

First record of the genus *Nemorimyza* Frey, 1946 (Diptera: Agromyzidae) for Mexico

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Scientific Note

First record of the genus *Nemorimyza* Frey, 1946 (Diptera: Agromyzidae) for Mexico

The fly family Agromyzidae is represented in Mexico by the genera *Agromyza* Fallén, 1810; *Amauromyza* Hendel, 1931; *Calycomyza* Hendel, 1931; *Cerodontha* Rondani, 1861; *Liriomyza* Mik, 1894; *Melanagromyza* Hendel, 1920; *Ophiomyia* Braschnikov, 1897; *Phytobia* Lioy, 1864 and *Phytoliriomyza* Hendel, 1931, totaling 39 species among nine genera (Boucher 2002, 2005; Martínez & Étienne 2002; Palacios-Torres et al. 2008, 2010, 2015; Servín et al. 2013; Valenzuela-Escoboza et al. 2016). *Nemorimyza* Frey, 1946 is represented by only five species in the Neotropical and Nearctic regions (Martínez & Étienne 2002) but has not yet been recorded in Mexico. The genera with the most species in Mexico are *Melanagromyza* and *Liriomyza*, each with ten species (Martínez & Étienne 2002; Palacios-Torres et al. 2008, 2010, 2015; Hernández-Regalado et al. 2009; Medina et al. 2014; Valenzuela-Escoboza et al. 2016). On the other hand, 37 species of *Melanagromyza* are known from the United States, of which 27 are found in California (Shi & Gaimari 2015). In Peru, 77 agromyzid species have been recorded, and of these 22 are in the genus *Liriomyza* (Korytkowski 2014). In another study, Lonsdale (2011) recorded 63 species of *Liriomyza* in California. This shows the comparative lack of general knowledge about the family Agromyzidae in Mexico. This report provides the first record of the genus *Nemorimyza* in Mexico.

On April 30, 2014, in the municipality of Tenancingo in the State of Mexico (18° 57' 24.59''N, 99° 35' 23.35''W), five specimens of Agromyzidae were collected in a beating net from weeds, principally plants of the families Poaceae and Asteraceae. The insects were preserved in 70% alcohol and identified to the species level by separating the abdomen and extracting the genitalia, as indicated by Palacios-Torres et al. (2008), and comparing them with descriptions in Spencer & Steyskal (1986) and Spencer & Steigmaier (1973). Images of the genitalia were taken using a Tessovar microscope and a Zeiss III photomicroscope (Carl Zeiss®) with a PaxCam3® digital microscope camera. The genitalia were placed in microvials with glycerin and deposited, along with the rest of the specimens, in the entomological collection of the Colegio de Postgraduados, Montecillo, Mexico State, Mexico. The species was identified as *Nemorimyza maculosa* (Malloch, 1913). Diagnostic adult characters: two (ors), two or three (ori). Mesonotum with 3+1 strong (dc) and four rows (acr). Wing with an average length of 2.173 mm and an average width of 1.066 mm, costa extending to vein M₁₊₂ (Figure 1B). Head shining black, frontal lunule silvery; mesonotum, pleura and legs entirely black. Squamae and fringe white. White halteres with a small black area on knob (Figure 1A); this feature is important for separating American species of this genus. In lateral view, the aedeagus has a slight curvature in the distiphallus (Figure 1C). In ventral view, the aedeagus has two widely separated projections on the distal side at approximately a 90° angle relative to the mesophallus. (Figure 1D). The sperm pump is similar in diameter to the diameter of the apodeme (Figure 1E).

Nemorimyza maculosa was previously placed in the genus *Amauromyza*, which is represented in Mexico by *A. abnormalis* (Malloch, 1913) (Bautista-Martínez et al. 1997). Spencer (1983) pointed out that *A. maculosa* is present in Costa Rica, attacking

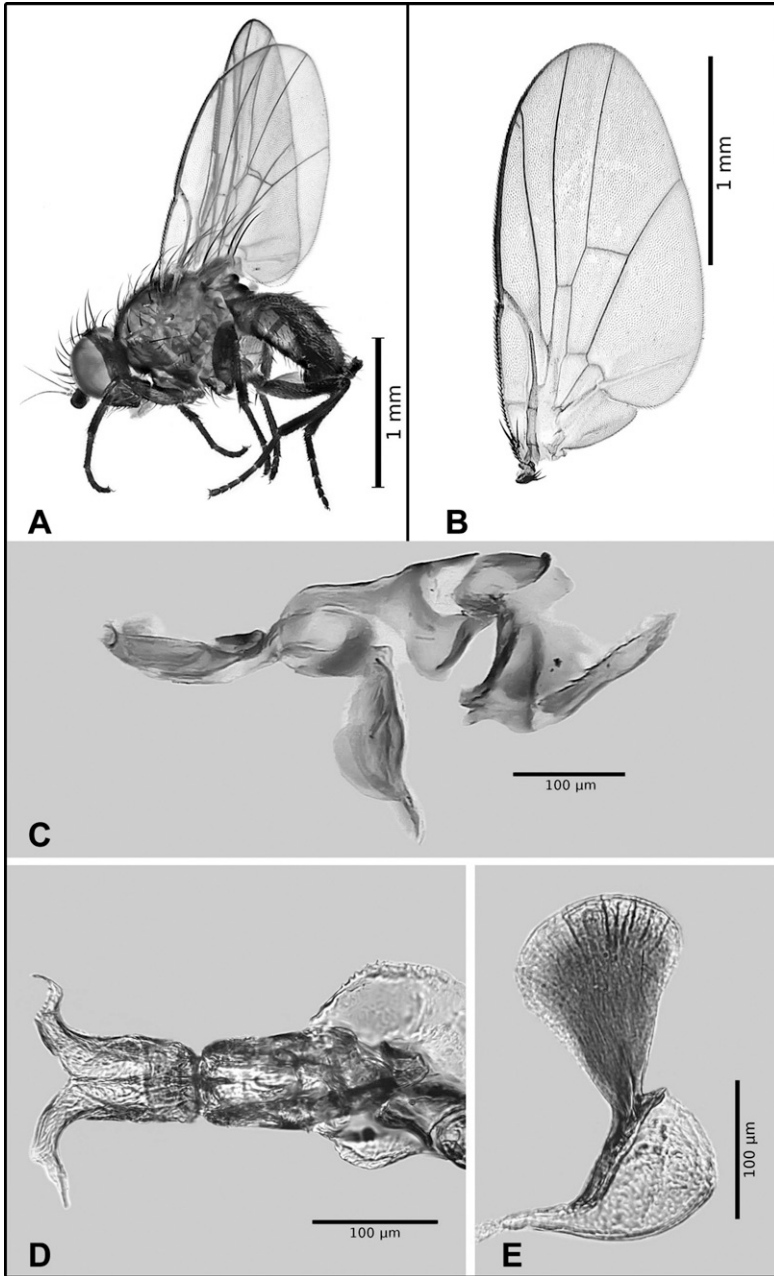


Figure 1. *Nemorimyza maculosa*. Habitus, lateral view (A), wing (B), aedeagus in lateral view (C), aedeagus in ventral view (D), sperm pump (E).

several species of Asteraceae, and also mentioned *Nemorimyza posticata* (Meigen, 1830), a species with Holarctic distribution and small populations in Florida and Costa Rica, exclusively attacking species of *Aster* L., *Baccharis* L., and *Solidago* L. (Asteraceae). *Amauromyza maculosa* was reported to attack *Baccharis halimifolia* L. in Florida, where there were two generations per year (Hudson & Stiling 1997),

and it is likely that the species is also multivoltine in Mexico. Valladares et al. (2011) pointed out that *N. maculosa* is widely distributed throughout the Americas, from Canada to Argentina, although its presence in Mexico was not reported. In addition, these same authors indicate that this miner causes characteristic damage in which the larvae leave a dark brown blotch on the upper face of leaves where the affected part becomes necrotic; upon completing their development, the larvae abandon the leaf and pupate in the soil. Spencer (1973) indicated that the species causes economic damage in several species of ornamental and edible species of Asteraceae, in particular damaging young plants. A recent study by Diaz et al. (2015) in field samples from southern Florida showed that the plant species *Mikania micrantha* Kunth (Asteraceae), recently introduced from South America, hosts a diversity of pests of agricultural and ornamental crops in the region, particularly *N. maculosa*. The present record is relevant since this dipteran can act as an agricultural pest in several regions of the Americas. In addition, the collection locality is in an important zone for ornamental plant production in Mexico. Determining the taxonomy of this miner can help implement strategies for its management, as well as increasing the knowledge of Agromyzidae in Mexico, which now total 10 genera and 40 species.

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