

## Faunal inventory of Brachycera (Diptera) in an old growth forest at Mont Saint-Hilaire, Quebec

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**Abstract.** An inventory of Brachycera (Diptera) was conducted in an old growth beech-sugar maple forest in the UNESCO Biosphere Reserve at Mont Saint-Hilaire, Quebec. Specimens were collected from May to September 2001 using a malaise trap, pan traps, trunk traps and sweeping. Almost 10 000 specimens from 45 families and over 332 species were collected. The families with the greatest species richness were Empididae (43 species), Tachinidae (37), Syrphidae (35), Dolichopodidae (24) and Sphaeroceridae (21). True species richness at the site was estimated at 497 species, based on the abundance based coverage estimator (ACE), suggesting that only two-thirds of the species actually present at the site were collected. Species richness and abundance of Brachycera were highest in July and lowest in May and September, although 32 species were collected only in May and eight species only in September, illustrating the importance of season-long sampling in determining patterns of insect biodiversity. The high species richness of Brachycera at this single site suggests that the overall Diptera diversity of the Reserve is well over 1 000 species.

**Résumé.** La diversité des diptères supérieurs (Diptera : Brachycera) a été étudiée au mont Saint-Hilaire, au Québec, dans une vieille forêt où l'érable à sucre et le hêtre à grandes feuilles sont dominants. Les mouches ont été récoltées hebdomadairement, du début mai à la fin septembre 2001, à l'aide d'un piège Malaise, de pièges à cuvette, de pièges-tronc et d'un filet. Près de 10 000 spécimens, appartenant à 45 familles et à plus de 332 espèces, ont été capturés. Les familles présentant une plus grande diversité d'espèces sont les Empididae (43 espèces), les Tachinidae (37 espèces), les Syrphidae (35 espèces), les Dolichopodidae (24 espèces) et les Sphaeroceridae (21 espèces). La diversité d'espèces au site a été estimée à 497, ce qui suggère que seulement les deux-tiers des espèces présentes sur le site ont été récoltées. La diversité d'espèces et l'abondance des brachycères furent à leur maximum en juillet et à leur minimum en mai et septembre. Toutefois, 32 espèces furent récoltées uniquement en mai et huit espèces seulement en septembre, ce qui démontre l'importance d'une longue saison d'échantillonnage pour déterminer les patrons de biodiversité des insectes. La grande diversité des brachycères de ce site suggère que la diversité des diptères de la réserve est bien au-dessus de 1 000 espèces.

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### Introduction

The mixedwood plains ecozone extends from southern Ontario to Rivière-du-Loup, Quebec and is home to over half of Canada's population. Deciduous and mixed forests once covered this region, but today, due to agriculture and urbanisation, less than 5% of

this original forest cover remains (McGill University 2002). Mont Saint-Hilaire, 32 km southeast of Montréal, is one of the largest remnants of old growth forest in the region, and, as a McGill University Research Station and UNESCO Biosphere Reserve, is well protected. The flora (Maycock 1961, Holland 1971, 1981, Leckie *et al.* 2000) and vertebrate fauna (Denman and Lapper 1964, Ouellet 1967, Grant 1976) of Mont Saint-Hilaire are well known. However, there have been very few studies of the invertebrate fauna of the mountain.

Although Diptera is one of the most speciose and ecologically diverse insect orders in Canada (McAlpine *et al.* 1979), Diptera diversity in the mixedwood plains ecozone is poorly known and continuing habitat loss in this region makes inventories of the fauna a priority. Indeed, there is a need for biodiversity surveys in remaining tracts of old growth forests across Canada (Winchester 1997). Baseline data on species assemblages in such habitats are essential for future long term monitoring programs. Accordingly, the objective of this study was to conduct a faunal inventory of Brachycera (Diptera) in old growth forest at Mont Saint-Hilaire in order to contribute baseline information about the biodiversity of Diptera in the Biosphere Reserve.

## Materials and Methods

The study site was in the Conservation Sector of the Mont Saint-Hilaire Biosphere Reserve, 40 m from the shore of Lac Hertel, at an elevation of 173 m. The centre of the sampling area was at 45° 32.6' N, 73° 09.1' W, and all traps were within 30 m of those coordinates.

The dominant tree species were *Acer saccharum* Marsh. (Aceraceae) (50% of total trees), *Fagus grandifolia* Ehrh. (Fagaceae) (40%), *Quercus rubra* L. (Fagaceae) (5%) and *Acer spicatum* Lam. (Aceraceae) (5%). Understorey vegetation was mainly seedlings of *A. saccharum* (65%) and *F. grandifolia* (25%), with only 10% coverage of other species, mostly *Aralia* spp. (Araliaceae), *Adiantum pedatum* L. (Adiantaceae), *Asarum canadense* L. (Aristolochiaceae), *Carex* spp. (Cyperaceae), *Impatiens capensis* Meerb. (Balsaminaceae), *Oenothera perennis* L. (Onagraceae), *Pteridium aquilinum* (L.) Kuhn. (Dennstaedtiaceae) and other ferns.

Specimens were collected using a malaise trap, yellow pan traps, trunk traps and sweeping. One white, Townes-style malaise trap was used. Yellow pan traps were 355 ml bright yellow plastic bowls, 15 cm in diameter and 4 cm deep, buried until the rim was flush with the soil surface. A total of 21 pan traps was used: three traps were placed along each side of the centre panel of the malaise trap (six traps total), to act as a flight intercept trap; three transects of five pan traps each radiated out from the malaise trap, with 2 m between each trap. The trunk trap was an inverted upper half of an empty two-litre soft drink bottle tied with string to a tree trunk approximately 1.5 m above the ground. Eighteen trunk traps were attached to multiple tree species distributed around the site. Each pan trap and trunk trap was filled with a 50% propylene glycol solution as a preserving fluid, with a drop of Kodak Photoflo® added to break surface tension. Insects were removed from each trap and preserved in 70% ethanol. Traps were reset and preserving fluid replenished as necessary. Understorey vegetation at the site was swept using an aerial net each week for two periods of 45 minutes, commencing at about 11:00 and 14:00. Diptera collected by sweeping were preserved in 70% ethanol. Traps were set up on 10 May 2001 and insects collected weekly for 20 weeks, from 14 May to 24 September 2001.

Large flies were transferred from ethanol to ethyl acetate for two hours and then pinned; small flies were dried using hexamethyldisilazane (HMDS) and mounted on points. All specimens are deposited in the Lyman Entomological Museum, McGill University, Ste-Anne-de-Bellevue, QC.

Specimens were identified as far as possible using published keys and revisions. Species identifications were confirmed by collaborating specialists or by comparison with identified specimens in the Canadian National Collection of Insects, Ottawa, ON or the Lyman Entomological Museum. Some specimens were identified only to genus or (rarely) family, due to the lack of reliable keys, available specialists or the poor condition of some specimens.

The abundance based coverage estimator (ACE) (Colwell 2000), was used to estimate total species richness at the site. This non-parametric estimator uses data on rarely collected species (i.e. those with ten or fewer individuals in a sample), to extrapolate the true number of species. ACE was calculated using EstimateS version 6.0b1 (Colwell 2000). The entire season's sampling was combined for each trap, giving 41 samples (1 malaise, 1 sweep, 18 trunk traps, 21 pan traps). The data input file for EstimateS was in format 4 (sample-species-abundance triplets) and data were randomized 250 times to minimize the effects of unequal sample sizes and of addition sequence of samples in the calculations (Colwell 2000).

## Results

A total of 9 958 specimens of Brachycera was collected and identified, representing 45 families, and over 332 species (Table 1). The most species-rich families were Empididae (43 species), Tachinidae (37), Syrphidae (35), Dolichopodidae (24) and Sphaeroceridae (21). In contrast, 13 families were represented by only a single species.

The Phoridae was by far the most abundant family collected with 6 659 specimens (67% of the total), mostly in the genus *Megaselia* Rondani. The other most abundant families were Anthomyiidae (385 specimens), Empididae (333), Dolichopodidae (319), Muscidae (314), Lauxaniidae (266) and Sphaeroceridae (211). Seventeen families were represented by ten or fewer specimens, and eight of those (Bombyliidae, Micropezidae, Tanypezidae, Otitidae, Sepsidae, Odiniidae, Chyromyidae, Ephydriidae) by only a single specimen.

At the species level, 124 species (37% of the total) were represented by only a single specimen and 47 species (14%) by two specimens. The high number of such "rare" species accounts for the considerably higher estimate of total species richness based on ACE, which estimated the overall species richness at the site to be 497 species, meaning that only 67% (332/497) of the species actually present at the sampling site were collected (Fig. 1).

Neither species richness nor relative abundance of Brachycera was uniform through the season. Weekly species richness was lowest in May and September and higher from June to August, ranging from 12 species for the week of 11-18 September, to 95 species for the week of 23-30 July. Similarly, weekly abundance was highest from June to August. Abundance ranged from 97 specimens for the week of 11-18 September to 1189 specimens for the week of 9-16 July. Thirty-two species in 13 families (2 Tabanidae, 1 Bombyliidae, 5 Empididae, 3 Phoridae, 6 Syrphidae, 1 Sepsidae, 1 Clusiidae, 1 Agromyzidae, 3 Chloropidae, 1 Heleomyzidae, 4 Sphaeroceridae, 1 Sarcophagidae, 3 Tachinidae) were collected only in May. Eight species in six families (2 Syrphidae, 1 Lauxaniidae, 2 Heleomyzidae,

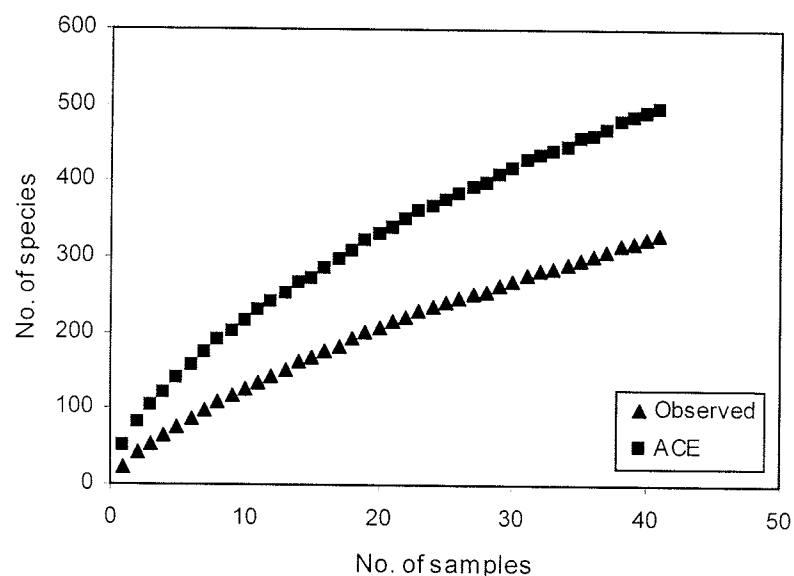


FIGURE 1. Abundance based coverage estimator (ACE) of total number of Brachycera species at the study site at Mont Saint-Hilaire, Quebec.

1 Sphaeroceridae, 1 Muscidae, 1 Tachinidae) were collected only in September (Table 1).

## Discussion

### Ecology of dominant families

The ten most dominant families, in terms of numbers of specimens collected, were primarily saprophagous or predaceous. All species of Lauxaniidae, Sphaeroceridae, Drosophilidae and Fanniidae collected were saprophagous (at least among those species whose habits are known). Although the Phoridae, Anthomyiidae and Muscidae have a range of habits, most of the taxa identified in this study were saprophagous. The Empididae and Dolichopodidae were exclusively predaceous (except for the single stem-mining specimen of *Thrypticus* sp.). The species of Syrphidae were divided between the predaceous subfamily Syrphinae and primarily saprophagous Eristalinae. Together these ten families comprised 8 960 specimens, 90% of the total. Furthermore, many of the remaining 998 specimens were also saprophagous or predaceous; parasitoid and phytophagous Diptera were collected in much lower numbers.

In addition to their abundance, Empididae and Dolichopodidae were also among the most species rich families. However, this was not usually the case for other families. For example, Tachinidae and Chloropidae ranked second and seventh in species richness, respectively, but were represented by few specimens per species.

Empididae are abundant in many typical forest habitats and it is not surprising that

they were dominant in this study. Although most Dolichopodidae are found along the edge of streams or lakes, many genera are also found in humid woodlands (Pollet and Grootaert 1987) and genera such as *Neurigona* Rondani and *Medetera* Fischer von Waldheim visit tree trunks for mating (Robinson and Vockeroth 1981). Although typical forest dwelling genera were collected, the dominance of the Dolichopodidae may have been partly due to the proximity of Lac Hertel to the study site.

Many of the saprophagous families are diverse and abundant in forest habitats, so their dominance was expected. Larvae of Eristalinae (Syrphidae) have varied habits but many are saprophagous; they have been found in tree holes, tree wounds and rotting wood (Teskey 1976, Ferrar 1987). Phoridae are dominant in a wide variety of habitats, both as adults and larvae. Adults may be found in association with a wide variety of decaying organic matter; *Megaselia* spp. are especially abundant in almost all habitats (Ferrar 1987). Sphaeroceridae and Lauxaniidae are abundant in forests, where their larvae are often associated with decaying vegetation or leaf litter (Miller 1977, Ferrar 1987, Marshall and Richards 1987).

Not all of the typically forest-associated families were expected to be dominant. Some of the rarely collected taxa are primarily or exclusively associated with forest habitats. Adults of Clusiidae (eight species, 61 specimens) are often found around decaying tree trunks because their larvae usually live under bark or in rotten wood (Teskey 1976, Ferrar 1987, Caloren and Marshall 1998). Aulacigastridae (two species, 62 specimens) are associated with tree wounds (Teskey 1976, Mathis and Friedberg 1994). Pallopteridae, Acartophthalmidae, Odiniidae and Perisclididae are other typical forest families (Teskey 1976, Ferrar 1987) that were collected in low numbers. Acartophthalmidae are apparently associated with fungi; the other three families are usually associated with tree wounds or rotting wood.

### Justification for species-level, season-long studies

Inventories of biodiversity are an important component of studies of ecology and conservation in any habitat. However, the cost and time needed to do meaningful inventories is substantial (e.g., this study required two years of full-time graduate study, one full-time summer assistant and a significant investment of time by several Diptera specialists). A number of approaches have been proposed to facilitate measurement of biodiversity, such as using the diversity of higher taxa such as families as a surrogate for species diversity (Williams and Gaston 1994), morphospecies in place of named species (Oliver and Beattie 1996), and short, intensive sampling periods in place of long term studies (Landau *et al.* 1999). These approaches may be useful in habitats that are critically threatened and require a rapid overview of arthropod biodiversity, but they are neither necessary nor appropriate for the protected forest at Mont Saint-Hilaire. The diversity of the Brachycera community can only be accurately documented by identifying named or undescribed species; this is because identification only to the family or morphospecies level may not reveal species-level or ecological differences from site to site.

The results from this study also support the use of season-long biodiversity surveys versus short-term day or week long collecting trips. A single week of sampling at the site would only have collected between 4% and 28% (depending on the date) of the observed seasonal diversity. Almost 10% of the species were collected only in May and 3% only in September, indicating that it is important to start sampling as early as possible in spring and continue into the autumn if the objective is a comprehensive inventory of Diptera species at a site.

### How many species of Diptera are there at Mont Saint-Hilaire?

This inventory has contributed significantly to our knowledge of Brachycera diversity at Mont Saint-Hilaire, and in the mixedwood plains ecozone in general. However, despite the large number of species identified, it is clear that only a fraction of the Diptera fauna of the Mont Saint-Hilaire Biosphere Reserve has been recorded to date. According to ACE, only two-thirds of the Brachycera species at the sampling site were collected. The number of species collected in this study was actually higher than reported because specimens in several genera or families (e.g., *Megaselia*, Anthomyiidae) were not identified to the species level. Identification of these specimens would raise the observed species total, and probably also the estimated species total (because the large number of species represented by only one or two specimens would increase as more species are identified). Several more years of collecting using additional traps and collecting methods would probably be required to approach the true species richness at the site. For example, the traps used in this study collected flies on tree trunks, on the ground surface and flying through the site near ground level; none of the traps targeted the forest canopy, downed woody material or the leaf litter and soil.

Although many specimens of lower Diptera (Nematocera) were collected in this study, they were not identified. Families such as Mycetophilidae, Sciaridae and Ceratopogonidae were among the most speciose in surveys of forest Diptera in Europe (e.g., Irmeler *et al.* 1996, Schiegg *et al.* 1999), and these and other families of Nematocera are apparently a diverse component of the forest Diptera community at Mont Saint-Hilaire. McAlpine *et al.* (1979) estimated that Nematocera represent 43% of the total species richness of Diptera in Canada.

Finally, the preceding paragraphs refer only to our sampling site in old growth beech-maple forest. There is a great diversity of plant communities, aquatic systems and topography in the Mont St Hilaire Biosphere Reserve and, given this mosaic of habitat types – old growth forest with different dominant tree species, disturbed second growth forest, old fields, riparian zones, wetlands, peatlands, a lake, streams, exposed hilltops for mating aggregations – the total Diptera fauna of the Biosphere Reserve certainly exceeds 1000 species and may be much higher than that.

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### References

- Caloren, D.C. and S.A. Marshall. 1998. A revision of the New World species of *Clusiodes* Coquillett (Diptera: Clusiidae). *Studia Dipterologica* 5: 261-321.
- Colwell, R.K. 2000. *EstimateS. Statistical estimation of species richness and shared species from samples. Version 6.0b1.* User's guide and application published at: <http://viceroy.eeb.uconn.edu/estimates>.

- Denman, M.S. and I.S. Lapper. 1964. The herpetology of Mont Saint Hilaire, Rouville County, Quebec, Canada. *Herpetologica* 20: 25-30.
- Ferrari, P. 1987. *A guide to the breeding habits and immature stages of Diptera Cyclorrhapha. Part 1.* Entomograph 8. E.J. Brill/Scandinavian Science Press, Leiden and Copenhagen. 478 pages.
- Grant, P.R. 1976. An 11 year study of small mammal populations at Mont St. Hilaire, Quebec. *Canadian Journal of Zoology* 54: 2156-2173.
- Holland, P.G. 1971. Seasonal change in the shoot floral diversity of hardwood forest stands on Mont St. Hilaire, Quebec. *Canadian Journal of Botany* 49: 1713-1720.
- Holland, P.G. 1981. Eleven years of change in the species composition of permanent quadrats in deciduous forest on Mont St. Hilaire, Quebec. *Le Naturaliste Canadien* 108: 311-323.
- Irmeler, U., K. Heller and J. Warning. 1996. Age and tree species as factors influencing the populations of insects living in dead wood (Coleoptera, Diptera: Sciaridae, Mycetophilidae). *Pedobiologia* 40: 134-148.
- Landau, D., D. Prowell and C.E. Carlton. 1999. Intensive versus long-term sampling to assess Lepidopteran diversity in a Southern mixed mesophytic forest. *Annals of the Entomological Society of America* 92: 435-441.
- Leckie, S., M. Vellend, G. Bell, M.J. Waterway and M.J. Lechowicz. 2000. The seed bank in an old-growth, temperate deciduous forest. *Canadian Journal of Botany* 78: 181-192.
- Marshall, S.A. and O.W. Richards. 1987. Sphaeroceridae. Pages 993-1006 in J.F. McAlpine (editor). *Manual of Nearctic Diptera. Volume 2. Research Branch Agriculture Canada. Monograph 28:* 675-1332.
- Mathis, W.N. and A. Friedberg. 1994. A revision of the Nearctic *Aulacigaster* Macquart with notes on *A. leucopeza* (Meigen) from the Palearctic region (Diptera: Aulacigastriidae). *Proceedings of the Entomological Society of Washington* 96: 583-598.
- Maycock, P.F. 1961. Botanical studies on Mont St. Hilaire, Rouville County, Quebec. General description of the area and a floristic survey. *Canadian Journal of Botany* 39: 1293-1325.
- McAlpine, J.F., J.A. Downes, D.R. Oliver, B.V. Peterson, G.E. Shewell, H.J. Teskey, J.R. Vockeroth and D.M. Wood. 1979. Diptera. Pages 389-424 in H.V. Danks (editor). *Canada and its insect fauna. Memoirs of the Entomological Society of Canada* 108: 1-573.
- McGill University. 2002. *Gault Nature Reserve. Flora.* [www.mcgill.ca/gault/sainthilaire/natural/flora/](http://www.mcgill.ca/gault/sainthilaire/natural/flora/)
- Miller, R.M. 1977. Ecology of Lauxaniidae (Diptera: Acalyptratae) I. Old and new rearing records with biological notes and discussion. *Annals of the Natal Museum* 23: 215-238.
- Oliver, I. and A.J. Beattie. 1996. Designing a cost effective invertebrate survey: A test of methods for a rapid assessment of biodiversity. *Ecological Applications* 6: 594-607.
- Ouellet, H.R. 1967. *Birds of the Monteregian hills and adjacent areas, province of Quebec, Canada.* Unpublished MSc Thesis. McGill University, Montreal, QC. 339 pages.
- Pollet, M. and P. Grootaert. 1987. Ecological data on Dolichopodidae (Diptera) from a woodland ecosystem: I. Colour preference, detailed distribution and comparison of different sampling techniques. *Bulletin de l'Institut Royal des Sciences Naturelles de Belgique. Entomologie* 57: 173-186.
- Robinson, H. and J.R. Vockeroth. 1981. Dolichopodidae. Pages 625-640 in J.F. McAlpine (editor). *Manual of Nearctic Diptera. Volume 1. Research Branch Agriculture Canada. Monograph 27:* 1-674.
- Schiegg, K., M. Obrist, P. Duelli, B. Merz and K.C. Ewald. 1999. Diptera and Coleoptera collected in the forest reserve Sihlwald ZH. *Mitteilungen der Schweizerischen Entomologischen Gesellschaft* 72: 289-302.
- Teskey, H.J. 1976. Diptera larvae associated with trees in North America. *Memoirs of the Entomological Society of Canada* 100: 1-53.
- Williams, P.H. and K.J. Gaston. 1994. Measuring more of biodiversity: Can higher taxon richness predict wholesale species richness. *Biological Conservation* 67: 211-217.
- Winchester, N.N. 1997. Arthropods of coastal old-growth sitka spruce forests: Conservation of biodiversity with special reference to the Staphylinidae. Pages 363-376 in A.D. Watt, N.E. Stork and M.D. Hunter (editors). *Forests and Insects.* Chapman and Hall, London, UK. 406 pages.

**TABLE 1.** Brachycera species collected in old growth forest at Mont Saint-Hilaire, Quebec. Dates are the earliest and latest collection date for each species in 2001. Collecting methods: MT = malaise trap, PT = pan trap, TT = trunk trap, SW = sweeping.

Species	Dates	MT	PT	TT	SW	Total
<b>Xylophagidae</b>						
<i>Dialysis elongata</i> (Say)	30.vii-6.viii		1			1
<i>Xylophagus reflectens</i> Walker	10.v-18.vi	21				21
<b>Stratiomyidae</b>						
<i>Allognosta brevicornis</i> Johnson	4-18.vi	2				2
<i>Neopachygaster reniformis</i> Hull	16-23.vii	1				1
<i>Sargus decorus</i> Say	21.v-11.ix	87			4	91
<i>Sargus elegans</i> Loew	16.vii-13.viii	6				6
<b>Rhagionidae</b>						
<i>Rhagio hirtus</i> (Loew)	25.vi-6.viii	8	2	1	5	16
<i>Rhagio mystaceus</i> (Macquart)	4-25.vi	6				6
<i>Symphoromyia</i> sp.1	4.vi-9.vii	17			1	18
<i>Symphoromyia</i> sp.2	4.vi-2.vii	11				11
<b>Tabanidae</b>						
<i>Chrysops aberrans</i> Philip	23-30.vii	1				1
<i>Chrysops cincticornis</i> Walker	21-28.v	2				2
<i>Chrysops lateralis</i> Wiedemann	25.vi-23.vii	1			1	2
<i>Chrysops vittatus</i> Wiedemann	23-30.vii	1				1
<i>Hybomitra lasiophthalma</i> (Macquart)	21.v-18.vi	2				2
<i>Hybomitra microcephala</i> (Osten Sacken)	23.vii-6.viii	2				2
<i>Hybomitra nitidifrons nuda</i> (McDunnough)	21-28.v	1				1
<i>Tabanus lineola</i> Fabricius	30.vii-13.viii	2				2
<b>Acroceridae</b>						
<i>Turbopsebius sulphuripes</i> (Loew)	2-30.vii	3				3
<b>Bombyliidae</b>						
<i>Bombylius major</i> L.	21-28.v	1				1
<b>Therevidae</b>						
<i>Psilocephala</i> sp.	18.vi-13.viii	2				2
<i>Spiriverpa bella</i> (Kröber)	6.viii-3.ix	3	2		1	6
<i>Thereva</i> sp.	16-23.vii	3				3
Unidentified Therevidae	2-9.vii	1				1
<b>Asilidae</b>						
<i>Dioctria baumhaueri</i> Meigen	18-25.vi	1			1	2
<i>Laphria</i> sp.	23.vii-20.viii	2				2
<i>Neoitamus</i> sp.	25.vi-16.vii	2				2
<b>Empididae</b>						
<i>Bicellaria</i> sp.	6.viii				1	1
<i>Chelipoda elongata</i> (Melander)	23-30.vii	1				1
<i>Drapetis</i> sp.1	25.vi-2.vii	1				1
<i>Drapetis</i> sp.2	13-20.viii	1				1
<i>Drapetis</i> sp.3	23-30.vii			1		1
<i>Euhybus</i> sp.	23-30.vii		1			1
<i>Euthyneura</i> sp.	21.v-18.vi	3		1		4
<i>Hilara</i> sp.1	28.v-9.vii	37	1		1	39
<i>Hilara</i> sp.2	14.v-4.vi	7				7
<i>Hilara</i> sp.3	28.v-16.vii	2				2
<i>Hilara</i> sp.4	28.v-4.vi	1				1
<i>Hilara</i> sp.5	11-18.vi	1				1
<i>Hilara</i> sp.6	11-18.vi	1				1
<i>Hilara</i> sp.7	21-28.v	1				1
<i>Hilara</i> sp.8	28.v-4.vi	1				1

**TABLE 1 (CONTINUED).**

Species	Dates	MT	PT	TT	SW	Total
<i>Hilara</i> sp.9	28.v-4.vi	1				1
<i>Hilara</i> sp.10	10.v-27.viii	85	6	4	1	96
<i>Hybos reversus</i> Walker	2.vii				1	1
<i>Iteaphila nitidula</i> Zetterstedt	10-28.v	7			1	8
<i>Leptopeza</i> sp.1	16.vii					1
<i>Leptopeza</i> sp.2	4-11.vi	1				1
<i>Megagrapha platytarsis</i> Chillcott	28.v-24.ix	34		1		35
<i>Megagrapha pubescens</i> (Loew)	25.vi-27.viii	12				12
<i>Platypalpus holosericus</i> Melander	28.v-9.vii	15	39	1	4	59
<i>Platypalpus</i> n. sp.1	18.vi-23.vii	1			1	2
<i>Platypalpus</i> n. sp.2	18-25.vi			1		1
<i>Rhamphomyia</i> sp.1	10-28.v	9		1		10
<i>Rhamphomyia</i> sp.2	10-28.v	3		2		5
<i>Rhamphomyia</i> sp.3	28.v-11.vi	3				3
<i>Rhamphomyia</i> sp.4	30.vii-27.viii	7			1	8
<i>Rhamphomyia</i> sp.5	4-11.vi	1				1
<i>Rhamphomyia</i> sp.6	4-11.vi	1				1
<i>Rhamphomyia</i> sp.7	21-28.v	1				1
<i>Rhamphomyia</i> sp.8	4-11.vi			1		1
<i>Rhamphomyia</i> sp.9	4-11.vi	1				1
<i>Rhamphomyia</i> sp.10	11-18.vi	1				1
<i>Rhamphomyia</i> sp.11	4-11.vi	1				1
<i>Rhamphomyia</i> sp.12	28.v-4.vi			1		1
<i>Rhamphomyia</i> sp.13	9-16.vii	1				1
<i>Rhamphomyia</i> sp.14	18-25.vi	1				1
<i>Rhamphomyia</i> sp.15	21.v-18.vi	13				13
<i>Tachypeza excisa</i> Melander	30.vii-6.viii			1		1
<i>Tachypeza fenestrata</i> (Say)	30.vii-27.viii	1		3		4
<b>Dolichopodidae</b>						
<i>Amblysilopus scintillans</i> (Loew)	30.vii-27.viii	3		6	3	12
<i>Chrysotimus luteopalpus</i> Curran	6.viii-3.ix	3			1	4
<i>Chrysotus ?bellus</i> van Duzee	18-25.vi		1			1
<i>Chrysotus</i> sp.1	25.vi-2.vii	1			2	3
<i>Chrysotus</i> sp.2	18.vi-23.vii	7			2	9
<i>Condylostylus flavipes</i> (Aldrich)	18.vi-30.vii	5	2	1	9	17
<i>Condylostylus nigrofemoratus</i> (Walker)	25.vi-9.vii	1	2			3
<i>Dolichopus gratus</i> Loew	18.vi-23.vii	4				4
<i>Dolichopus variabilis</i> Loew	30.vii-13.viii		1		4	5
<i>Dolichopus</i> sp.1	16.vii-20.viii	4				4
<i>Dolichopus</i> sp.2	30.vii-13.viii	2			1	3
<i>Gymnopternus frequens</i> Loew	11.vi-6.viii	15	9	1	38	63
<i>Gymnopternus nigricornis</i> Robinson	25.vi-20.viii		1	2	2	5
<i>Gymnopternus opacus</i> Loew	18.vi-27.viii	39	22	1	4	66
<i>Gymnopternus subulatus</i> Loew	9.vii-3.ix	24	16		10	50
<i>Medetera apicalis</i> Zetterstedt	14.v-11.ix	6	1	2		9
<i>Medetera vittata</i> van Duzee	6.viii-18.ix	8				8
<i>Neurigona nr. disjuncta</i>	16-23.vii	1				1
<i>Neurigona tenuis</i> (Loew)	20-27.viii	1				1
<i>Sciapus tener</i> (Loew)	23.vii-13.viii	4		3		7
<i>Sympycnus lineatus</i> Loew	16.vii				1	1
<i>Systemus eucercus</i> Steyskal	9-16.vii	1				1
<i>Thrypticus</i> sp.	11-18.vi	1				1
<i>Xanthochlorus helvinus</i> Loew	2.vii-3.ix	14	11		16	41

TABLE 1 (CONTINUED).

Species	Dates	MT	PT	TT	SW	Total
<b>Platypzeidae</b>						
<i>Agathomyia</i> sp.1	23.vii-27.viii	2				2
<i>Agathomyia</i> sp.2	16.vii				1	1
<i>Polyporivora polypori</i> (Willard)	4.vi-3.ix	6			1	7
<b>Phoridae</b>						
<i>Anevrina macateei</i> (Malloch)	14.v-11.ix	14	3			17
<i>Apocephalus</i> sp.	21-28.v			1		1
<i>Borophaga</i> spp.	21.v-24.ix	79	7			86
<i>Conicera</i> ( <i>Hypocerina</i> ) sp.	14.v-2.vii	3		1		4
<i>Diplonevra</i> spp.	28.v-24.ix	247	10	1		258
<i>Gymnophora luteiventris</i> Schmitz	11.vi-11.ix	22	10	4	1	37
<i>Hypocera ehrmanni</i> Aldrich	10.v-3.ix	10	2			12
<i>Megaselia</i> spp.	10.v-24.ix	1657	1218	3261	5	6141
<i>Phalacrotophora</i> sp.	11.vi-11.ix	13	6	56		75
<i>Phora</i> spp.	21.v-20.viii	26				26
<i>Spiniphora</i> sp.	10-14.v	1				1
<i>Triphleba</i> sp.	21-28.v	1				1
<b>Syrphidae</b>						
<i>Blera badia</i> (Walker)	28.v-11.vi	2				2
<i>Brachyopa vacua</i> Osten Sacken	4-11.vi	1				1
<i>Brachypalpus</i> sp.	10-14.v	1				1
<i>Chalcosyrphus anthreas</i> (Walker)	21.v-16.vii	9				9
<i>Chalcosyrphus vecors</i> (Osten Sacken)	11-18.vi	1				1
<i>Cheilosia ontario</i> Curran	10.v-18.vi	11				11
<i>Ferdinandea</i> sp.	4.vi-30.vii	13				13
<i>Helophilus fasciatus</i> Walker	3-11.ix	1				1
<i>Mallota posticata</i> (Fabricius)	4.vi-23.vii	2				2
<i>Melangyna</i> sp.	4-18.vi	4			1	5
<i>Melanostoma mellinum</i> (L.)	14-21.v	2				2
<i>Meliscaeva cinctella</i> (Zetterstedt)	21.v-6.viii	4				4
<i>Platycheirus nearcticus</i> Vockeroth	14-28.v	5				5
<i>Platycheirus</i> sp.	10.v-6.viii	10				10
<i>Rhingia nasica</i> Say	4.vi-9.vii	4				4
<i>Sericomyia chrysotoxoides</i> Macquart	21.v-24.ix	14			1	15
<i>Sericomyia militaris</i> Walker	4.vi-24.ix	5			1	6
<i>Sphegina keeniana</i> Williston	21-28.v	2				2
<i>Sphegina lobata</i> Loew	28.v-25.vi	1			1	2
<i>Sphegina lobulifera</i> Malloch	21-28.v	1				1
<i>Spilomyia quadrifasciata</i> (Say)	11-18.ix	1				1
<i>Syrphus knabi</i> Shannon	13-27.viii	5				5
<i>Syrphus ribesii</i> (L.)	11.vi-3.ix	15		1	1	17
<i>Syrphus</i> sp.	11-18.vi	1				1
<i>Temnostoma alternans</i> Loew	11.vi-9.vii	2				2
<i>Temnostoma balyras</i> (Walker)	21.v-25.vi	15				15
<i>Temnostoma trifasciatum</i> Robertson	28.v-4.vi	1				1
<i>Temnostoma venustum</i> Williston	4-11.vi	1				1
<i>Temnostoma vespiforme</i> (L.)	11-18.vi	1				1
<i>Toxomerus germinatus</i> (Say)	14.v-3.ix	5				5
<i>Trichopsomyia pubescens</i> Loew	14-21.v	1				1
<i>Trichopsomyia pulchella</i> Williston	11-18.vi	1				1
<i>Xanthogramma flavipes</i> (Loew)	16.vii-6.viii	2				2
<i>Xylota angustiventris</i> Loew	11-18.vi	1				1
<i>Xylota</i> sp.	11.vi-23.vii	2				2

TABLE 1 (CONTINUED).

Species	Dates	MT	PT	TT	SW	Total
<b>Pipunculidae</b>						
<i>Cephalops pallidivittipes</i> De Meyer	11-25.vi	2	1			3
<i>Chalarus</i> sp.	2.vii-13.viii	2				2
<i>Eudorylas</i> sp.1	21.v-25.vi	22			2	24
<i>Eudorylas</i> sp.2	4.vi-16.vii	7	1			8
<i>Pipunculus cingulatus</i> Loew	23.vii-13.viii	2				2
<i>Pipunculus fuscus</i> Loew	23-30.vii	1				1
<i>Pipunculus houghi</i> Kertész	25.vi-6.viii	7	71	1		79
<i>Pipunculus torus</i> Skevington	25.vi-2.vii	1				1
<b>Micropezidae</b>						
<i>Rainieria antennaepes</i> (Say)	25.vi				1	1
<b>Tanypezidae</b>						
<i>Tanypeza longimana</i> Fallén	23-30.vii		1			1
<b>Lonchaeidae</b>						
<i>Lonchaea</i> spp.	10.v-11.ix	15	1	1		17
<b>Otitidae</b>						
<i>Pseudotephritis vau</i> (Say)	16-23.vii			1		1
<b>Platystomatidae</b>						
<i>Rivellia flavimana</i> Loew	16-23.vii	1				1
<i>Rivellia ?imitabilis? pallida</i>	25.vi-30.vii	5				5
<b>Pallopteridae</b>						
<i>Toxoneura superba</i> (Loew)	25.vi-16.vii			2	1	3
<b>Lauxaniidae</b>						
<i>Homoneura fraterna</i> (Loew)	9.vii-6.viii			2	1	3
<i>Homoneura harti</i> group	2.vii				1	1
<i>Homoneura incerta</i> (Malloch)	23.vii-3.ix	2			6	8
<i>Homoneura philadelphica</i> (Macquart)	2.vii-11.ix	10	3	21	12	46
<i>Melanomyza gracilipes</i> (Loew)	23.vii-3.ix	8	7		28	43
<i>Minettia lupulina</i> (Fabricius)	18.vi-13.viii	1	1		1	3
<i>Minettia obscura</i> group	10.v-23.vii	62	5	1	6	74
<i>Poecilolyca</i> spp.	28.v-20.viii	63			21	84
<i>Poecilominettia puncticeps</i> (Coquillett)	4-25.vi	1		1		2
<i>Sapromyza rotundicornis</i> Loew	16-23.vii	1				1
Unidentified Lauxaniidae	11-18.ix	1				1
<b>Dryomyzidae</b>						
<i>Dryomyza anilis</i> Fallén	4.vi-24.ix	5	1	4	1	11
<i>Dryomyza simplex</i> Loew	18.vi-6.viii		15			15
<b>Sciomyzidae</b>						
<i>Limnia loewi</i> Steyskal	16.vii-20.viii	1	1			2
<i>Tetanocera plebeja</i> Loew	18-25.vi		1			1
<i>Tetanocera valida</i> Loew	25.vi-27.viii	3	64	9	3	79
<i>Trypetoptera canadensis</i> (Macquart)	16.vii-6.viii	1	2			3
<b>Sepsidae</b>						
<i>Nemopoda nitidula</i> (Fallén)	14-21.v	1				1
<b>Clusiidae</b>						
<i>Clusia czernyi</i> Johnson	14.v-2.vii	21				21
<i>Clusia lateralis</i> (Walker)	4.vi-11.ix	13			1	14
<i>Clusiodes ater</i> Melander and Argo	21-28.v	1				1
<i>Clusiodes clandestinus</i> Caloren & Marshall	14.v-20.viii	10				10
<i>Clusiodes johnsoni</i> Malloch	25.vi-27.viii	4				4
<i>Sobarocephala atricornis</i> Sabrosky	25.vi-9.vii	2				2
<i>Sobarocephala flaviseta</i> (Johnson)	4.vi-13.viii	8				8
<i>Sobarocephala latifrons</i> (Loew)	23-30.vii	1				1

TABLE 1 (CONTINUED).

Species	Dates	MT	PT	TT	SW	Total
<b>Acartophthalmidae</b>						
<i>Acartophthalmus bicolor</i> Oldenberg	21.v-2.vii	7				7
<b>Odiiniidae</b>						
<i>Odiina betulae</i> Sabrosky	23-30.vii			1		1
<b>Agromyzidae</b>						
<i>Agromyza</i> sp.	13-20.viii	1				1
<i>Melanagromyza</i> sp.	4-11.vi	1				1
<i>Ophiomyia</i> sp.	23-30.vii	2				2
<i>Phytobia</i> sp.	11-18.vi	1				1
<i>Phytomyza</i> sp.	10-28.v	2				2
<b>Anthomyzidae</b>						
<i>Anthomyza</i> sp.	18.vi-23.vii		5		1	6
<b>Aulacigastridae</b>						
<i>Aulacigaster mcalpinei</i> Mathis & Freidberg	2.vii-6.viii			10		10
<i>Aulacigaster neoleucopeza</i> Mathis & Freidberg	4.vi-20.viii		2	50		52
<b>Periscelididae</b>						
<i>Periscelis annulata</i> (Fallén)	4.vi-2.vii			-2		2
<b>Milichiidae</b>						
<i>Neophyllomyza</i> n. sp.	25.vi-20.viii	3		58		61
<i>Paromyia nitens</i> (Loew)	18.vi-13.viii	44		7		51
<b>Chloropidae</b>						
<i>Chlorops ?obscuricornis</i> Loew	9.vii				1	1
<i>Fiebrigella</i> n. sp.	23-30.vii			1		1
<i>Gaurax dubius</i> (Macquart)	23-30.vii			1		1
<i>Gaurax</i> nr. <i>maculipes</i> Sabrosky	18.vi-2.vii	2				2
<i>Gaurax melanotum</i> Sabrosky	30.vii				1	1
<i>Gaurax ?ocellaris</i> Sabrosky	9-16.vii	1				1
<i>Gaurax shannoni</i> Sabrosky	14-21.v	1				1
<i>Gaurax splendidus</i> Malloch	9-16.vii	1				1
<i>Incertella ovalis</i> (Adams)	21-28.v	1				1
<i>Oscinella frit</i> complex	21-28.v	2				2
<i>Rhopalopterus nudiuscula</i> (Loew)	16-23.vii	1				1
<i>Siphonella oscinina</i> (Fallén)	16.vii-27.viii	9				9
<i>Thaumatomyia glabra</i> (Meigen)	10.v-13.viii	7	1			8
<i>Tricimba ?brunnicolis</i> (Becker)	25.vi-2.vii		1			1
<i>Tricimba ?trisculcata</i> (Adams)	11.vi-20.viii	4		1		5
<i>Tricimba lineella</i> (Fallén)	21.v-13.viii	2	1			3
<b>Heleomyzidae</b>						
<i>Allophyla laevis</i> Loew	3-24.ix			4		4
<i>Amoebaleria defessa</i> (Osten Sacken)	28.v-4.vi	1	1			2
<i>Amoebaleria helvola</i> (Loew)	13.viii-3.ix			1	1	2
<i>Heleomyza brachyptera</i> (Loew)	14-21.v			1		1
<i>Suillia apicalis</i> (Loew)	21.v-24.ix	3	1	2		6
<i>Suillia longipennis</i> (Loew)	18.vi-24.ix	3	6		1	10
<i>Suillia quinquepunctata</i> (Say)	23.vii-24.ix	3		1		4
<b>Chyromyzidae</b>						
<i>Gymnochiromyia concolor</i> (Malloch)	18-25.vi	1				1
<b>Sphaeroceridae</b>						
<i>Apteromyia claviventris</i> (Strobl)	23-30.vii		1			1
<i>Aptilotus nigriphallus</i> Marshall & Smith	14-21.v	1				1
<i>Coproica</i> sp. 1	25.vi-3.ix	11	1			12
<i>Coproica</i> sp. 2	16-23.vii	1				1

TABLE 1 (CONTINUED).

Species	Dates	MT	PT	TT	SW	Total
<b>Drosophilidae</b>						
<i>Dahlimosina hirsutiphallus</i> (Marshall)	10.v-16.vii	4				4
<i>Gonioneura spinipennis</i> (Haliday)	14-21.v		1			1
<i>Herniosina voluminosa</i> Marshall	2-9.vii	1				1
<i>Ischiolepta pusilla</i> (Fallén)	21-28.v	1				1
<i>Mesosphaerocera annulicornis</i> (Malloch)	3-11.ix	1				1
<i>Minilimosina</i> ( <i>Svarciella</i> ) sp.	21-28.v	1				1
<i>Minilimosina</i> sp.	25.vi-16.vii	4				4
<i>Nearcticorpus canadense</i> Roháček & Marshall	23.vii-13.viii	2	1			3
<i>Spelobia bifrons</i> (Stenhammar)	14.v-4.vi	3				3
<i>Spelobia brevipteryx</i> Marshall	28.v-3.ix	1	7	1		9
<i>Spelobia clunipes</i> (Meigen)	10.v-24.ix	127	2			129
<i>Spelobia luteilabris</i> (Rondani)	30.vii-20.viii	2				2
<i>Spelobia nudiprocta</i> Marshall	10.v-16.vii	3				3
<i>Spelobia quinata</i> Marshall	21.v-20.viii	7	3			10
<i>Spelobia semioculata</i> (Richards)	28.v-23.vii	5	1			6
<i>Sphaerocera curvipes</i> Latreille	14.v-11.vi	3				3
<i>Limosiniinae</i> sp. 1	21.v-27.viii	15				15
<b>Drosophilidae</b>						
<i>Amiota</i> sp. 1	4.vi-13.viii	8		11		19
<i>Amiota</i> sp. 2	23-30.vii		1			1
<i>Amiota</i> sp. 3	18.vi-6.viii	1		10		11
<i>Amiota</i> sp. 4	23-30.vii	1				1
<i>Chymomyza amoena</i> (Loew)	28.v-6.viii	1	1	1	2	5
<i>Drosophila</i> spp.	14.v-1.ix	83	22	31	2	138
<i>Mycodrosophila claytonae</i> Wheeler & Takada	11.vi-3.ix	1		2		3
<i>Scaptomyza pallida</i> (Zetterstedt)	14.v-27.viii	6				6
<i>Scaptomyza</i> sp. 1	6-13.viii	1				1
<i>Stegana coleoprata</i> (Scopoli)	28.v-13.viii	13		1		14
<b>Ephydriidae</b>						
<i>Scatella stagnalis</i> (Fallén)	6-13.viii	1				1
<b>Scathophagidae</b>						
<i>Acerocnema</i> sp.	23-30.vii	1				1
<i>Cordilura</i> ( <i>Cordilurina</i> ) <i>luteola</i> Malloch	14.v-11.vi	9		1		10
<i>Megaphthalma pallida americana</i> Malloch	21.v-23.vii	12				12
<i>Scathophaga stercoraria</i> (L.)	10.v-13.viii	3	1	1	2	7
<i>Scathophaga suilla</i> (Fabricius)	4.vi-9.vii	5				5
<i>Scathophaga</i> sp.	28.v-30.vii		1	1		2
<b>Anthomyiidae</b>						
Unidentified Anthomyiidae	10.v-24.ix	131	31	212	11	385
<b>Fanniidae</b>						
<i>Fannia</i> spp.	10.v-24.ix	18	6	19	1	44
<i>Piezura graminicola</i> (Zetterstedt)	4.vi-24.ix		19	15		34
<i>Piezura mikii</i> (Strobl)	25.vi-6.viii	3	7	6		16
<i>Piezura nearctica</i> Chillcott	16.vii-3.ix	1	16	9		26
<i>Piezura</i> sp. 1	27.viii-3.ix			1		1
<b>Muscidae</b>						
<i>Azelia</i> sp.	3.ix				1	1
<i>Caricea erythrocerca</i> Rob.-Desv.	16.vii-6.viii	1	3			4
<i>Coenosia</i> sp.	16-23.vii		1		1	2
<i>Eudasyphora cyanicolor setosa</i> Loew	18.vi-27.viii	3			2	5
<i>Helina</i> sp.	10.v-11.ix	16	4			20

TABLE 1 (CONTINUED).

Species	Dates	MT	PT	TT	SW	Total
<i>Mesembrina latreillii</i> Rob.-Desv.	21.v-11.ix	1		2		3
<i>Morellia</i> sp.	11-18.vi	1				1
<i>Muscina assimilis</i> (Fallén)	21.v-24.ix	2	5	38		45
<i>Muscina pabulorum</i> (Fallén)	23.vii-24.ix	1		3		4
<i>Muscina pascuorum</i> (Meigen)	16.vii-13.viii		1	2		3
<i>Mydaea</i> spp.	14.v-24.ix	15	15	39	5	74
<i>Myospila meditabunda</i> (Fabricius)	21.v-4.vi	3				3
<i>Neodexiopsis</i> sp.	13-20.viii			3		3
<i>Phaonia</i> spp.	10.v-24.ix	27	20	60	4	111
<i>Potamia</i> sp.	14.v-20.viii	1		6		7
<i>Thricops diaphanus</i> (Wiedemann)	18.vi-24.ix	1		4		5
<i>Thricops innocuus</i> (Zetterstedt)	11.vi				1	1
Unidentified Muscidae	10.v-20.viii	17	2	2	1	22
<b>Calliphoridae</b>						
<i>Calliphora</i> sp.	23.vii-6.viii	1		1		2
<i>Opsodexia</i> sp.	2.vii-27.viii	2	8		1	11
<i>Pollenia</i> sp.	21.v-18.ix	1	3	8		12
<i>Protocalliphora</i> spp.	30.vii-11.ix	2				2
<b>Sarcophagidae</b>						
<i>Boettcheria bisetosa</i> Parker	25.vi-11.ix	1	6	1		8
<i>Boettcheria cimbicis</i> (Townsend)	6.viii-24.ix	1	1	1		3
<i>Boettcheria latisterna</i> Parker	21-28.v		2			2
<i>Oxysarcodexia</i> sp.	30.vii-20.viii	1		1		2
<i>Sarcophaga (Neobellieria) triplasia</i> Wulp	25.vi-2.vii	1				1
<i>Sarcophaga (Robineauella) nearctica</i> Parker	16-23.vii	1				1
<i>Sarcophaga</i> sp.	13-20.viii	1				1
<b>Tachinidae</b>						
<i>Actia autumnalis</i> (Townsend)	30.vii-6.viii			1		1
<i>Actia interrupta</i> Curran	11-18.vi	1				1
<i>Admontia</i> sp.	20.viii-24.ix	2				2
<i>Anisia ?flaveola</i> (Coquillett)	23.vii-20.viii		2			2
<i>Archytas</i> sp.	6.viii-24.ix	11		1		12
<i>Ateloglossa</i> sp.	16-23.vii			1		1
<i>Calolydella lathamii</i> (Curran)	30.vii-24.ix	4		5	1	10
<i>Campylochaeta</i> sp.	25.vi-2.vii			1		1
<i>Ceranthia</i> sp.	21.v-18.vi	3				3
<i>Ceromya americana</i> complex	30.vii-6.viii			1		1
<i>Ceromya palloris</i> (Coquillett)	30.vii-6.viii			1		1
<i>Clausicella</i> sp.	30.vii-20.viii	2				2
<i>Compsilura concinnata</i> (Meigen)	30.vii-24.ix	5				5
<i>Cryptomeigenia</i> sp.	18-25.vi	1				1
<i>Epalpus signifer</i> (Walker)	10.v-18.vi	18				18
<i>Eulasiona</i> sp.	18.vi-9.vii		2		1	3
<i>Eutrixa exilis</i> (Coquillett)	10-14.v		1			1
<i>Genea texensis</i> (Townsend)	11-18.vi	1				1
<i>Gonia</i> sp.	4-11.vi	1				1
<i>Homalactia harringtoni</i> (Coquillett)	14-21.v	1				1
<i>Hyphantrophaga</i> sp.	16-23.vii	1				1
<i>Leskia ?depilis</i> (Coquillett)	16-23.vii	1				1
<i>Panzeria</i> sp.	18.vi-27.viii	5				5
<i>Patelloa</i> sp.	10-21.v	4				4
<i>Peleteria</i> sp.	23.vii-24.ix	6				6

TABLE 1 (CONCLUDED).

Species	Dates	MT	PT	TT	SW	Total
<i>Periscepsia polita</i> (Brooks)	23.vii-3.ix	1	3			4
<i>Periscepsia</i> sp. 1	28.v-18.vi	3				3
<i>Phasia</i> sp.	18-24.ix	1				1
<i>Phebellia helvina</i> (Coquillett)	6-13.viii	2				2
<i>Phyllophilopsis nitens</i> (Coquillett)	9-23.vii		1		1	2
<i>Phytomyptera</i> sp.	11-18.vi	1				1
<i>Ptilodexia</i> sp.	30.vii-13.viii	1		1		2
<i>Siphona</i> sp. 1	14.v-30.vii	4				4
<i>Siphona</i> sp. 2	21.v-2.vii	2				2
<i>Spathidexia</i> sp.	6-13.viii	1				1
<i>Uramya limacodis</i> (Townsend)	30.vii-6.viii	1				1
<i>Winthemia</i> sp.	30.vii-6.viii		1			1
<b>Total specimens</b>		3883	1779	4039	257	9958
<b>Total taxa</b>		273	86	88	70	332