

A new key to Nearctic species of *Rivellia* Robineau-Desvoidy, 1830 (Diptera, Platystomatidae) based mainly on thoracic colour & wing pattern.

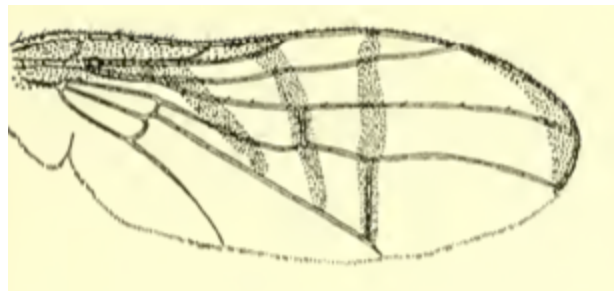
- basal transverse brown band is positioned basad of the radial median transverse brown band
- radial median transverse brown band is positioned over the radial median crossvein (*r-m*)
- discal median transverse brown band is positioned over the discal median crossvein (*dm-m*)
- apical band - located along costal margin from apex of R_{2+3} to M_1 or just beyond

Nearctic species not included: *R. atriventris* Hendel, 1914, *R. interrupta* (Macquart, 1835), *R. otoeada* (Walker, 1849), *R. rufitarsis* (Macquart, 1835) & *R. viridulans* Robineau-Desvoidy, 1830.

1. Posterior dorsocentral (*dc*) macroseta¹ absent 2
 - Posterior dorsocentral (*dc*) macroseta present 4

2. Postpronotal (*pprn*) macroseta present ***R. variabilis* Loew, 1873**

Canada: Ontario, Quebec;
 USA: Illinois, Florida



- Postpronotal (*pprn*) macroseta absent 3

3. Basal and radial median transverse brown bands positioned in a parallel arc that would not converge if extended

***R. boscii* Robineau-Desvoidy, 1830**

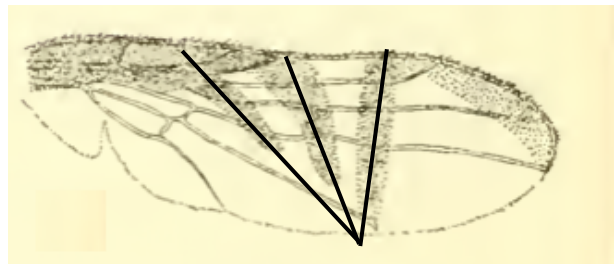
USA: Arkansas, North Carolina to Florida



- Basal, radial median and discal median transverse brown bands broad converging, such that, if extended, then they would meet

..... ***R. socialis* Namba, 1956**

USA: Iowa, Illinois

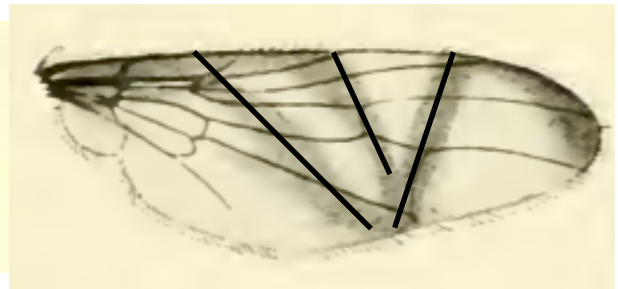
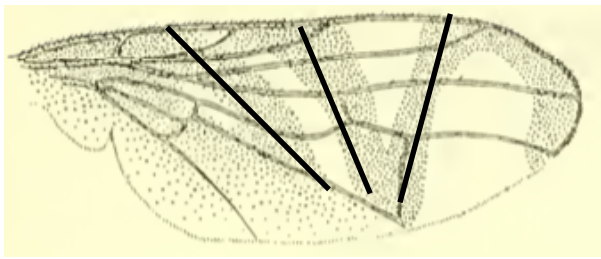


4. Postpronotal (*pprn*) macroseta absent (*dc* macroseta present) 5

- Both postpronotal (*pprn*) and dorsocentral (*dc*) macroseta present 9

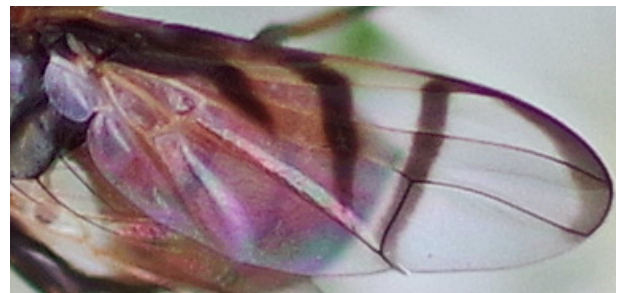
¹ Macrosetae sometimes break off - be sure to check for alveoli where it seems that macrosetae may be absent.

5. Basal, radial median and discal median transverse brown bands all converge at apex of *dm*, where they merge; thorax yellowish, legs black
 ***R. succinata* (Wiedemann, 1830)**
 USA: Florida; South Africa?



- None of the transverse brown bands touch, each terminating separately; thorax and leg colour variable, but not in the above combination **6**

6. All legs red-brown; body generally concolourous; wing as in adjacent photograph
***R. quadrifasciata* (Macquart, 1835)**
 Canada: Quebec;
 USA: Montana, south to Texas and Florida



- Fore-femur (at least) yellow (little difference in wing patterns) **7**

7. Thorax brownish yellow to orange; abdomen yellow-brown basally becoming reddish-brown distally, surface morphology of abdomen rugose,
 ***R. inaequata* Namba, 1956**
 USA: New Jersey, Texas, Florida



- Thorax brown, with weak green metallic iridescence **8**

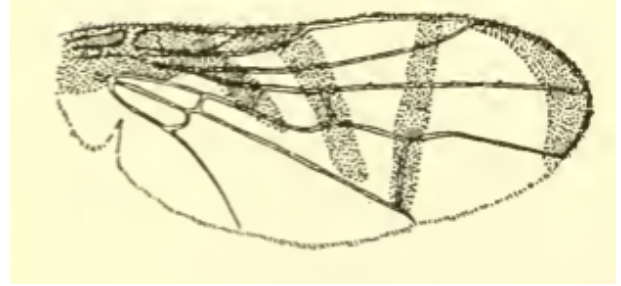
8. Abdomen yellow-brown, shining, surface rugose; all legs yellow, darkening at apex of tarsi and hind tibiae
 ***R. colei* Namba, 1956**
 USA: Minnesota to Connecticut, south to Louisiana and Tennessee



- Abdomen brown, shining, surface rugose; legs dirty-yellow to yellow-brown, hind-legs darker than fore-legs

..... ***R. steyskali* Namba, 1956**

USA: Michigan, Minnesota to New York, south to Texas and Florida



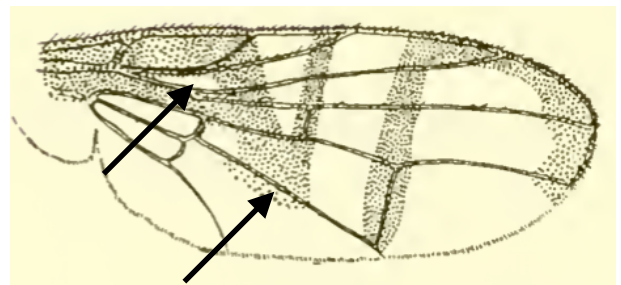
- 9. Notum (and much of rest of thorax) yellow-brown or orange, without metallic lustre ..
..... **10**

- Notum (and much of rest of thorax) dark-brown to black, with or without green or blue metallic lustre..... **13**

- 10. Basal and radial transverse brown bands join over M_4 midway along dm ; base of r_1 immediately anterior to RS node hyaline; abdomen brown

..... ***R. tersa* Namba, 1956**

USA: Arizona, New Mexico; Mexico

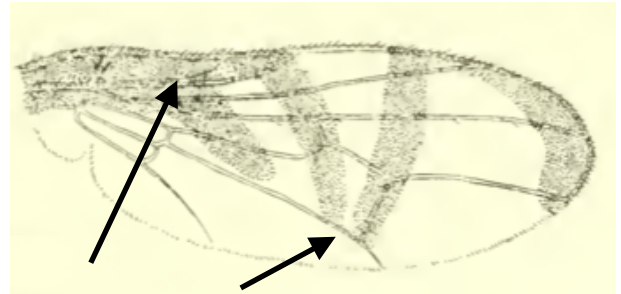


- Basal and radial transverse brown bands not joined; base of r_1 immediately anterior to RS node brown; abdomen yellowish-brown darkening toward apex **11**

- 11. Costal cell and pterostigma entirely coloured; radial median and discal median transverse brown bands converge and almost touch (space between them considerably less than length of $r-m$); surface morphology of abdomen smooth, colour yellow-brown

..... ***R. munda* Namba, 1956**

USA: Kansas, South Dakota, Minnesota, south to Texas.....

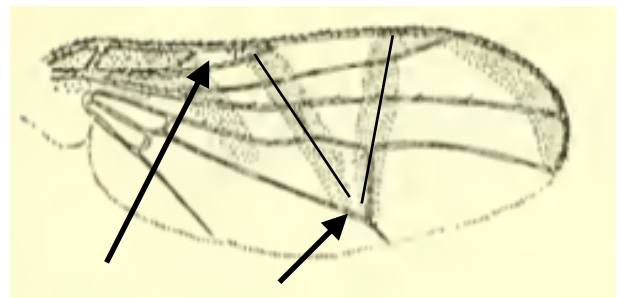


- Costal cell or pterostigma partially hyaline (cf. small spot at base of pterostigma); condition of radial median and discal median transverse brown bands variable **12**

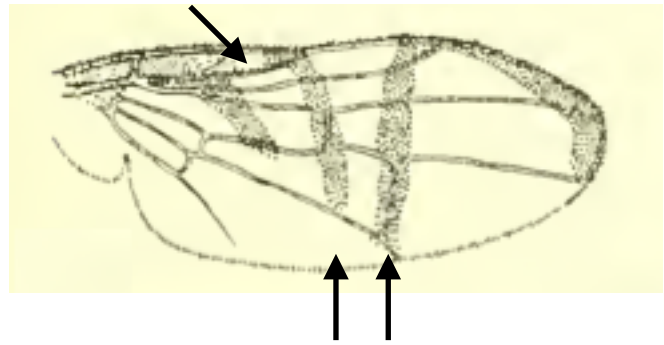
- 12. Radial median and discal median transverse brown bands converge and touch at confluence of $dm-m$ and M_4 ; br brown basally; surface morphology of abdomen smooth, colour yellow-brown basally turning black distally

..... ***R. imitabilis* Namba, 1956**

USA: Georgia, Michigan



- Radial median and discal median transverse brown bands converge then begin to run parallel; *br* hyaline where it is adjacent to *bm* surface morphology of abdomen smooth, colour yellow-brown and blotchy with reddish-brown distally



..... ***R. pallida* Loew, 1873**
 USA: Michigan to Rhode Island,
 south to Washington D.C.

- 13. Notum and abdomen with a distinctive metallic blue, deep-green or green-blue lustre, with shining, rugose surface morphology on thorax and abdomen **14**
- Notum and abdomen lacking extensive metallic lustre, with variable surface morphology on thorax and abdomen **17**

- 14. Wing membrane mostly hyaline, transverse brown banding on wing membrane faint, poorly developed and limited in extent to just three marks not reaching *M*₁; notum black with a blue-green sheen; abdominal tergites dark brown to black with a blue-green lustre



..... ***R. brevifasciata* Johnson 1900**
 USA: New Jersey, Colorado to
 Massachusetts, south to
 Mississippi and Georgia

- Wing membrane much more extensively marked; distinctive black-blue or black-green metallic lustre on thorax and/or abdominal tergites **15**

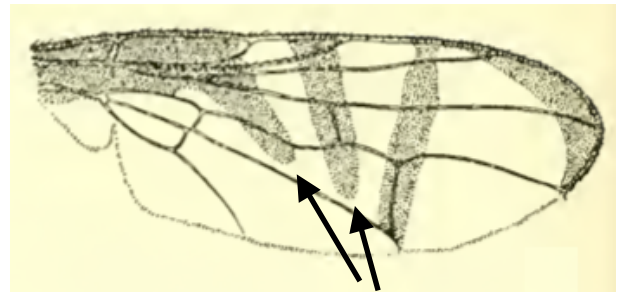
- 15. Base of *br* where it is adjacent to *bm* hyaline; apical marginal band at broadest point narrower than length of *r-m*; notum dark brown, overlain with dense blue-green lustre; abdomen brown, shining and rugose but with an elusive blue-violet iridescent shimmer that is best view with oblique lighting.....



..... ***R. congata* Cresson, 1919**
 USA: Pennsylvania, South Dakota
 to Massachusetts, south to
 Kansas and Florida

- Base of *br* where it is adjacent to *bm* brown **16**

16. Brown banding on wing membrane dark and dominant; basal and radial median transverse brown bands converge toward apex of discal transverse brown band; thorax and abdomen with a distinctive black-blue-green² metallic lustre
- ***R. melliginis* (Fitch, 1855)**
 Canada: Ontario;
 USA: New York, Minnesota, Massachusetts, south to Iowa and South Carolina

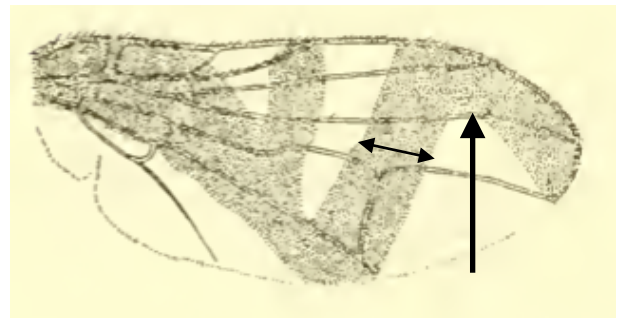


- Brown banding on wing membrane brown and less remarkable; radial median & discal median transverse brown bands subparallel and nearly perpendicular to costal margin; thorax & abdomen with a distinctive black-green metallic lustre.....
- ***R. micans* Loew, 1873**
 USA: Montana and South Dakota south to California and Texas



17. Fore femur dark-brown or black 18
- Fore femur yellow 20

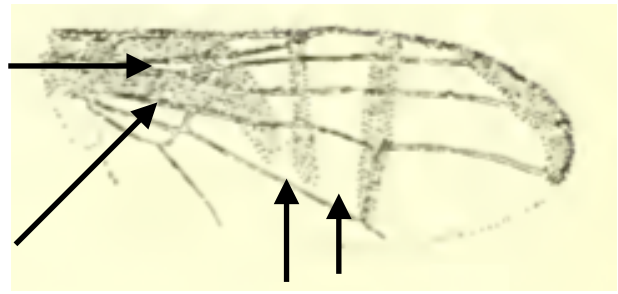
18. Basal, radial median and discal median transverse brown bands all converge at apex of *dm*, where they merge; all transverse brown bands broader than length of *r-m*; discal median transverse and apical bands broadly filling apex of *r*₂₊₃
- ***R. conjuncta* Loew, 1873**
 USA: Maryland, Kansas to Massachusetts, south to Texas and Louisiana



- None of the transverse brown bands touch, each terminating separately; 19

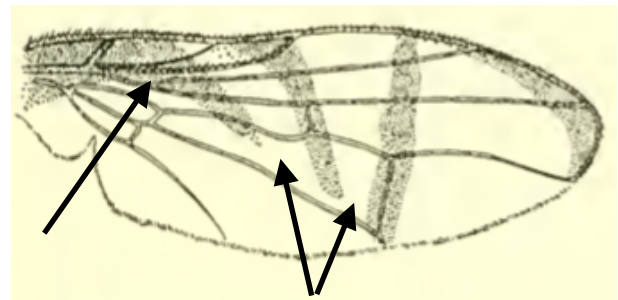
² The colour of lustre appears to depend on a number of things: light angle, method of killing & preservation, perhaps even food source, so not too much emphasis should be placed on the colour *per se*.

19. Base of *br* brown and base of *r*₁ adjacent to *RS* node hyaline; apex of basal and radial median transverse brown bands nearly touch and are much closer together than median and discal median transverse brown bands



..... ***R. australis* Namba, 1956**
 USA: Arizona

- Base of *br* and base of *r*₁ adjacent to *RS* node both brown; apex of basal and radial median transverse brown bands separated by as large a hyaline gap as between median and discal median transverse brown bands



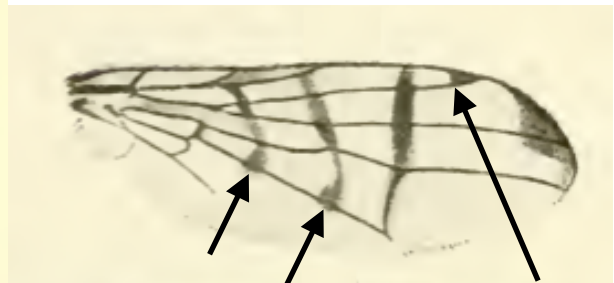
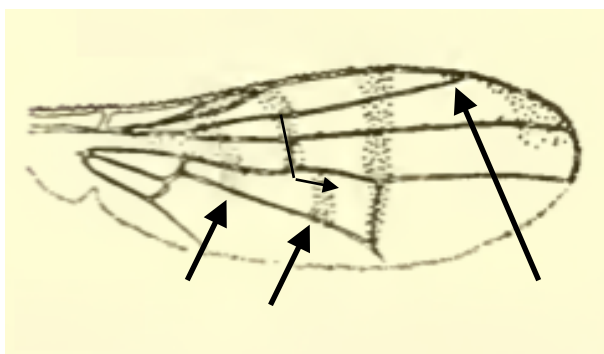
..... ***R. winifredae* Namba, 1956**
 Canada: Ontario; USA: Utah to Minnesota, south to Kansas and Georgia

20. Costal cell entirely hyaline and transverse brown band light brown, narrow and not dominating; surface appearance of abdominal tergites shining, either smooth or rugose **21**

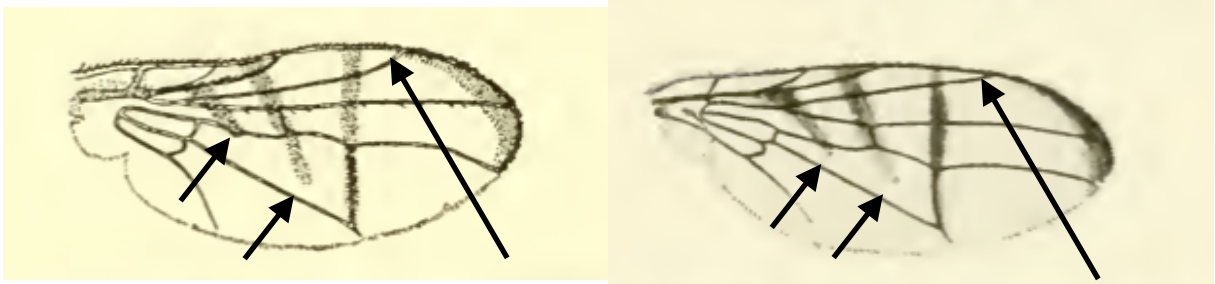
- Costal cell partially or wholly brown; surface appearance of abdominal tergites shining, either smooth or rugose **22**

21. Surface appearance of abdominal tergites smooth, but dull; basal and radial median transverse brown bands bulging and turning back at apex; radial median transverse brown band displaced in *dm*; apex of *r*₂₊₃ brown

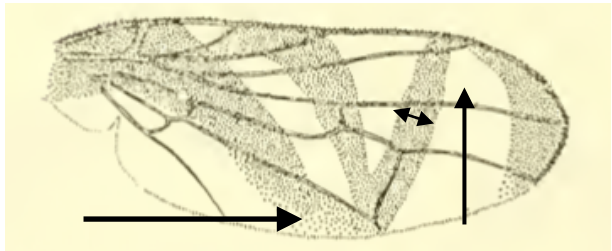
..... ***R. occulta* van der Wulp, 1898**
 USA: Arizona



- Surface appearance of abdominal tergites shining and rugose; basal and radial transverse brown bands narrowing at apex; apex of r_{2+3} hyaline
 ***R. metallica* van der Wulp, 1867**
 Canada: Ontario; USA: Wisconsin, Minnesota, south to Missouri and Virginia



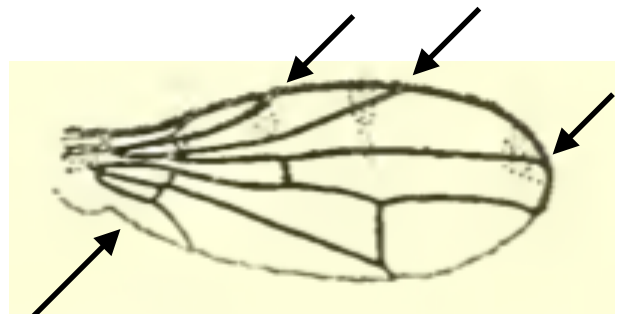
- 22. Basal, radial median and discal median transverse brown bands all converge at apex of dm , where they merge; transverse discal median and apical bands narrow, not filling apex of r_{2+3} where they join, resulting in hyaline area bounded by R_{4+5} and the two bands; surface appearance of abdominal tergites shining and smooth
 ***R. floridana* Johnson, 1900**
 USA: Florida



Generally a yellow species with only ocellar triangle, apex of tarsi and apex of abdomen darkened to brown

- Basal, radial median and discal median transverse brown bands do not merge at apex of dm ; surface appearance of abdominal tergites shining and rugose, even if slightly so.....**23**

- 23. Wing narrow, anal lobe weakly developed or absent, wing pattern light brown and restricted to three minor spots or marks at apex of radial veins; surface appearance of abdominal tergites shining and rugose, but only slightly so.....
 ***R. maculosa* Namba, 1956**
 Canada: Alberta;
 USA: Georgia, Alabama, North Carolina to Florida



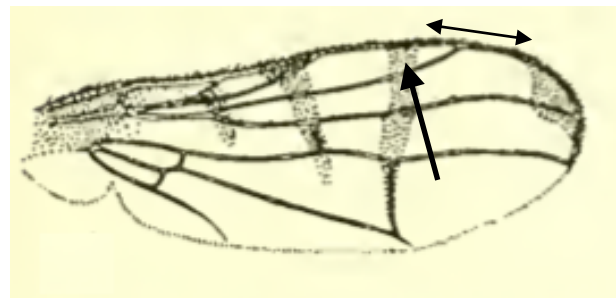
- Wing normally developed and distinctly marked with brown transverse bands; surface appearance of abdominal tergites shining and rugose **24**

24. Basal and radial median transverse brown bands joining on hind margin of of *dm*
 **R. coquilletti** Hendel, 1914
 Canada: Manitoba; USA: Montana, Minnesota south to Colorado and Iowa

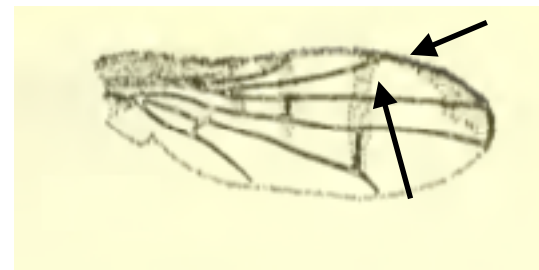


- All transverse brown band terminate independently 25
25. Apical band short and restricted to wing apex; not extending across apex of R_{2+3}
 26
- Apical band extending across apex of R_{2+3} , even if only narrowly so 27

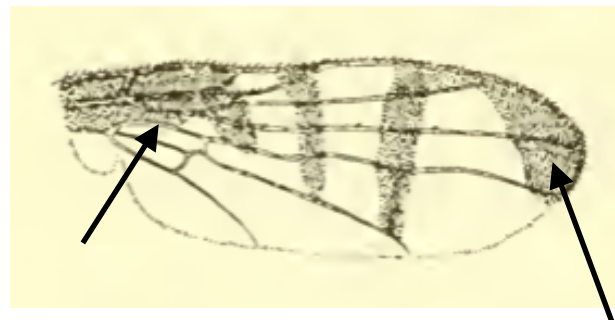
26. Apical mark a spot, widely separated from origin of discal median transverse brown band which originates in r_1 prior to apex of R_{2+3} .
 **R. texana** Namba, 1956
 USA: Texas, Arkansas



- Apical band narrowly separated from origin of discal median transverse brown band which originates at apex of R_{2+3} **R. vaga** Namba, 1956
 Canada: Alberta;
 USA: Iowa to North Carolina, south to Texas and Florida



27. Base of *br* where it is adjacent to *bm* brown and apical marginal band wider than length of *r-m*
 **R. severini** Blanton, 1937
 USA: South Dakota, Idaho to Indiana, south to Utah, Kansas and Iowa

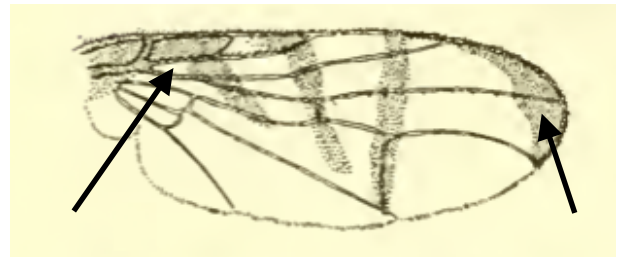


- Base of *br* where it is adjacent to *bm* hyaline; apical marginal band of variable width 28

28. Base of r_1 adjacent to RS node hyaline; apical marginal band at broadest point approximately equal in length of $r-m$

..... ***R. flavimana* Loew, 1873**

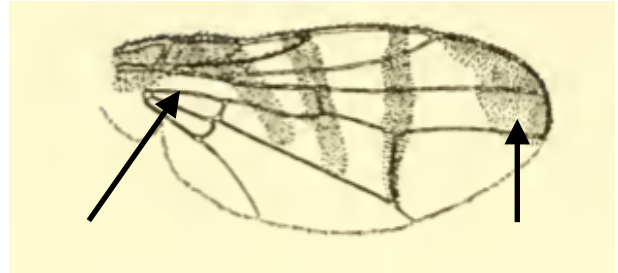
Canada: Quebec, Manitoba; USA:
Nebraska, New York



- Base of r_1 adjacent to RS node brown; apical marginal band at broadest point broader than length of $r-m$

..... ***R. michiganensis* Namba, 1956**

USA: Michigan



References

- Hendel, F. 1914a. Diptera Fam. Muscaridae Subfam. Platystominae. *Genera Insectorum* **157**: 1 - 179. [precedence over Hendel, 1914b according to date: see McAlpine, D.K., 1994: 118 - 119].
- Hendel, F., 1914b. Die Arten der Platystominien. -- Abhandlungen der Kaiserlich-Königlichen Zoologisch-Botanischen Gesellschaft in Wien 8(1): 1-409.
- Namba, R. 1956. A Revision of the Flies of the Genus *Rivellia* (Otitidae, Diptera) of America North of Mexico. *Proceedings of the United States National Museum* **106** (3363): 21 - 84.

Credits:

Wing sketches: Hendel, 1914 and Namba, 1956

Wing photograph for *R. quadrifasciata* (Macquart, 1835): Kate Redmond & the UWM Field Station (<https://uwm.edu/field-station/signal-fly/>)