

## Bees@Schools 2019 Insect Program Report

The 2019 season of the Bees@Schools program was our pilot year, and we learned a lot on how to successfully run the program. Of the 44 nests that were returned to us in the fall of 2019, 22 of them were occupied! A map of sites can be found [here](#). Click on your school in the table of contents to see all the insect species we found!



Bees@Schools 2019 Insect Information

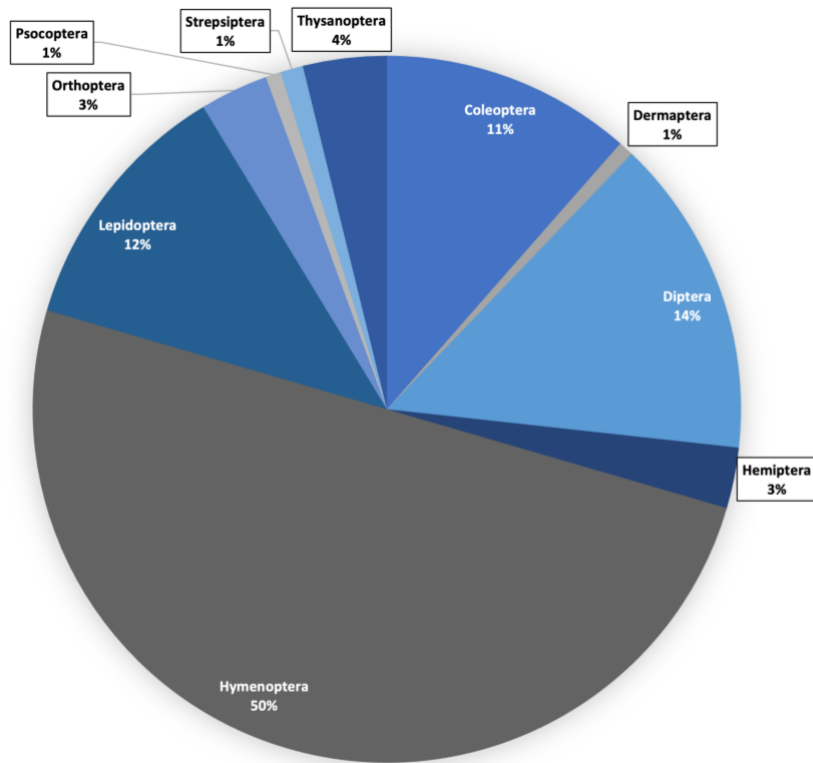


Figure 1: Proportion of total insect identifications made up of each insect order found (out of 288 occurrences).

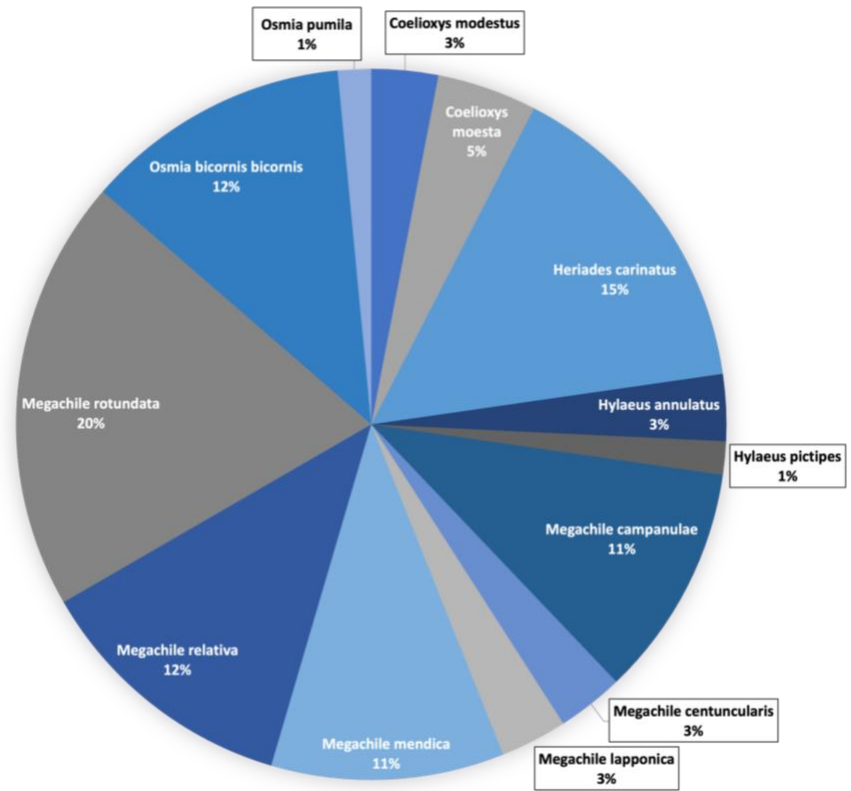


Figure 2: Proportion of total bee identifications made up of each species found (out of 66 occurrences).

Background information on insect orders:

- **Coleoptera** is a largest insect order, comprised of beetles. Many beetles found in the nest boxes were prey for the solitary wasps that used these tubes.
- **Dermaptera** is a small insect order containing earwigs. Earwigs are opportunists and found cozy homes in a few nest boxes.
- **Diptera** is a large order which includes flies. Flies may have a few reasons for being in a nest box. Some may have been prey for wasps, while others might be parasites themselves, laying their eggs in an already built bee home.
- **Hemiptera** is an order referred to as the 'true bugs'. It is most likely that these insects were brought into a nest box as prey for wasps.
- **Hymenoptera** is an order which includes bees, wasps, and ants. These nest boxes are made to target the nesting activities of a select group of solitary bees and wasps called cavity-nesters. Solitary bees and wasps are close relatives, and bees are really just vegetarian wasps. Many of the non-Hymenopteran insects in a nest box are prey for these solitary wasps.
  - Colletidae and Megachilidae are the two families of cavity-nesting bees we have in our nests! These are highlighted in blue!
    - Click the species name for more info and pictures of the bees we found: [Coelioxys moesta](#), [Coelioxys modestus](#), [Heriades carinatus](#), [Hylaeus annulatus](#), [Hylaeus pictipes](#), [Megachile campanulae](#), [Megachile centuncularis](#), [Megachile lapponica](#), [Megachile mendica](#), [Megachile relativa](#), [Megachile rotundata](#), [Osmia bicornis bicornis](#), [Osmia pumila](#), [Stelis vernalis](#)
  - Braconidae, Chrysididae, Eucharitidae, Ichneumonidae, Pteromalidae and Sapygidae are parasitic wasps, meaning they lay their eggs on another insect's pre-made nest.
  - Crabronidae, Pompilidae, and Sphecidae are predatory wasps, meaning they hunt insects like caterpillars and small bugs.
  - Vespidae is a large family of wasp, which includes yellowjackets, but the ones found here are likely predators.
  - Formicidae are ants, which don't really use the nest box as intended and instead find it is a cozy place to build a nest
- **Lepidoptera** includes the butterflies and moths. Many caterpillars are prey for solitary wasps.
- **Orthoptera** includes grasshoppers, locusts, and crickets. Many such insects are prey for solitary wasps
- **Psocoptera** includes booklice, barklice or barkflies. These are not like the lice that live on humans, and prefer to live in damp, cool areas like bark or around old paper. Maybe they liked the cardboard!
- **Strepsiptera** are an order of insects made up of endoparasites. They parasitize bees, wasps, and other insects.
- **Thysanoptera** is an order of tiny insects called thrips.



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School Name	Insect Order	Insect Family	Insect Species
Baccalieu Collegiate (Old Pelican, NL)	Diptera	Syrphidae	<i>Cheilosia barovskii</i>
	Hemiptera	Anthocoridae	<i>Amphiareus obscuriceps</i>
	Hymenoptera	Megachilidae	<i>Megachile relativa</i>
			<i>Megachile rotundata</i>
		Vespidae	<i>Ancistrocerus albophaleratus</i>
			<i>Symmorphus bifasciatus</i>
	Lepidoptera	Tortricidae	<i>Acleris oxycoccana</i>
			<i>Clepsis clemensiana</i>



School Name	Insect Order	Insect Family	Insect Species
Camp Heidelberg (Waterloo, ON)	Coleoptera	Chrysomelidae	<i>Gastrophysa polygoni</i>
			<i>Phratora purpurea purpurea</i>
			<i>Phratora vulgatissima</i>
		Curculionidae	<i>Isochnus populicola</i>
	Dermaptera	Forficulidae	<i>Forficula aff. auricularia</i>
	Diptera	Asilidae	<i>Diplosynapsis sp.</i>
		Sarcophagidae	<i>Amobia sp.</i>
	Hemiptera	Liviidae	<i>Diaphorina lycii</i>
	Hymenoptera	Braconidae	<i>Bracon sp.</i>
			<i>Macrocentrus sp.</i>
			<i>Pholetesor ornigis</i>
		Chrysididae	<i>Chrysis cembraicola</i>
		Megachilidae	<i>Megachile mendica</i>
			<i>Megachile rotundata</i>
		Vespidae	<i>Ancistrocerus antilope</i>
			<i>Symmorphus bifasciatus</i>
	<i>Symmorphus canadensis</i>		
	Lepidoptera	Depressariidae	<i>Machimia tentoriferella</i>
		Drepanidae	<i>Eudeilinia herminiata</i>
		Gracillariidae	<i>Caloptilia burgessiella</i>
Heliozelidae		<i>Antispila cornifoliella</i>	
		<i>Antispila freemani</i>	
Tortricidae	<i>Acleris chalybeana</i>		





School Name	Insect Order	Insect Family	Insect Species
Centre Wellington District High School (Fergus, ON)	Coleoptera	Meloidae	<i>Nemognatha</i> sp.
	Hymenoptera	Megachilidae	<i>Megachile mendica</i>
		Sapygidae	<i>Sapyga lousi</i>
		Vespidae	<i>Ancistrocerus catskill</i>
	<i>Symmorphus bifasciatus</i>		
Lepidoptera	Tortricidae	<i>Pseudexentera cressoniana</i>	



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School Name	Insect Order	Insect Family	Insect Species
Clarington Central Secondary School (Bowmanville, ON)	Hymenoptera	Megachilidae	<i>Megachile mendica</i>
			<i>Megachile rotundata</i>
		Pompilidae	<i>Auplopus carbonarius</i>
		Vespidae	<i>Symmorphus bifasciatus</i>





School Name	Insect Order	Insect Family	Insect Species
<p>Devon Middle School (Fredericton, NB)</p>	Coleoptera	Curculionidae	<i>Isochnus populicola</i>
		Meloidae	<i>Nemognatha</i> sp.
	Diptera	Asilidae	<i>Proctacanthus</i> sp.
		Sciomyzidae	<i>Dictya</i> sp.
		Stratiomyidae	<i>Ptecticus aurifer</i>
		Syrphidae	<i>Cheilosia barovskii</i>
	Hymenoptera	Eucharitidae	<i>Kapala</i> sp.
		Megachilidae	<i>Heriades carinatus</i>
			<i>Megachile mendica</i>
			<i>Osmia bicornis bicornis</i>
			<i>Osmia pumila</i>
	Vespidae	<i>Symmorphus canadensis</i>	
	Lepidoptera	Crambidae	<i>Chabula acamasalis</i>
		Gelechiidae	<i>Anarsia molybdota</i>
Tortricidae		<i>Acleris oxycoccana</i>	



School Name	Insect Order	Insect Family	Insect Species
Elmvale District High School (Elmvale, ON)	Coleoptera	Chrysomelidae	<i>Baliosus nervosus</i>
			<i>Phratora purpurea purpurea</i>
			<i>Plagiodera versicolora</i>
		Curculionidae	<i>Isochnus populicola</i>
	Diptera	Sarcophagidae	<i>Amobia</i> sp.
		Tachinidae	<i>Hemisturmia</i> sp.
	Hemiptera	Anthocoridae	<i>Amphiareus obscuriceps</i>
	Hymenoptera	Braconidae	<i>Hormius barryhammeli</i>
			<i>Meteorus</i> sp.
		Chrysididae	<i>Chrysis cembraicola</i>
		Megachilidae	<i>Megachile campanulae</i>
			<i>Megachile mendica</i>
			<i>Megachile rotundata</i>
		Pompilidae	<i>Auplopus nigrellus</i>
		Vespidae	<i>Ancistrocerus antilope</i>
			<i>Symmorphus bifasciatus</i>
			<i>Symmorphus canadensis</i>
	<i>Symmorphus cristatus</i>		
	Lepidoptera	Bucculatricidae	<i>Bucculatrix eupatoriella</i>
			<i>Bucculatrix</i> sp.
		Depressariidae	<i>Machimia tentoriferella</i>
Pyralidae		<i>Pococera aplastella</i>	
	Tortricidae	<i>Acleris chalybeana</i>	
Orthoptera	Tettigoniidae	<i>Meconema thalassinum</i>	
Strepsiptera	Xenidae	Xenidae	



School Name	Insect Order	Insect Family	Insect Species
Fort Nelson Secondary School (Fort Nelson, BC)	Coleoptera	Chrysomelidae	<i>Phratora purpurea purpurea</i>
			<i>Phratora vulgatissima</i>
	Diptera	Asilidae	<i>Diplosynapsis</i> sp.
		Syrphidae	<i>Cheilosia barovskii</i>
	Hymenoptera	Chrysididae	<i>Chrysis cembraicola</i>
		Megachilidae	<i>Coelioxys moesta</i>
			<i>Megachile relativa</i>
			<i>Megachile rotundata</i>
	Vespidae	<i>Symmorphus bifasciatus</i>	
	Lepidoptera	Heliozelidae	<i>Antispila cornifoliella</i>



School Name	Insect Order	Insect Family	Insect Species
Georgetown District High School (Georgetown, ON)	Diptera	Tachinidae	<i>Hemisturmia</i> sp.
	Hymenoptera	Chrysididae	<i>Chrysis cembraicola</i>
		Megachilidae	<i>Megachile campanulae</i>
			<i>Megachile rotundata</i>
		Vespidae	<i>Monobia quadridens</i>
			<i>Symmorphus bifasciatus</i>
	<i>Symmorphus canadensis</i>		
	Lepidoptera	Depressariidae	<i>Machimia tentoriferella</i>
		Bucculatricidae	<i>Bucculatrix eupatoriella</i>
			<i>Bucculatrix</i> sp.
Psocoptera	Elipsocidae	<i>Elipsocus moebiusi</i>	



School Name	Insect Order	Insect Family	Insect Species
<p>Glendale Secondary School (Hamilton, ON)</p>	Coleoptera	Chrysomelidae	<i>Phratora purpurea purpurea</i>
			<i>Plagiodera versicolora</i>
		Curculionidae	<i>Isochnus populicola</i>
		Scarabaeidae	<i>Mimeoma maculata</i>
	Dermaptera	Forficulidae	<i>Forficula aff. auricularia</i>
	Diptera	Sarcophagidae	<i>Amobia</i> sp.
		Syrphidae	<i>Cheilosia barovskii</i>
	Hymenoptera	Megachilidae	<i>Coelioxys modestus</i>
			<i>Megachile campanulae</i>
			<i>Megachile lapponica</i>
			<i>Megachile relativa</i>
			<i>Stelis vernalis</i>
		Vespidae	<i>Ancistrocerus antilope</i>
			<i>Symmorphus bifasciatus</i>
	Lepidoptera	Depressariidae	<i>Semioscopis inornata</i>
Pyralidae		<i>Pococera aplastella</i>	
Thysanoptera	Thripidae	<i>Frankliniella</i> sp.	
		<i>Frankliniella</i> sp.	



School Name	Insect Order	Insect Family	Insect Species
Hamilton District Christian High School (Ancaster, ON)	Coleoptera	Chrysomelidae	<i>Gastrophysa polygoni</i>
			<i>Plagioderma versicolora</i>
	Diptera	Phoridae	<i>Apocephalus borealis</i>
		Sciomyzidae	<i>Dictya</i> sp.
		Syrphidae	<i>Cheilosia barovskii</i>
	Hymenoptera	Formicidae	<i>Camponotus nearcticus</i>
		Megachilidae	<i>Heriades carinatus</i>
			<i>Megachile campanulae</i>
			<i>Megachile mendica</i>
			<i>Megachile rotundata</i>
	Vespidae	<i>Symmorphus bifasciatus</i>	
Thysanoptera	Thripidae	<i>Thrips tabaci</i>	



School Name	Insect Order	Insect Family	Insect Species
<p style="text-align: center;">John Polanyi Collegiate Institute (North York, ON)</p>	Diptera	Acartophthalmidae	<i>Acartophthalmus nigrinus</i>
		Conopidae	<i>Zodion fulvifrons</i>
			<i>Zodion intermedium</i>
			<i>Zodion</i> sp.
	Sarcophagidae	<i>Amobia</i> sp.	
	Hymenoptera	Eucharitidae	<i>Kapala</i> sp.
		Megachilidae	<i>Coelioxys moesta</i>
			<i>Heriades carinatus</i>
			<i>Megachile campanulae</i>
			<i>Megachile centuncularis</i>
			<i>Megachile relativa</i>
		<i>Osmia bicornis bicornis</i>	
	Sphecidae	<i>Isodontia mexicana</i>	
	Vespidae	<i>Symmorphus bifasciatus</i>	
	Orthoptera	Tettigoniidae	<i>Meconema thalassinum</i>
<i>Nipponomeconema sinica</i>			
Thysanoptera	Thripidae	<i>Frankliniella</i> sp.	





School Name	Insect Order	Insect Family	Insect Species
Kelowna Christian School (Kelowna, BC)	Coleoptera	Chrysomelidae	<i>Chrysomela scripta</i>
	Hemiptera	Liviidae	<i>Diaphorina lycii</i>
	Hymenoptera	Megachilidae	<i>Heriades carinatus</i>
			<i>Osmia bicornis bicornis</i>
		Sapygidae	<i>Sapyga lousi</i>
		Vespidae	<i>Ancistrocerus albophaleratus</i>
	<i>Symmorphus bifasciatus</i>		
	Lepidoptera	Gelechiidae	<i>Scrobipalpa atriplicella</i>
		Noctuidae	<i>Elaphria cyanympha</i>
	Orthoptera	Tettigoniidae	<i>Meconema thalassinum</i>
Strepsiptera	Xenidae	Xenidae	



School Name	Insect Order	Insect Family	Insect Species
Leamington District Secondary School (Leamington, ON)	Diptera	Asilidae	<i>Proctacanthus</i> sp.
	Hymenoptera	Crabronidae	<i>Psenulus pallipes</i>
		Megachilidae	<i>Heriades carinatus</i> <i>Osmia bicornis bicornis</i>
	Lepidoptera	Tortricidae	<i>Clepsis clemensiana</i>



School Name	Insect Order	Insect Family	Insect Species
Newell Christian School (Brooks, AB)	Coleoptera	Chrysomelidae	<i>Gastrophysa polygoni</i>
			<i>Plagioderma versicolora</i>
	Diptera	Asilidae	<i>Neolophonotus pellitus</i>
		Cecidomyiidae	Cecidomyiidae
		Mycetophilidae	<i>Brevicornu</i> sp.
		Sarcophagidae	<i>Amobia</i> sp.
		Scatopsidae	<i>Coboldia fuscipes</i>
		Sciomyzidae	<i>Dictya</i> sp.
		Stratiomyidae	<i>Ptecticus aurifer</i>
		Syrphidae	<i>Cheilosia barovskii</i>
	Hemiptera	Aphrophoridae	Aphrophoridae
	Hymenoptera	Braconidae	<i>Blacus</i> sp.
		Chrysididae	<i>Chrysis cembraicola</i>
		Formicidae	<i>Formica</i> sp.
			<i>Pheidole brandaoi</i>
		Ichneumonidae	<i>Diadegma</i> sp.
		Megachilidae	<i>Heriades carinatus</i>
			<i>Megachile campanulae</i>
			<i>Megachile mendica</i>
			<i>Megachile relativa</i>
			<i>Megachile rotundata</i>
<i>Osmia bicornis bicornis</i>			
<i>Stelis vernalis</i>			
Pompilidae		<i>Auplopus nigrellus</i>	
Pteromalidae	<i>Pteromalus venustus</i>		
Vespidae	<i>Monobia quadridens</i>		
	<i>Symmorphus bifasciatus</i>		



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	Lepidoptera	Crambidae	<i>Chabula acamasalis</i>
		Gelechiidae	<i>Anarsia molybdota</i>
	Thysanoptera	Thripidae	<i>Frankliniella tritici</i>
			<i>Frankliniella sp.</i>
		<i>Thrips tabaci</i>	



School Name	Insect Order	Insect Family	Insect Species	
Norwell District Secondary School (Palmerston, ON)	Coleoptera	Hybosoridae	<i>Baloghianestes oribatidiformis</i>	
	Hymenoptera	Megachilidae	<i>Heriades carinatus</i>	
				<i>Osmia bicornis bicornis</i>
		Sphecidae	<i>Isodontia mexicana</i>	
		Vespidae	<i>Symmorphus bifasciatus</i>	
	Lepidoptera	Noctuidae	<i>Elaphria cyanympha</i>	
	Orthoptera	Tettigoniidae	<i>Meconema thalassinum</i>	
			<i>Nipponomeconema sinica</i>	
Thysanoptera	Thripidae	<i>Frankliniella</i> sp.		



School Name	Insect Order	Insect Family	Insect Species
Patrick Fogarty Catholic Secondary School (Orillia, ON)	Coleoptera	Chrysomelidae	<i>Phratora purpurea purpurea</i>
			<i>Plagioderma versicolora</i>
		Meloidae	<i>Nemognatha sp.</i>
	Diptera	Phoridae	<i>Apocephalus borealis</i>
		Syrphidae	<i>Cheilosia barovskii</i>
	Hymenoptera	Crabronidae	<i>Psenulus pallipes</i>
		Megachilidae	<i>Heriades carinatus</i>
			<i>Megachile relativa</i>
			<i>Megachile rotundata</i>
			<i>Osmia bicornis bicornis</i>
		Pteromalidae	<i>Pteromalus venustus</i>
		Sapygidae	<i>Sapyga lousi</i>
	Vespidae	<i>Ancistrocerus antilope</i>	
<i>Symmorphus bifasciatus</i>			
Thysanoptera	Thripidae	<i>Frankliniella sp.</i>	



School Name	Insect Order	Insect Family	Insect Species
Red Lake District High School (Red Lake, ON)	Coleoptera	Chrysomelidae	<i>Chrysomela scripta</i>
			<i>Diachus auratus</i>
			<i>Gastrophysa polygoni</i>
			<i>Phratora purpurea purpurea</i>
		Curculionidae	<i>Euwallacea fornicatus</i>
	Meloidae	<i>Nemognatha sp.</i>	
	Diptera	Bombyliidae	<i>Anthrax irroratus</i>
		Phoridae	<i>Apocephalus sp.</i>
		Syrphidae	<i>Cheilosia barovskii</i>
	Hymenoptera	Colletidae	<i>Hylaeus annulatus</i>
		Ichneumonidae	<i>Diadegma sp.</i>
		Megachilidae	<i>Coelioxys moesta</i>
			<i>Coelioxys modestus</i>
			<i>Heriades carinatus</i>
			<i>Megachile campanulae</i>
			<i>Megachile lapponica</i>
			<i>Megachile relativa</i>
		<i>Megachile rotundata</i>	
		Sapygidae	<i>Sapyga lousi</i>
		Vespidae	<i>Ancistrocerus albophaleratus</i>
<i>Symmorphus bifasciatus</i>			
<i>Symmorphus cristatus</i>			
Orthoptera	Tettigoniidae	<i>Meconema thalassinum</i>	
Psocoptera	Elipsocidae	<i>Elipsocus moebiusi</i>	
Thysanoptera	Thripidae	<i>Frankliniella tritici</i>	
		<i>Frankliniella sp.</i>	





School Name	Insect Order	Insect Family	Insect Species
Ridgeview Public School (Brampton, ON)	Hemiptera	Aphididae	<i>Acyrtosiphon pisum</i>
			<i>Myzus persicae</i>
	Hymenoptera	Crabronidae	<i>Psenulus pallipes</i>
		Megachilidae	<i>Megachile rotundata</i>
		Vespidae	<i>Symmorphus cristatus</i>



School Name	Insect Order	Insect Family	Insect Species
St. Paul's Collegiate (Elie, MB)	Diptera	Syrphidae	<i>Cheilosia barovskii</i>
	Hymenoptera	Colletidae	<i>Hylaeus pictipes</i>
		Megachilidae	<i>Megachile centuncularis</i>
			<i>Megachile rotundata</i>
			<i>Stelis vernalis</i>
		Sapygidae	<i>Sapyga lousi</i>
	Vespidae	<i>Monobia quadridens</i>	
		<i>Symmorphus bifasciatus</i>	
Lepidoptera	Crambidae	<i>Chabula acamasalis</i>	



School Name	Insect Order	Insect Family	Insect Species
West Carleton Secondary School (West Carleton, ON)	Coleoptera	Meloidae	<i>Nemognatha</i> sp.
	Diptera	Asilidae	<i>Neolophonotus pellitus</i>
		Bombyliidae	<i>Anthrax irroratus</i>
		Sciomyzidae	<i>Dictya</i> sp.
		Stratiomyidae	<i>Ptecticus aurifer</i>
		Syrphidae	<i>Cheilosia barovskii</i>
	Hemiptera	Liviidae	<i>Diaphorina lycii</i>
	Hymenoptera	Colletidae	<i>Hylaeus annulatus</i>
		Formicidae	<i>Camponotus nearcticus</i>
		Megachilidae	<i>Heriades carinatus</i>
			<i>Megachile relativa</i>
			<i>Megachile rotundata</i>
			<i>Osmia bicornis bicornis</i>
		<i>Stelis vernalis</i>	
		Sphecidae	<i>Isodontia mexicana</i>
		Vespidae	<i>Ancistrocerus albophaleratus</i>
			<i>Monobia quadridens</i>
	<i>Symmorphus bifasciatus</i>		
	<i>Symmorphus cristatus</i>		
	Lepidoptera	Crambidae	<i>Chabula acamasalis</i>
		Gelechiidae	<i>Chrysoesthia sexguttella</i>
			<i>Scrobipalpa atriplicella</i>
	Tortricidae	<i>Pseudexentera cressoniana</i>	
Orthoptera	Tettigoniidae	<i>Meconema thalassinum</i>	
		<i>Nipponomeconema sinica</i>	
Strepsiptera	Xenidae	Xenidae	