of fourth vein before its middle.....247.
- 247.—Wings brownish in front of third vein.....*compactus* Van Duzee.
Wings scarcely darker in front.....*coquilletti* Aldrich.
- 248.—Third antennal segment wholly black.....249.
Third antennal segment yellow at base.....256.
- 249.—Second antennal segment wholly black.....250.
Second antennal segment mostly yellow.....253.
- 250.—Basal segment of middle tarsi without a bristle.....251.
Basal segment of middle tarsi with a large bristle above.....252.
- 251.—Middle tarsi black from the tip of first segment.....*occidentalis* Aldrich.
Front and middle tarsi wholly yellow (*lobipennis* Van Duzee).
virginiensis Van Duzee.
- 252.—Third vein distinctly bent backward at tip.....*talus* Van Duzee.
Third vein scarcely bent backward at tip, nearly straight. *coquilletti* Aldrich.

- 253.—Anterior femora with a few long delicate black hairs above near base.
plumosus Aldrich.
 Basal hairs on upper edge of front femora scarcely longer than those on remainder of upper edge. 254.
- 254.—Hind margin of wing rather deeply notched at tip of fifth vein.
duplicatus Aldrich.
 Hind margin of wing not, or but little notched at tip of fifth vein. 255.
- 255.—Bend in last section of fourth vein a little beyond its basal third.
tenuipes Aldrich.
 Bend in last section of fourth vein a little before its middle.
canaliculatus Thomson.
- 256.—Hind coxae blackened on outer surface of basal half or more (at least with a large blackish spot covering most of basal half). 257.
 Hind coxae yellow, but the outer surface sometimes has blackish streaks or spots. 265.
- 257.—Basal segment of middle tarsi with a large bristle above. 258.
 Basal segment of middle tarsi without such a bristle. 259.
- 258.—Third vein bent backward a little, so as to approach fourth at tip in an even curve. *grandis* Aldrich.
 Third vein less bent at tip, nearly or quite parallel with fourth near tip.
superbus Van Duzee.
- 259.—Hind margin of wing deeply notched at tip of fifth vein. 260.
 Hind margin of wing not or but little indented at tip of fifth vein. 261.
- 260.—First antennal segment rather long for a female. *latipes* Loew.
 First antennal segment short, about as usual for a female.
carolinensis Van Duzee.
- 261.—Anterior tarsi yellow with fifth segment black. 262.
 Anterior tarsi more or less infuscated from tip of first segment. 263.
- 262.—Tip of third antennal segment black. *canaliculatus* Thomson.
 Antennae wholly yellow. *ruficornis* Loew.
- 263.—Middle tibiae a little blackened at tip. *hastatus* Loew.
 Middle tibiae wholly yellow, not infuscated at tip. 264.
- 264.—Front of thorax with thick yellowish pollen. *tenuipes* Aldrich.
 Front of thorax shining green with a little grayish pollen. *fulvipes* Loew.
- 265.—Last section of fourth vein bent in an obtuse angle, without a stump-vein. 266.
 Last section of fourth vein bent, at a right angle, or nearly so, with a stump-vein at the bend. 279.
- 266.—Basal segment of middle tarsi with a large bristle above. 267.
 Basal segment of middle tarsi without a bristle above. 273.
- 267.—Humeri more or less yellow, at least yellow at lower edge. *scapularis* Loew.
 Humeri wholly metallic in color. 268.
- 268.—Hind tarsi more or less infuscated from tip of first segment, at least the tips of the segments darkened. 269.
 All tarsi yellow, anterior pair with last segment a little darkened.
ruficornis Loew.
- 269.—Front tarsi black or infuscated from tip of first segment. *domesticus* Van Duzee.
 Front tarsi with first segment wholly yellow, sometimes darkened from base of second segment. 270.

- 270.—Front tarsi black or blackish from middle of third segment, the black being rather sharply defined. 271.
 Third segment of front tarsi wholly yellow 272.
 271.—Wings narrowed toward their root, anal angle prominent, hind margin with a slight sinus between tips of sixth vein and the anal angle.
longipennis Loew.
 Hind margin of wing evenly rounded; wings not narrowed at root. . . *sarotes* Loew.
 272.—Dorsum of thorax with yellowish gray pollen. *sexarticulatus* Loew.
 Dorsum of thorax with only a little grayish white pollen. . . *terminalis* Loew.
 273.—Hind tarsi black from the tip of first segment. 274.
 Hind tarsi yellow, at most a little infuscated from tip of first segment but scarcely black even at tip. 276.
 274.—Posterior femora with a row of bristles, which end in the usual preapical bristle.
latipes Loew.
 Posterior femora with only one preapical bristle. 275.
 275.—Face yellowish above. *aurifacies* Aldrich.
 Face wholly silvery white. *ruficornis* Loew.
 276.—Humeri yellowish. *funditor* Loew and *distinctus* Van Duzee.
 Humeri metallic. 277.
 277.—About three of the upper orbital cilia black. *pulchrimanus* Bigot.
 About six of the orbital cilia on each side black. 278.
 278.—Bend in last section of fourth vein slight and near basal third.
sexarticulatus Loew.
 Bend in last section of fourth vein sharp and near its middle. . . *terminalis* Loew.
 279.—Wings a little narrowed toward base, anal angle prominent; hind margin of wing with a slight sinus between the anal angle and the tip of sixth vein.
longipennis Loew.
 Wings not narrowed at base, hind margin evenly rounded. 280.
 280.—*Vittatus* Loew, *cuprinus* Wiedemann, *absconus* Van Duzee and perhaps the female of *sarotes* Loew come here, but we find no characters for their separation.

