Assembly of a *Phragmites*-associated Chloropidae (Diptera) fauna in North America: the Palearctic genus *Cryptonevra* Lioy in the Nearctic, and the genus *Lipara* Meigen in Canada

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A diverse Diptera assemblage, dominated by the family Chloropidae, is associated with common reed (*Phragmites australis* (Cav.) Trin. ex Steudel, Poaceae) in the Palearctic region (Tewksbury et al. 2002). Although *P. australis* has long been present in North America, many of its associated Chloropidae have remained restricted to the Palearctic.

The best-known chloropid associates of *Phragmites* are species of the genus *Lipara* Meigen, whose larvae form galls on *P. australis*. *Lipara similis* Schiner was accidentally introduced to North America in a shipment containing *Phragmites* as packing material (Sabrosky 1958) and three species of *Lipara* (*L. similis*, *L. rufitarsis* Loew, *L. pullitarsis* Doskočil & Chvála) are now established in the northeastern United States (Tewksbury et al. 2002). A fourth species, *L. lucens* Meigen, was collected in Connecticut in 1931 (Sabrosky 1958) but its establishment in North America has been considered doubtful (Tewksbury et al. 2002). The genus *Calamoncosis* Enderlein, which includes some species associated with *P. australis*, has recently been recorded in the Nearctic, with five described species (3 Nearctic, 2 Holarctic) present in the region (Eichiner et al. 2011, Grégoire Taillefer & Wheeler, 2011).

The chloropid genus *Cryptonevra* Lioy contains nine described species, all Palearctic (Ismay 1994). The larvae are associated with grasses (including *Phragmites*), either as primary herbivores, or as inquilines in *Lipara* galls on *Phragmites* (Ismay 1994, Grochowska 2007). In this paper, we document the first Nearctic record of a described species of *Cryptonevra*, and the first Canadian record of *Lipara*, based on specimens from a suburban park near Montreal, Quebec.

*Cryptonevra diadema* (Meigen)

One female specimen of *Cryptonevra* was collected in 2011 in an old field habitat in a suburban park (CANADA: Quebec: Pointe-Claire, Terra Cotta Natural Park, 45.4516° -73.8103°, 30.vi–07.vii.2011, C. Barrie, yellow pan, old field). Subsequent focused collecting with a sweep net in 2013 near a stand of *P. australis* at the same site yielded 14 more specimens (Pointe-Claire, Terra Cotta Natural Park, 45.4514°, -73.8099°, 11.vii.2013, C. Barrie, sweep, old field, 3 ♂, 11 ♀). Two female specimens were DNA barcoded (658 bp of the mitochondrial CO1 gene) at the Canadian Centre for DNA Barcoding (University of Guelph, ON, Canada) (BOLD SampleID: CCDB-21329-B04, CCDB-21329-B05; boldsystems.org). All specimens collected in this study are deposited in the Lyman Entomological Museum, McGill University, Ste-Anne-de-Bellevue, QC, Canada (LEM).

The specimens were identified as *Cryptonevra diadema* (Meigen) (Fig. 1) based on keys and illustrations in Ismay (1994) and Grochowska (2007). *Cryptonevra diadema* is a widespread Palearctic species whose larvae are associated with *P. australis*, as inquilines in *Lipara* galls (Ismay 1994, Grochowska 2007). Like *Lipara* and some species of *Calamoncosis*, *Cryptonevra diadema* was likely introduced to North America accidentally.

*Cryptonevra diadema* is one of the few Nearctic species of the chloropid subfamily Chloropinae with an entirely black thorax and abdomen. Most species of *Epichlorops* Becker, *Cetema* Hendel or *Thaumatomyia* Zenker with a completely black scutum have at least some yellow on the scutellum or thoracic pleurites. In Sabrosky’s (1987) key to Nearctic chloropid genera, *C. diadema* keys to couplet 55 (*Cetema* and *Epichlorops*), although the scutum is not as distinctly tuberculate as in those two genera. *Cryptonevra diadema* can be accommodated in the Nearctic key to genera by the following modifications to couplet 54: