

## Appendix 2 Styx Mill reserve 2003/2004 insect survey

Plant hosts  
or insect families

### TERRESTRIAL SPECIES

%

# = habitat preference known

**Bold habitat no** = considered to be different biologically for No & % column

### SUMMARY

A = adventive species

No of sites

**70 plus species**

Species diversity not distinguished = group in bold

	Wood land	Rush/sedge wetland	Grass land	TOTAL	Wood land	Rush sedge	Grass land	Hab- itat	Family total	
				23 %	%	%		Average		
<b>Herbivores</b>										
<i>Hydrellia enderbii</i> #	<b>9</b>	46	<b>1036</b>	<b>1091</b>	25	43	<b>64</b>	<b>44</b>		<b>rushes</b>
<i>Hydrellia</i> undetermined	0	3	18	<b>21</b>	0	14	9	<b>7.667</b>		
<i>Hydrellia</i> new species	0	2	<b>175</b>	<b>177</b>	0	14	<b>36</b>	<b>16.67</b>		
<i>Hydrellia acutipennis</i>	0	4	43	<b>47</b>	0	14	18	<b>10.67</b>		
<i>Hydrellia tritici</i> A #	17	28	<b>181</b>	<b>226</b>	25	43	<b>73</b>	<b>47</b>		<b>grass</b>
<i>Psilopa metallica</i>	<b>48</b>	<b>139</b>	187	<b>374</b>	75	86	73	<b>78</b>	<b>1890</b>	Ephydriidae
<i>Cerodontha australis</i> A#	<b>2</b>	32	<b>120</b>	<b>154</b>	<b>25</b>	100	91	<b>72</b>		<b>grass</b>
<i>Phytomyza syngenesiae</i> #	0	2	<b>29</b>	<b>31</b>	0	14	<b>45</b>	<b>19.67</b>		<b>fireweed</b>
<i>Phytomyza plantaginis</i> #	0	0	<b>29</b>	<b>29</b>	0	0	<b>45</b>	<b>15</b>		<b>plantain</b>
<i>Phytomyza costata</i>	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>		
<i>Liriomyza chenopodi</i> A #	1	1	0	<b>2</b>	25	14	0	<b>13</b>		<b>chickweed</b>
<i>Liriomyza cianthi</i>	3	0	0	<b>3</b>	25	0	0	<b>8.333</b>		
<i>Liriomyza hebae</i>	0	0	1	<b>1</b>	0	0	9	<b>3</b>		
<i>Liriomyza ? umbrosa</i>	2	0	0	<b>2</b>	25	0	0	<b>8.333</b>		
<i>Liriomyza urticae</i>	0	0	2	<b>2</b>	0	0	9	<b>3</b>	<b>225</b>	Agromyzidae
<b>Sciaridae- root gnats</b>	<b>91</b>	67	<b>63</b>	<b>221</b>	75	86	73	<b>78</b>	<b>221</b>	Sciaridae
<b>Cecidomyiinae</b>	34	<b>1</b>	75	<b>110</b>	50	<b>14</b>	45	<b>36.33</b>	<b>104</b>	Cecidomyiidae
<i>Anthomyia punctipennis</i> A #	5	4	5	<b>14</b>	50	29	36	<b>38.33</b>	<b>9</b>	Anthomyiidae
Moth black	2	0	0	<b>2</b>	25	0	0	<b>8.333</b>		
<b>Moths others (3 spp)</b>	1	7	0	<b>8</b>	25	14	0	<b>13</b>		
<b>Caterpillars others</b>	1	0	3	<b>4</b>	25	0	18	<b>14.33</b>		
<b>Caterpillars loopers</b>	0	0	4	<b>4</b>	0	0	9	<b>3</b>	<b>16</b>	Lepidoptera
<i>Sidnia kinbergi</i> # Miridae	<b>0</b>	0	5	<b>5</b>	<b>0</b>	0	9	<b>3</b>		
Miridae dark 1	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>		
Mirid species 2 speckled	0	2	0	<b>2</b>	0	14	0	<b>4.667</b>		
<b>Miridae others &amp; Heteroptera undet.</b>	1	2	5	<b>8</b>	25	29	18	<b>24</b>	<b>16</b>	Miridae
<i>Nysius huttoni</i> -wheat bug #	3	<b>0</b>	<b>12</b>	<b>15</b>	50	0	45	<b>31.67</b>		
<i>Rhyapodes</i> sp.	1	0	2	<b>3</b>	25	0	18	<b>14.33</b>		
<i>Rhyapods anceps</i> - wingless	0	0	1	<b>1</b>	0	0	9	<b>3</b>		
Lygaeidae nymphs	0	2	2	<b>4</b>	0	14	9	<b>7.667</b>	<b>20</b>	Lygaeidae
? <i>Dictyotus caenosus</i> (nymph) #	0	<b>1</b>	0	<b>1</b>	0	<b>17</b>	0	<b>5.667</b>		Pentatomidae
Psyllid evenly orangy, spotted wing	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>		
Psyllid, abdomen bands wings spot	0	3	0	<b>3</b>	0	14	0	<b>4.667</b>		
Psyllid <i>Trioz</i> a, clear wing	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>	<b>5</b>	Psyllidae
<i>Zygina zelandica</i> A	13	<b>42</b>	54	<b>109</b>	50	43	55	<b>49.33</b>		
<i>Ribautiana tenerrima</i> A planthopper#	<b>4</b>	2	<b>0</b>	<b>6</b>	25	14	<b>0</b>	<b>13</b>		black berry
? <i>Euacanthella palustris</i>	2	0	4	<b>6</b>	50	0	9	<b>19.67</b>		
Cicadellidae abdomen distinct dark pattern		0	4	<b>4</b>	0	0	9	<b>3</b>		
Cicadellidae black, small	0	0	1	<b>1</b>	0	0	9	<b>3</b>		
Cicadellidae cloudy wing	3	0	0	<b>3</b>	25	0	0	<b>8.333</b>		
Cicadellidae dark brown	<b>0</b>	16	<b>42</b>	<b>1</b>	<b>0</b>	43	45	<b>29.33</b>		
Cicadellidae dark brown speckled	12	0	0	<b>12</b>	25	0	0	<b>8.333</b>		

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Plant hosts

A = adventive species

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### SUMMARY

No of sites	Wood	Rush/sedge	Grass	TOTAL	Wood	Rush	Grass	Hab-itat	Family total	
	land	wetland	land		land	sedge	land			av %
<b>Herbivores continued</b>										
Cicadellidae large, speckled wing	0	0	1	<b>1</b>	0	0	9	<b>3</b>		
Cicadellidae-long pale brown	0	2	0	<b>2</b>	0	14	0	<b>4.667</b>		
Cicadellidae long snout, pale	0	0	4	<b>4</b>	0	0	9	<b>3</b>		
Cicadellidae pale smaller	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>		
Cicadellidae speckled abdomen	2	<b>1</b>	<b>17</b>	<b>20</b>	25	<b>14</b>	<b>36</b>	<b>25</b>		
Cicadellidae speckled wing,abdomen dark	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>		
Cicadellidae spotted wing	1	3	0	<b>4</b>	25	14	0	<b>13</b>		
Cicadellidae nymphs	2	0	12	<b>14</b>	25	0	27	<b>17.33</b>		
<b>Cicadellidae undetermined</b>	0	5	0	<b>5</b>	0	14	0	<b>4.667</b>	<b>194 Cicadellidae</b>	
Delphacid pale, short wing	1	<b>26</b>	3	<b>30</b>	25	29	18	<b>24</b>		
Delphacid dark body, wing normal	0	0	1	<b>1</b>	0	0	9	<b>3</b>	<b>31 Delphacidae</b>	
<i>Carystoterpa trimaculata</i> #	<b>1</b>	0	0	<b>1</b>	<b>25</b>	0	0	<b>8.333</b>	Shrubs	
<i>Philanaeus spumarius</i> A	3	0	4	<b>7</b>	25	0	9	<b>11.33</b>	4 herbs,etc	
<i>Balanococcus</i> sp mealy bug	2	0	6	<b>8</b>	25	0	27	<b>17.33</b>	6 ?grass roots	
<b>Aphids A</b>	<b>3</b>	25	40	<b>68</b>	50	57	55	<b>54</b>	<b>68 Aphididae</b>	
<b>Weevil</b>	4	2	4	<b>10</b>	25	14	27	<b>22</b>	<b>10 Curculionidae</b>	
<i>Eaapion ulicis</i> A #	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>	1 Gorse seed	
<i>Conoderus exsul</i> pasture click beetle	1	<b>0</b>	2	<b>3</b>	25	0	9	<b>11.33</b>	3 Grass roots, etc.	
<i>Odontria</i> grass grub	2	0	0	<b>2</b>	25	0	0	<b>8.333</b>	Grass roots	
<i>Costelytra zelandica</i> NZ grass grub #	0	0	<b>2</b>	<b>2</b>	0	0	<b>18</b>	<b>6</b>	4 Grass roots	
Long horn beetle	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>	<b>1 Cerambycidae</b>	
<i>Eucoides suturalis</i> fungus weevil A #	0	0	<b>1</b>	<b>1</b>	0	0	<b>9</b>	<b>3</b>	1 Cocksfoot	
<i>Bobilla</i> sp. small black cricket	0	<b>11</b>	2	<b>13</b>	0	<b>43</b>	18	<b>20.33</b>	<b>13 Gryllidae</b>	
<i>Phanacis hypochaeridis</i> gall wasp A	0	3	3	<b>6</b>	0	14	18	<b>10.67</b>	6 catsear	
<i>Eumerus</i> sp grass stem miner A #	0	1	0	<b>1</b>	0	14	<b>0</b>	<b>4.667</b>	1 grass	
<i>Pontania proxima</i> willow gall wasp A#	2	0	9	<b>11</b>	25	0	18	<b>14.33</b>	Willow	
<i>Nematus megaspilus</i> yellow sawfly A#	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>	<b>12</b>	
Thripidae, dark brown	6	0	3	<b>9</b>	25	0	18	<b>14.33</b>		
Thripidae yellowy, smaller	3	0	0	<b>3</b>	<b>25</b>		9	<b>11.33</b>	<b>12 Thripidae</b>	
<b>TOTAL HERBIVORES</b>	<b>292</b>	<b>490</b>	<b>2217</b>	<b>2999</b>						
<b>Pollinators</b>										
<b>9 species</b>										
<i>Apis mellifera</i> - honey bee A #	0	2	2	<b>4</b>	0	14	18	<b>10.67</b>		
<i>Bombus terrestris</i> A #	0	1	1	<b>2</b>	0	14	9	<b>7.667</b>		
<i>Lasioglossum sordidum</i> #	29	0	12	<b>41</b>	25	0	36	<b>20.33</b>		
<i>Hylaeus relegatus</i>	<b>10</b>	0	0	<b>10</b>	25	0	0	<b>8.333</b>		
<i>Hylaeus</i> sp. 2	2	0	0	<b>2</b>	25	0	0	<b>8.333</b>		
<b><i>Leioproctus</i> sp.</b>	3	0	0	<b>3</b>	25	0	0	<b>8.333</b>		
<i>Leioproctus fulvescens</i> #	0	0	1	<b>1</b>	0	0	9	<b>3</b>		
<i>Dasytes</i> beetle	1	1	2	<b>4</b>	25	14	18	<b>19</b>		
<b>TOTAL</b>	<b>45</b>	<b>4</b>	<b>18</b>	<b>67</b>						

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### SUMMARY

	Wood	Rush/sedge	Grass	TOTAL	Wood	Rush	Grass	Hab-itat	Family total
	land	wetland	land		land	sedge	land		
No of sites									
<b>4 species</b>	<b>Carrion</b>								
<i>Xenocalliphora hortona</i>	1	0	4	<b>5</b>	25	0	9	<b>11.33</b>	
<i>Lucilia sericata</i> A	0	0	3	<b>3</b>	0	0	18	<b>6</b>	
<i>Calliphora stygia</i> A	1	0	3	<b>4</b>	25	0	27	<b>17.33</b>	
<i>Calliphora vicina</i> A	0	0	2	<b>2</b>	0	0	18	<b>6</b>	
<i>Megaselia impariseta</i>	<b>26</b>	<b>83</b>	94	<b>203</b>	75	57	54	<b>62</b>	
<b>TOTAL</b>	<b>28</b>	<b>83</b>	<b>106</b>	<b>217</b>					
<b>at least 44 insect species</b>	<b>Forest or wetland litter inhabitants</b>								
<i>Anomalomya guttata</i>	<b>33</b>	<b>5</b>	<b>9</b>	<b>47</b>	50	57	<b>18</b>	<b>41.67</b>	
<i>Mycetophila</i> sp.#	22	32	<b>9</b>	<b>63</b>	50	29	27	<b>35.33</b>	
<b>Mycetophilidae other</b>	5	12	<b>0</b>	<b>17</b>	25	43	<b>0</b>	<b>22.67</b>	127 Mycetophilidae
<i>Macrocera</i> sp Keroplatidae	0	0	1	<b>1</b>	0	0	9	<b>3</b>	
<i>Ceratolion</i> sp -Keroplatidae	0	2	0	<b>2</b>	0	14	0	<b>4.667</b>	
? <i>Pyratula</i> - Keroplatidae	2	0	2	<b>4</b>	25	0	9	<b>11.33</b>	
Keroplatidae (2 spp.) #	0	4	0	<b>4</b>	0	29	0	<b>9.667</b>	11 Keroplatidae
<i>Australosymmerus</i> sp	1	1	0	<b>2</b>	25	14	0	<b>13</b>	
<i>Leptotarsus dichroilthorax</i>	2	0	0	<b>2</b>	25	0	0	<b>8.333</b>	
<i>Leptotarsus</i> sp near <i>vulpinus</i>	2	0	0	<b>2</b>	25	0	0	<b>8.333</b>	
<i>Leptotarsus ?obscuripennis</i>	6	0	0	<b>6</b>	25	0	0	<b>8.333</b>	
<i>Limonia</i> species	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>	
<i>Limnophila</i> sp	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>	
<i>Molophilus ?multicinctus</i>	0	1	1	<b>2</b>	0	14	9	<b>7.667</b>	
<i>Molophilus quadrifidus</i>	3	<b>78</b>	0	<b>78</b>	25	<b>57</b>	<b>0</b>	<b>27.33</b>	
<i>Zelandotipula</i> sp -large	<b>6</b>	1	<b>0</b>	<b>7</b>	<b>50</b>	14	<b>0</b>	<b>21.33</b>	
<i>Zelandigochina cubitalis</i>	<b>8</b>	0	<b>0</b>	<b>8</b>	<b>25</b>	0	<b>0</b>	<b>8.333</b>	
<i>Zelandigochina unicornis</i>	<b>5</b>	0	<b>0</b>	<b>5</b>	<b>25</b>	0	<b>0</b>	<b>8.333</b>	
<i>Zelandigochina</i> sp	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>	
<b>Tipulidae medium</b>	1	0	1	<b>2</b>	50	0	9	<b>19.67</b>	117 Tipulidae
<i>Achalcus seperatus</i>	<b>29</b>	13	<b>1</b>	<b>43</b>	<b>50</b>	29	<b>9</b>	<b>29.33</b>	
<i>Micropygus vagans</i>	<b>54</b>	4	<b>0</b>	<b>58</b>	<b>25</b>	29	<b>0</b>	<b>18</b>	
<i>Chrysotus ?uniseriatus</i>	0	3	0	<b>3</b>	0	14	0	<b>4.667</b>	
<i>Chrysotus</i> n.sp nr <i>bellax</i>	0	0	1	<b>1</b>	0	0	9	<b>3</b>	
<i>Chrysotus</i> species	6	0	0	<b>6</b>	25	0	0	<b>8.333</b>	
<i>Ostenia robusta</i>	0	0	2	<b>2</b>	0	0	9	<b>3</b>	113 Dolichopodidae
<i>Benhamyia</i>	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>	
<i>Oropezella</i>	0	1	0	<b>1</b>	0	14	9	<b>7.667</b>	
<i>Gaurax mesopleuralis</i>	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>	
<i>Gaurax ?excepta</i>	0	2	0	<b>2</b>	0	14	0	<b>4.667</b>	3 Chloropidae
<i>Psychoda penicillata</i> A	0	<b>7</b>	0	<b>7</b>	0	14	0	<b>4.667</b>	
<i>Psychoda ?alternata</i> spotted wing	<b>0</b>	4	<b>33</b>	<b>37</b>	<b>0</b>	29	27	<b>18.67</b>	
<i>Psychoda</i> spp	34	<b>94</b>	<b>12</b>	<b>140</b>	50	<b>86</b>	27	<b>54.33</b>	167 Psychodidae
<i>Beckerina polysticha</i>	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>	
<i>Coboldia fuscipes</i> A	2	0	3	<b>5</b>	50	0	18	<b>22.67</b>	
<i>Ectopsocus briggsi</i> book louse	<b>6</b>	1	0	<b>7</b>	<b>50</b>	14	0	<b>21.33</b>	
? <i>Caecilius flavus</i> book louse	<b>6</b>	2	3	<b>11</b>	<b>75</b>	14	18	<b>35.67</b>	
<i>Zelandotarsalus</i> species	1	1	1	<b>3</b>	25	14	9	<b>16</b>	

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### SUMMARY

No of sites	Wood	Rush/sedge	Grass	Wood			Hab-itat	Family total	
	land	wetland	land	land	sedge	land			
	TOTAL			%	%	%	Average		
<b>Forest or wetland litter inhabitants</b>									
Book louse species 1	<b>8</b>	0	1	<b>9</b>	<b>50</b>	0	9	<b>19.67</b>	
Book louse species 2	1	4	0	<b>5</b>	25	29	0	<b>18</b>	<b>36</b> Psocoptera
Lathrididae 2 other species	<b>9</b>	5	<b>8</b>	<b>22</b>	25	29	18	<b>24</b>	22 Lathrididae
Anthribidae beetle	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>	
Beetles other	0	0	3	<b>3</b>	0	0	18	<b>6</b>	
Talatridae -landhopper	0	0	6	<b>6</b>	0	0	27	<b>9</b>	
<b>TOTAL</b>	<b>255</b>	<b>281</b>	<b>97</b>	<b>630</b>					
<b>5 + insect species</b>									
<b>Grassland, garden litter inhabitants</b>									
<i>Lonchoptera furcata</i> A	0	1	<b>6</b>	<b>7</b>	0	14	18	<b>10.67</b>	7 Lonchopteridae
<i>Scaptomyza fuscitarsis</i>	8	<b>1</b>	10	<b>19</b>	75	<b>14</b>	36	<b>41.67</b>	19 Drosophilidae
<i>Tricimba deansi</i> Wingless	<b>0</b>	3	<b>24</b>	<b>27</b>	<b>0</b>	33	18	<b>17</b>	27 Chloropidae
Lestriminae -wood gnats	3	4	<b>72</b>	<b>79</b>	25	29	18	<b>24</b>	79
<i>Melanophthalma</i> sp -dark brown	<b>0</b>	5	<b>43</b>	<b>48</b>	25	29	27	<b>27</b>	57 Lathrididae
<b>TOTAL grassland litter</b>	<b>11</b>	<b>14</b>	<b>155</b>	<b>180</b>					
<b>4 species</b>									
<b>Dung</b>									
<i>Oxysarcophaga varia</i> A	<b>1</b>	6	5	<b>12</b>	25	29	27	<b>27</b>	
<i>Lasionemopoda hirsuta</i> A	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>	
<i>Gaurax flavoapicalis</i>	17	<b>13</b>	<b>50</b>	<b>80</b>	50	14	45	<b>36.33</b>	
<i>Aphiura brevipes</i>	1	5	0	<b>6</b>	25	14	0	<b>13</b>	
<b>TOTAL</b>	<b>19</b>	<b>25</b>	<b>55</b>	<b>99</b>					
<b>98 plus species</b>									
<b>Parasites</b>									
Pales sp.	4	0	2	<b>6</b>	25	0	9	<b>11.33</b>	Hosts Caterpillars?
<i>Pales</i> sp 1, brown lower cheek	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>	
<i>Pales</i> sp 2 -brown scutellum	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>	? Caterpillars
<i>Pales</i> sp 3 -small black	4	0	0	<b>4</b>	25	0	0	<b>8.333</b>	
<i>Pales</i> sp 4 blue	2	0	0	<b>2</b>	25	0	0	<b>8.333</b>	? Caterpillars
Voriini Tachinidae	3	5	<b>0</b>	<b>8</b>	50	14	<b>0</b>	<b>21.33</b>	?wetland caterpillars
Tachinidae 2 or more other species	4	1	3	<b>8</b>	50	14	9	<b>24.33</b>	<b>30</b> Tachinidae
<i>Pollenia pseudorudis</i> A	1	0	2	<b>3</b>	25	0	18	<b>14.33</b>	Earthworms
<i>Ogocodes</i> large- spider parasite	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>	Spiders
<i>Xanthocryptus novozealandicus</i>	0	1	3	<b>4</b>	0	14	18	<b>10.67</b>	Beetle larvae
? <i>Degathina</i> species 1	<b>9</b>	4	<b>0</b>	<b>13</b>	<b>50</b>	43	0	<b>31</b>	
<i>Degathina</i> species	2	1	0	<b>3</b>	50	14	0	<b>21.33</b>	
Ichneumonidae species 2	1	2	2	<b>5</b>	25	29	9	<b>21</b>	
Ichneumonidae species 3*	1	1	0	<b>2</b>	25	14	0	<b>13</b>	
Ichneumonid sp 4* or 29*	2	0	0	<b>2</b>	50	0	0	<b>16.67</b>	
Ichneumonidae species 5	1	0	1	<b>2</b>	25	0	9	<b>11.33</b>	
Ichneumonid sp 6 with plum red	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>	
Ichneumonidae species 7	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>	
Ichneumonidae species 8*	0	0	1	<b>1</b>	0	0	9	<b>3</b>	
Ichneumonidae species 9	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>	
Ichneumonidae species 10	0	1	2	<b>3</b>	0	18	9	<b>9</b>	
Ichneumonidae species 11?	0	2	0	<b>2</b>	0	14	0	<b>4.667</b>	
Ichneumonidae species 13	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>	
Ichneumonidae species 14	0	0	1	<b>1</b>	0	0	9	<b>3</b>	

## Appendix 2 Styx Mill reserve 2003/2004 insect survey

Plant hosts

A = adventive species

**Bold habitat no** = considered to be different biologically for No & % column

### SUMMARY

No of sites	Wood	Rush/sedge	Grass	TOTAL	Wood	Rush	Grass	Hab- itat	Family total
	land	wetland	land		land	sedge	land		
	four	six	eleven		%	%	%	av %	
<b>Parasites</b>									
Ichneumonidae species 15	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>	
Ichneumonidae species 16	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>	
Ichneumonidae species 17*	0	0	1	<b>1</b>	0	0	9	<b>3</b>	
Ichneumonidae species 19	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>	
Ichneumonid species 20* or 21*	<b>15</b>	0	0	<b>15</b>	25	0	0	<b>8.333</b>	
Ichneumonidae species 22	0	0	2	<b>2</b>	0	0	9	<b>3</b>	
Ichneumonid sp 25 coxa yellow stripe	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>	
Ichneumonid sp 26 small black	2	0	0	<b>2</b>	25	0	0	<b>8.333</b>	
Ichneumonid species 27	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>	
Ichneumonidae species 31*	<b>16</b>	<b>0</b>	2	<b>18</b>	25	0	18	<b>14.33</b>	
Ichneumonidae species 32*	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>	
Ichneumonidae undetermined	0	20	4	<b>24</b>	0	29	9	<b>12.67</b>	<b>101 Ichneumonidae</b>
<i>Apanteles</i> black large	0	4	3	<b>7</b>	0	29	18	<b>15.67</b>	
<i>Apanteles</i> black slender	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>	
<i>Apanteles</i> brown legs	0	0	1	<b>1</b>	0	0	9	<b>3</b>	
" <i>Apanteles</i> " dark, smaller	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>	
<i>Apanteles</i> dark thorax brown abdomen	2	1	0	<b>3</b>	25	14	0	<b>13</b>	
" <i>Apanteles</i> " yellow legs	1	3	0	<b>4</b>	25	43	0	<b>22.67</b>	
<i>Aphaereta aotea</i>	<b>1</b>	19	11	<b>31</b>	25	57	36	<b>39.33</b>	Blow flies
<i>Aphidius</i> sp - aphid parasites	<b>1</b>	8	<b>14</b>	<b>23</b>	25	57	<b>45</b>	<b>42.33</b>	Aphids
<i>Chorebus ?rodericki</i>	<b>0</b>	11	<b>141</b>	<b>152</b>	<b>0</b>	43	36	<b>26.33</b>	Caterpillars, etc
? <i>Chorebus</i> yellow legs	0	1	1	<b>2</b>	0	14	9	<b>7.667</b>	
? <i>Rogas</i> brown	<b>7</b>	0	1	<b>8</b>	25	0	9	<b>11.33</b>	
Alysiinae	0	0	5	<b>5</b>	0	0	18	<b>6</b>	
Braconid black, dark stigma	0	0	1	<b>1</b>	0	0	9	<b>3</b>	
Braconid, long sting, marginal cell	2	0	0	<b>2</b>	25	0	0	<b>8.333</b>	
Braconid roundish stigma	1	1	0	<b>2</b>	25	14	0	<b>13</b>	
Braconid black, outer triangle cell	0	1	0	<b>1</b>	0	14	0	<b>14</b>	
Braconidae 3 more spp	0	<b>0</b>	7	<b>7</b>	0	0	18	<b>6</b>	<b>239 Braconidae</b>
<i>Hemilexomyia spinosa</i>	<b>0</b>	4	9	<b>13</b>	<b>0</b>	43	27	<b>23.33</b>	? <i>Spilogona</i> flies
<i>Spilomicrus</i> black	2	3	<b>38</b>	<b>43</b>	25	43	<b>64</b>	<b>44</b>	
<i>Spilomicrus</i> brown large	3	3	0	<b>6</b>	25	14	0	<b>13</b>	
<i>Spilomicrus</i> brown smaller	8	6	<b>35</b>	<b>49</b>	50	43	18	<b>37</b>	
<i>Spilomicrus</i> dark but brown hind abdomen		3	0	<b>3</b>	0	14	0	<b>4.667</b>	
<i>Spilomicrus</i> dark, legs antenna brown	4	0	0	<b>4</b>	25	0	0	<b>8.333</b>	
<i>Spilomicrus</i> red brown, short wing	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>	
<i>Spilomicrus</i> red brown, normal	0	2	0	<b>2</b>	0	14	0	<b>4.667</b>	
Diapriidae another genus	4	2	0	<b>6</b>	25	14	0	<b>13</b>	
?Diaprid stump wing	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>	<b>128 Diapriidae</b>
Platygasteridae black, vein	0	<b>27</b>	7	<b>34</b>	<b>0</b>	<b>100</b>	27	<b>42.33</b>	
Platygasteridae brown thorax, vein	<b>0</b>	7	14	<b>21</b>	<b>0</b>	43	18	<b>20.33</b>	
Platygast. dark front, brown legs	0	0	5	<b>5</b>	0	0	9	<b>3</b>	
Platygast. black, no vein, leg brown	0	2	0	<b>2</b>	0	29	0	<b>9.667</b>	
Platygasterid. brown legs, antenna base	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>	
Platygasterid brown no veins	1	2	0	<b>3</b>	25	14	0	<b>13</b>	<b>66 Platygasteridae</b>
?Baecinae -Scelionidae	<b>0</b>	<b>34</b>	20	<b>54</b>	0	14	<b>45</b>	<b>19.67</b>	

## Appendix 2 Styx Mill reserve 2003/2004 insect survey

Plant hosts

A = adventive species

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### SUMMARY

No of sites	Wood	Rush/sedge	Grass	TOTAL	Wood	Rush	Grass	Hab- itat	Family total
	land	wetland	land		land	sedge	land		
	four	six	eleven		%	%	%		
<b>Parasites</b>									
?Scelionidae stump wing, black	2	14	<b>28</b>	<b>44</b>	25	14	<b>43</b>	<b>27.33</b>	
?Scelionidae black, brown legs	0	2	0	<b>2</b>	0	14	0	<b>4.667</b>	
?Scelionidae thin wings	0	0	1	<b>1</b>	0	0	9	<b>3</b>	<b>101 Scelionidae</b>
<i>Dendrocerus</i> sp	1	2	1	<b>4</b>	25	29	9	<b>21</b>	
Cynipoidea ? <i>Charips</i>	0	0	3	<b>3</b>	0	0	9	<b>3</b>	
Cynipoidea ?lady bird parasite	0	2	2	<b>4</b>	0	14	9	<b>7.667</b>	
<i>Anacharis zealandica</i> I	<b>8</b>	1	1	<b>10</b>	<b>75</b>	14	9	<b>32.67</b>	<b>10 Figitidae</b>
?Aphelinidae -brown, waisted	0	0	6	<b>6</b>	<b>0</b>	0	9	<b>3</b>	
?Aphelinidae -brown small	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>	<b>7 ?Aphelinidae</b>
<i>Elasmus</i> species	2	0	0	<b>2</b>	50	0	0	<b>16.67</b>	<b>2 Elasmidae</b>
Encyrtidae wing stumps	<b>1</b>	8	5	<b>14</b>	25	29	9	<b>21</b>	<b>17 Encyrtidae</b>
<i>Pedobius</i> sp	2	0	1	<b>3</b>	25	0	9	<b>11.33</b>	
Eulophidae brown male branched ant	0	7	4	<b>11</b>	0	14	9	<b>7.667</b>	
Eulophid antenna white tip	1	0	4	<b>5</b>	25	0	9	<b>11.33</b>	
Eulophid banded legs sp 2	0	0	6	<b>6</b>	0	0	18	<b>6</b>	
Eulophidae species 3	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>	
Eulophidae patterned abdomen	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>	
Eulophidae sp 4 & 5	0	2	0	<b>2</b>	0	14	0	<b>4.667</b>	
Eulophidae 3 species	3	0	0	<b>3</b>	25	0	0	<b>8.333</b>	
Eulophidae other species	0	3	11	<b>14</b>	0	29	0	<b>9.667</b>	<b>45 Eulophidae</b>
Pteromalidae , yellow antenna	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>	
Pteromalidae 2 other species	2	0	0	<b>2</b>	25	0	0	<b>8.333</b>	<b>3 Pteromalidae</b>
?Signophoridae, part yellow	0	1	1	<b>2</b>	0	14	9	<b>7.667</b>	
? <i>Tetramesa</i> pointed abdomen	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>	<b>1 Eurytomidae</b>
?Trichogrammatidae	0	0	1	<b>1</b>	0	0	9	<b>3</b>	
Other chalcoids	3	2	8	<b>13</b>	50	14	36	<b>33.33</b>	
Mymaridae 2 other species	0	2	<b>0</b>	<b>2</b>	0	14	<b>0</b>	<b>4.667</b>	
Mymarid brown, antenna even	1	2	<b>0</b>	<b>3</b>	25	29	<b>0</b>	<b>18</b>	
Mymarid dark, antenna club	0	3	<b>0</b>	<b>3</b>	0	43	<b>0</b>	<b>14.33</b>	<b>8 Mymaridae</b>
<b>TOTAL</b>	<b>144</b>	<b>242</b>	<b>422</b>	<b>808</b>					
<b>at least 53 species</b>									
<b>Predators -terrestrial</b>									
<i>Anopterosis hilaris</i> wolf spider **	<b>0</b>	10	<b>73</b>	<b>83</b>	<b>0</b>	38	36	<b>24.67</b>	
? <i>Allotrichisina schauinlandi</i>	1	<b>7</b>	4	<b>12</b>	25	38	27	<b>30</b>	
Lycosidae immatures	0	100	0	<b>100</b>	0	25	0	<b>8.333</b>	
<i>Eriophora pustulosa</i> cob web spider	2	1	1	<b>4</b>	25	12.5	9	<b>15.5</b>	
Clubionid or Cambridgea spiders	<b>34</b>	6	26	<b>66</b>	<b>75</b>	38	27	<b>46.67</b>	
Dark grey Jumping spider	2	0	4	<b>6</b>	50	0	9	<b>19.67</b>	
Brownly jumping spider large & medium	4	1	3	<b>8</b>	50	12.5	9	<b>23.83</b>	
Large spider dark lines in legs	2	2	0	<b>4</b>	50	12.5	0	<b>20.83</b>	
<i>Tetragnatha</i> species	4	0	2	<b>6</b>	50	0	18	<b>22.67</b>	
? <i>Nanoneta</i> species	3	0	0	<b>3</b>	25	0	0	<b>8.333</b>	
Small, hind part spotted spider	3	0	3	<b>6</b>	50	0	18	<b>22.67</b>	
Blackish, legs two pale bands	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>	
Orangy-brown legs, front body	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>	
<b>Prey</b>									

## Appendix 2 Styx Mill reserve 2003/2004 insect survey

Plant hosts

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### SUMMARY

No of sites	Wood	Rush/sedge	Grass	TOTAL	Wood	Rush	Grass	Hab-itat	Family total
	land	wetland	land		land	sedge	land		
	four	six	eleven	0 %	%	%	average		
<b>Predators -terrestrial</b>									
Brown front,legs,hind part dark	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>	
Other spider sp 2	3	0	0	<b>3</b>	25	0	0	<b>8.333</b>	
?Therididae cobweb spider	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>	
Small, dark stripe on full body	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>	
Dark stripe front body	0	2	3	<b>5</b>	0	29	9	<b>12.67</b>	
Small greyish, pale legs	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>	
Large greyish, pale triangle @ front	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>	
Dark brown front, hind spotted	0	1	4	<b>5</b>	0	14	18	<b>10.67</b>	
Yellowy front,legs hind spotted	0	<b>10</b>	1	<b>11</b>	0	29	9	<b>12.67</b>	
Small dark, brown legs	0	2	<b>10</b>	<b>12</b>	0	29	18	<b>15.67</b>	
Dark front banded legs	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>	
<i>Dolomedes minor</i> Nursery web spider	0	0	1	<b>1</b>	0	0	18	<b>6</b>	
Dark brown spider **	0	0	9	<b>9</b>	0	0	27	<b>9</b>	
Evenly brown spider	0	0	2	<b>2</b>	0	0	9	<b>3</b>	
Others spiders and immatures **	11	18	33	<b>62</b>	75	71	55	<b>67</b>	<b>419</b>
<i>Nuncia sp</i> -Harvestmen	1	2	1	<b>4</b>	25	29	9	<b>21</b>	
<i>Parentia griseocollis</i>	5	5	<b>10</b>	<b>20</b>	50	43	18	<b>37</b>	? Midges/aphids
<i>Parentia mobile</i>	49	<b>71</b>	62	<b>182</b>	50	43	45	<b>46</b>	<b>202 Dolichopodidae</b>
<i>Melangyna novae-zelandiae</i>	3	1	1	<b>5</b>	25	0	9	<b>11.33</b>	Aphids.caterpillars
<i>Melanostoma faciatum</i>	2	<b>63</b>	2	<b>67</b>	25	14	18	<b>19</b>	<b>71 Syrphidae</b>
<i>Saropogon</i> -robber fly	1	1	1	<b>3</b>	25	14	9	<b>16</b>	<b>3</b> soil prey
<i>Anabarynchus</i> sp stilleto fly	0	0	1	<b>1</b>	0	0	9	<b>3</b>	<b>1</b> soil prey
<i>Maorina palpalis</i>	1	0	0	<b>1</b>	25	0	0	<b>8.333</b>	<b>1</b>
Muscidae small	0	0	2	<b>2</b>	0	0	18	<b>6</b>	
<i>Ancistocerus gazella</i> wasp A	0	1	1	<b>2</b>	0	14	9	<b>7.667</b>	<b>4</b> caterpillars
<i>Priocnemis</i> - small black spider hunter	3	1	2	<b>6</b>	50	14	9	<b>24.33</b>	spiders
<i>Epipompilus insularis</i>	<b>13</b>	0	0	<b>13</b>	25	0	0	<b>8.333</b>	spiders
<i>Sphictostethus fugax</i>	<b>1</b>	0	0	<b>1</b>	25	0	0	<b>8.333</b>	<b>20 Pompilidae</b>
<i>Monomorium antarcticum</i> common ant	0	4	0	<b>4</b>	0	14	0	<b>4.667</b>	<b>Formicidae</b>
<i>Vespula vulgaris</i> A yellow jacket wasp	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>	omnivore
<i>Empiricoris</i> sp Reduviidae	2	1	0	<b>3</b>	50	14	0	<b>21.33</b>	
<i>Nabis</i> damsel bug	0	0	<b>11</b>	<b>11</b>	0	0	36	<b>12</b>	
<i>Micromus tasmaniae</i> - brown lacewing	1	3	3	<b>7</b>	25	0	27	<b>17.33</b>	Aphids
<i>Cryptosceneae australiensis</i> A	2	0	0	<b>2</b>	25	0	0	<b>8.333</b>	
<i>Forficula auricularia</i> - earwig A **	3	0	<b>19</b>	<b>22</b>	50	0	27	<b>25.67</b>	Aphids, etc
<b>Carabidae -ground beetles</b>	4	0	3	<b>7</b>	25	0	9	<b>11.33</b>	
<i>Coccinella undecimpunctata</i> A **	2	0	4	<b>6</b>	25	0	27	<b>17.33</b>	Aphids mainly
Ladybird larvae	0	0	1	<b>1</b>	0	0	9	<b>3</b>	
<b>Rove beetles **</b>	2	0	<b>22</b>	<b>24</b>	50	0	36	<b>28.67</b>	
Cleridae beetle	0	0	1	<b>1</b>	0	0	9	<b>3</b>	
<b>Centipede</b>	0	0	2	<b>2</b>	0	0	18	<b>6</b>	
<i>Aelothrips</i>	0	1	0	<b>1</b>	0	14	0	<b>4.667</b>	
<b>TOTAL</b>	<b>168</b>	<b>318</b>	<b>328</b>	<b>814</b>					