

**FIRST NEW WORLD RECORD OF *DISCOMYZA INCURVA*
(FALLÉN) FROM SOUTHERN ONTARIO, WITH A KEY TO NEW
WORLD *DISCOMYZA* MEIGEN (DIPTERA: EPHYDRIDAE)**

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Mathis and Zatwarnicki (2005) recently revised the New World species of *Discomyza* Meigen including two species, the native *D. u-signata* Cresson (Texas), and the widespread, originally Oriental *D. maculipennis* (Wiedemann) (California, Florida(?), Bahamas, West Indies, Belize, Surinam, Brazil). We here record a second introduced species, *D. incurva* (Fallén) (Fig. 1), from southern Ontario (Canada). *Discomyza incurva* was previously known from the Palaearctic region only (nearly all of Europe, North Africa, Turkey, Caucasus, Israel, Jordan, and Japan; see Zatwarnicki and Mathis in press). *Discomyza* species for which immature stages are known, including *D. incurva*, are associated with dead snails (Ferrar 1987), although some species have also been reared from other kinds of invertebrate and vertebrate carrion (Bohart and Gressitt 1951; Disney 1970). Adults of the three New World species can be separated using the key below.

Acronyms of depositories. DEBU – Department of Environmental Biology, University of Guelph, Guelph, Ontario, Canada; CNCI – Canadian National Collection of Insects, Ottawa, Ontario, Canada.

Key to New World species of *Discomyza* Meigen

- 1. Wing with a broad band of infuscation from front margin to posterior crossvein and a broad apical spot in cells r_{2+3} and r_{4+5} , the two connected along front margin (Mathis and Zatwarnicki 2005: Fig. 21). Anepisternum with fine horizontal rows of silvery microtomentum. Face lacking silvery microtomentum (United States: California, Florida?; Neotropical)*D. maculipennis*
- Wing with more or less developed infuscation around posterior crossvein, not connected to infuscation along front margin; apex of wing clear or more or less infuscated (Fig. 1). Anepisternum either without microtomentum or microtomentum uniform and brownish. Face with or without silvery microtomentum2
- 2. Face weakly sculptured, with distinct silvery microtomentum arranged in paired paramedian lines and u- and w-shaped lateral markings (Mathis and Zatwarnicki 2005: Fig. 20); smaller setulae of face inserted immediately inside parafacials. Microtomentum present on frons, setulose portion of anepisternum, and posterior

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- surface of fore femur. Apical scutellar setae closer to one another than to corresponding basal scutellar. Fore femur perfectly rounded posteroventrally, with setulae in posteroventral row more erect, neither crowded nor stronger than usual (United States: Texas)*D. u-signata*
- Face strongly sculptured, lacking silvery microtomentum (Fig. 2). Smaller setulae of face distinctly removed from parafacials. Microtomentum (almost) completely lacking on frons, anepisternum, and posterior surface of fore femur. Apical scutellar setae farther from one another than from corresponding basal scutellar. Apical half of fore femur posteroventrally with a rounded edge (weakly developed in female); setulae of posteroventral row more crowded (especially near middle) and strongly inclined; these setulae thickened in male (Canada: Ontario)*D. incurva*



FIGURE 1. *Discomyza incurva* (Fallén), male habitus (England, Devon). Scale bar 0.5 mm.

Discomyza incurva (Fallén, 1823)

Material examined. NEARCTIC (all DEBU). **Canada:** ♂, Ontario, York Region, Woodbridge, Vaughan Mills Road at Humber River, 29 August 2005, field and river bank, sweeps, M. D. Bergeron; ♀, same as previous except 8 September 2005, field; ♀, same except 9-17 June 2006, bait trap (design see Buck 1997: Fig. 4) with dead *Cepaea* snails. PALAEARCTIC (all CNCI). **Great Britain:** 3♂, 2♀, England. **Switzerland:** ♂, Jura; ♀, Ticino. **Germany:** ♀, Hessen.

Identification. *Discomyza* can be identified using the key to Nearctic Ephydriidae genera by Wirth et al. (1987). *Discomyza incurva* and *D. u-signata* (Texas: ♂, ♀, DEBU) key to *Clasiopella* Hendel, not to *Discomyza*, in Mathis and Zatwarnicki's (2005) key to New World genera of Discomyzini (we have not studied *D. maculipennis*). The pseudopostocellar setae of *D. incurva* are 0.57-0.73x (n = 7) as long as the ocellar setae (Mathis and Zatwarnicki state "length considerably less than one-half that of ocellar setae"). For species level identification we used keys by Cresson (1939) and by Zatwarnicki and Mathis (in press), covering the World and the Palaearctic fauna, respectively. The genitalia of the Ontario male agree well with illustrations provided for *D. incurva* by Mathis and Zatwarnicki (l.c.). It should be noted that *D. incurva* does not key properly in Cresson's (1939) key because the wing is described as being "not twice as long as broad" (as opposed to "about twice as long as broad" for the alternative, *D. eritrea* Cresson; cf. couplet 4). According to our own measurements, the wing of *D. incurva* is 1.93-2.06x (n = 7) as long as broad (from costagial seta to apex).

Discussion. *Discomyza incurva* provides yet another example for the continuing influx of exotic species into North America. While some introduced species are detected early because of their economic significance, a much larger number of economically insignificant species probably escapes detection for relatively long periods of time. Because of the lack of active research on Ephydriidae in Canada, it is difficult to estimate how long *D. incurva* has been established in southern Ontario.

Unlike most other shore flies, all *Discomyza* species for which the biology is known (including *D. incurva*) breed in dead snails (Ferrar 1987; Zatwarnicki and Mathis in press). It is likely that *D. incurva* was introduced accidentally from Europe through commercial shipments that were contaminated with dead snails. The impact of the introduction of *D. incurva* on communities of native snail carrion breeding insects is probably low. In European studies dealing with insects associated with snail carrion, the species was found either in low numbers (e.g., Joswig 1985) or was absent (e.g., Beaver 1972; Buck 1997). Only two other North American Ephydriidae species outside *Discomyza* have been reported to breed in snail carrion, *Platygyrnopa helici* Wirth (Wirth 1971), and *Athyroglossa glabra* (Meigen) (reared from dead snails in Germany by Joswig 1985). The '*Athyroglossa*?' species reared by Judd (1957) from dead pond snails (*Lymnaea palustris* Müller) in southern Ontario was later described as *Platygyrnopa helici* (Wirth 1971). Our own snail-baited traps caught mostly Phoridae (*Puliciphora* Dahl, *Megaselia* Rondani, *Chaetopleurophora* Schmitz, *Spiniphora* Malloch) and Calyptratae besides one specimen of *Discomyza incurva*.

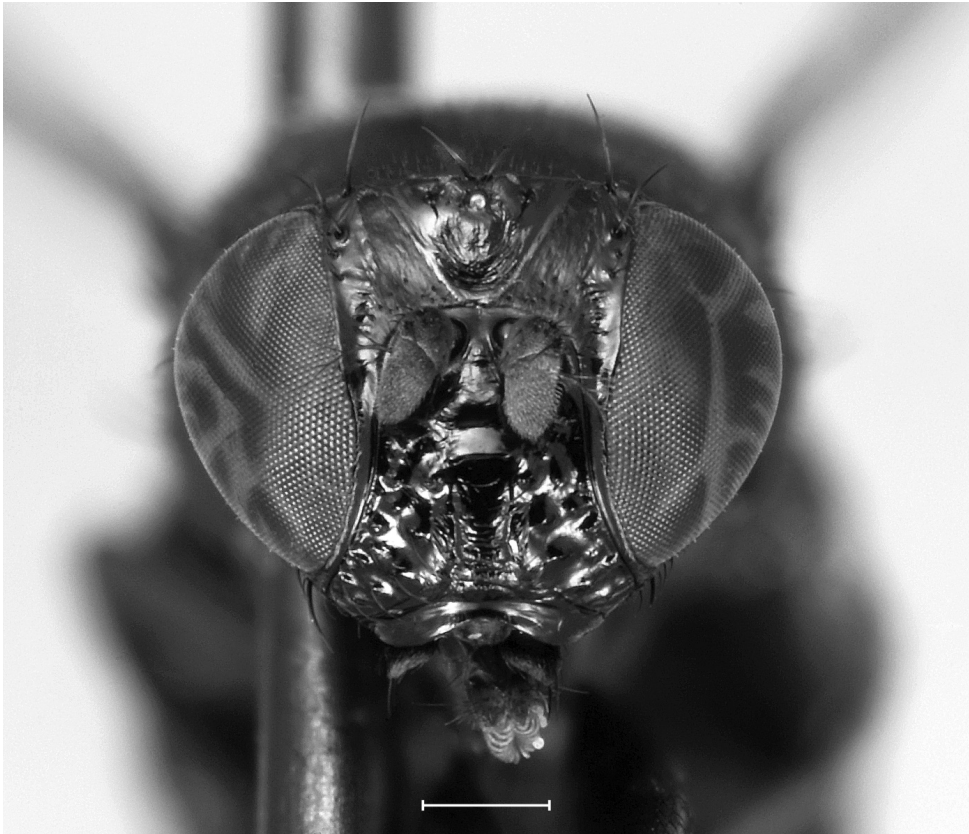


FIGURE 2. *Discomyza incurva* (Fallén), male head, frontal view (Switzerland, Jura). Scale bar 0.3 mm.

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