

# Non-marine invertebrates of the St. Matthew Islands, Bering Sea, Alaska

by Derek S. Sikes<sup>1</sup>, Dan Bogan<sup>2</sup>, Casey Bickford<sup>3</sup>, Jozef Slowik<sup>1</sup>, and Steve Peek<sup>1</sup>

## Abstract

Macroinvertebrates were sampled on St. Matthew and Hall Islands between 31 July–6 Aug 2012. Freshwater invertebrates were processed at the Alaska Center for Conservation Science Aquatic Lab and approximately 4,986 terrestrial invertebrates were processed and curated into the University of Alaska Museum Insect Collection. Although focused on non-marine arthropods, all non-marine invertebrates were also targeted. A list of identifications is provided although some identifications remain coarse. Additionally, all known prior records based on publications or specimens with online data are summarized. Thirty-four specimens of 21 species from this expedition were DNA barcoded (<http://arctos.database.museum/saved/St-Matthew-DNA-barcoded>).



Figure 1: Map of St. Matthew and Hall Islands showing collection sites of terrestrial invertebrates.

<sup>1</sup>University of Alaska Museum, Fairbanks, Alaska, 99775-6960, USA

<sup>2</sup>Alaska Center for Conservation Science, Anchorage, Alaska, 99508, USA

<sup>3</sup>4661 Pine Ave NE, Bremerton, Washington, 98310, USA

## Introduction

St. Matthew, Pinnacle, and Hall Islands comprise the St. Matthew Islands in the Bering Sea, Alaska. These uninhabited and remote islands are home to around a million colonial- and ground-nesting birds and were once high elevation points, of volcanic origin, on the Bering Land Bridge which connected Asia to North America (Klein and Kleinleder, 2015; Guthrie, 2004). The land bridge flooded due to rising sea levels and isolated these points as islands between 9,000 and 11,000 years ago (Guthrie, 2004). The largest island, St. Matthew, is about 52 km long (Figure 1) with high points reaching 459 m.

Little prior documentation of the invertebrate fauna of these islands exists. Although the Harriman Expedition landed on St. Matthew and Hall Islands for several hours on July 14 and 15, 1899, their reporting on these islands was restricted to geology. Apparently no invertebrates were collected. Rausch and Rausch (1968), who focused on studying the vole endemic to the islands, listed 18 invertebrate species names and mentioned that more than 70 insect species had been identified from material they collected. However, the identities of these 70+ species has never been published.

The St. Matthew islands have two known vertebrate endemic species, McKay's bunting (*Plectrophenax hyperboreus* Ridgway, 1884) and a singing vole (*Microtus abbreviatus* Miller, 1899), yet, to date, no known invertebrate species endemic to these islands have been described. This is not surprising given the paucity of prior research on the invertebrate fauna of these islands. With the support of the United States Fish and Wildlife Service the first two authors were invited on an expedition to these islands in 2012 as part of a multidisciplinary research team (Romano et al., 2013). We take this opportunity to present our findings to date. We hope that by making this list of invertebrates available in its current, still incomplete form, we will attract the attention of specialists who would like to borrow and study the as-yet unidentified material.

## Methods

### Sites

Collection effort was concentrated on the north end of the island between Bull Seal Point on the NE coast and a small lake on the NW coast. The island is approximately three miles wide between these sites (e.g. 60.56504°N, 172.95976°W ± 2 km). Additional collection areas included two on the south end of the island (60.38036°N, 172.50139°W; 60.37816°N, 172.38133°W) and one on Hall Island (60.67879°N, 173.06880°W). Freshwater invertebrates were sampled from nine different sites, including streams,

ponds, and wetlands. Sampling was concentrated in two major areas of the island: 1) the area around North Lake, on the northern end of the island, including ponds and streams near the field camp; and 2) the area around Big Lake, on the southern end of the island (Figure 1).

## Habitats

(1) Littoral-beach drift and vegetation, rock outcrops (0–15 m elevation) (2) interior sedge-marsh lowland (10–60 m elevation) with willow hummocks, (3) interior upland (60–150 m elevation) meadows and streams. The interior sedge-marsh lowland vascular vegetation was primarily composed of *Calamagrostis*, *Carex*, *Empetrum*, *Equisetum*, *Eriophorum*, *Luzula*, *Poa*, *Polemonium*, *Potentilla*, *Rhodiola*, *Rubus*, *Rumex*, *Salix*, and *Saxifraga*. Lakes, ponds, (some brackish), and streams were sampled for fresh water invertebrates.



Figure 2: Malaise-Flight Intercept Trap hybrid near the NW coast of St. Matthew.

## Collection Methods

Terrestrial collection methods included sweep net, aspirator, forceps, pitfall traps, flight intercept trap (FIT)-Malaise trap hybrids (Figure 2), colored (pollinator) traps, and Winkler extractors. A transect of 33 pitfall traps with two pollinator traps at each was set, spacing traps 100 m apart through the interior sedge-marsh lowland from the NE coast to the NW coast. A Malaise / FIT trap was set at either end of the transect with a third Malaise / FIT trap set in the middle. A grid of 15 large yellow pollinator bowls was set around the NW coast Malaise / FIT trap.

Freshwater aquatic invertebrates were collected primarily by Anthony DeGange and Steve Delehanty with a 500 µm mesh d-frame dip net at four lentic and five lotic sites. Samples at the lentic sites were collected by sweeping the net through targeted littoral habitats. Lotic samples were collected by disturbing approximately two square feet

of benthic substrate for approximately two minutes and allowing dislodged organisms to collect in net downstream. Five locations representing a range of available habitat were sampled at each site. Samples at each of the nine sites were composited and stored in approximately 70% ethanol.

## Lab Methods

Terrestrial invertebrate samples were processed in the preparation lab at the University of Alaska Museum. All samples were sorted and had their specimens either mounted on pins or stored in 70% ethanol vials. All pinned specimens and vials were databased. Most specimens have been identified to order or lower, although many taxa have yet to be identified.

Aquatic macroinvertebrate samples were subsampled in the lab to obtain a fixed count of  $300 \pm 20\%$  organisms. Chironomids were grouped by morphotaxa and a subset of each morphotaxa was slide-mounted for microscopic examination. Representatives of each encountered (non-chironomid) taxa were placed in vials containing 70% ethanol and are maintained as a reference collection for this project.

## Results and Discussion

Our work, combined with previous efforts, documents seventy-eight species of invertebrates identified to the species level within a total of 258 unique taxon-identifications. Table 1 shows the number of specimens of each identification from this expedition identified, and by whom, to date, including identifications from the collection efforts of Rausch and Rausch (1968).

The terrestrial portions of littoral habitats were the most thoroughly sampled, the interior lowlands were the second most thoroughly sampled, and the interior upland meadows were the least well sampled. Figure 1 shows the sites sampled for terrestrial invertebrates.

A number of littoral, beach- and driftwood-associated taxa that are relatively common on the Pribilofs and the Aleutians were, surprisingly, not found on St. Matthew. These include cybaeid spiders, bristletails, pseudoscorpions, centipedes, and the beetle taxa *Nebria metallica*, *Aegialites*, and *Hypolithus littoralis*. Bumblebees, *Bombus polaris*, were active on the warmest day.

There are two common species of weevil in Alaska in the genus *Lepidophorus*: *Lepidophorus lineaticollis* Kirby, 1837, which is found primarily in interior Alaska; and *Lepidophorus inquinatus* (Mannerheim, 1852), which is found primarily along the coast and the Aleutian chain, including the Pribilofs. Both species are well represented in UAM by hundreds of specimens. Despite being an island that receives ample driftwood, the presumed mode of transport for *L.*

*inquinatus*, no *L. inquinatus* were found on St. Matthew. Instead we found a population that keyed to *L. lineaticollis*. We successfully DNA barcoded one of these specimens <http://arctos.database.museum/guid/UAM:Ento:242826> (DNA barcode: [http://bins.boldsystems.org/index.php/Public\\_RecordView?processid=UAMIC1851-14](http://bins.boldsystems.org/index.php/Public_RecordView?processid=UAMIC1851-14)) which was found to be 3.76% divergent in its COI sequence from other samples of *L. lineaticollis* and fell into a separate BIN (analogous to species, Ratnasingham and Hebert, 2013). Unfortunately, BOLD has only two partial (based on UAM specimens), but no complete, records of *L. inquinatus*, so the genetic similarity of the St. Matthew population to *L. inquinatus* cannot yet be determined.

The beetle fauna includes some Holarctic species such as *Simplocaria metallica* (Sturm, 1807), *Amara alpina* Paykull, 1790, *Nebria nivalis* Paykull, 1798, and *Pterostichus brevicornis* (Kirby, 1837), while some are restricted to northwestern North America such as *Carabus truncaticollis* Eschscholtz, 1833, or span the boreal-tundra zone of North America such as *Notiophilus borealis* Harris, 1869, and *Pterostichus agonus* Horn, 1880. *Diacheila polita* (Faldermann, 1835) is almost circumpolar but in North America is restricted to the northwest. *Pterostichus empetricola* (Dejean, 1828) and *P. nivalis* (Sahlberg, 1844) are found in the northwest of North America, including the Aleutian chain, and the northeast of Asia (Siberia, Commander Isl.). Distributional information for the Carabidae was obtained from Lindroth (1961, 1963, 1966, 1968, 1969a,b).

Interestingly, the spider fauna was represented by only the family Linyphiidae. The usually ubiquitous cybaeid (Cybaeidae) and wolf spider (Lycosidae) ground fauna found elsewhere along Alaska's mainland, coasts, and islands were missing. The largest arachnid on these islands was the opilionid *Liopilio yukon* Cokendolpher, 1981. There were several species in which identifications were not possible—one large linyphiine close to the Asian genus *Mugiphantes*, and one erigonine species, (Erigoninae St. Matt 1) of uncertain generic placement but somewhere near *Lophomma*.

The St. Matthew spider fauna is dominated by Beringian and Holarctic species with several of the species, *Collinsia holmgreni* (Thorell, 1871), *Hilaira vexatrix* (O. Pickard-Cambridge, 1877), *Oreonetides vaginatus* (Thorell, 1872), and *Sisicottus nesides* (Chamberlin, 1921) being common within the Aleutian fauna.

Current data from UAM specimens, prior samples, and literature are available through the University of Alaska Museum online database Arctos at: <http://arctos.database.museum/saved/St.Matthew-arthropods> that URL will also find all databased samples from the 2012 expedition. Most Arctos records at that link include digital photographs of the collection sites. Additional photos of this expedition can be found at: <http://www.flickr.com/photos/alaskaent/sets/72157631509207664/>.

Table 1: Identifications of St. Matthew and Hall Island invertebrates from UAM specimens and literature records. All taxa with individual counts of zero are specimens currently in the Alaska Center for Conservation Science Aquatic Lab that have yet to be accessioned into UAM and counted. Records obtained from Rausch and Rausch (1968) are marked R&R. Records identified by C. H. Lindroth are from Lindroth (1961, 1963, 1966, 1968, 1969a,b), and based on specimens most of which are in the Canadian National Collection and that were presumably collected by Rausch and Rausch.

Order	Family	Scientific Name	Identified By	Count
Enchytraeida	Enchytraeidae	Enchytraeidae	Tarmo Timm	1
		Oligochaeta	Dan Bogan	0
Canalipalpata	Sabellidae	<i>Manayunkia</i> sp.	Dan Bogan	0
		Annelida	J. Williamson	90
Acari	Lebertiidae	<i>Lebertia</i> sp.	Dan Bogan	0
Acari	Pionidae	<i>Piona</i> sp.	Dan Bogan	0
Acari	Sperchoniidae	<i>Sperchon</i> sp.	Dan Bogan	0
Acari	Unionicolidae	<i>Huitfeldtia</i> sp.	Dan Bogan	0
Acari		Acari	Dan Bogan	0
Acari		Acari	D. S. Sikes	2
Acari		Acari	J. Williamson	533
Acari		Brachypylina	Dan Bogan	0
Acari		Macropyolina	Dan Bogan	0
Acari		Oribatida	Dan Bogan	0
Araneae	Linyphiidae	<i>Agyneta jacksoni</i>	J. A. Slowik	1
Araneae	Linyphiidae	<i>Bathyphantes eumenis</i>	J. A. Slowik	1
Araneae	Linyphiidae	<i>Bathyphantes pallidus</i>	H. Levi	R&R
Araneae	Linyphiidae	<i>Collinsia holmgreni</i>	J. A. Slowik	41
Araneae	Linyphiidae	<i>Erigone arctica</i>	H. Levi	R&R
Araneae	Linyphiidae	<i>Erigone arctica</i> <sup>4</sup>	A. Holm	2
Araneae	Linyphiidae	<i>Erigone arctica</i>	J. A. Slowik	34
Araneae	Linyphiidae	<i>Erigone arctophylacis</i>	J. A. Slowik	62
Araneae	Linyphiidae	<i>Erigone cristatopalpus</i>	J. A. Slowik	3
Araneae	Linyphiidae	<i>Erigone psychrophila</i>	J. A. Slowik	2
Araneae	Linyphiidae	<i>Erigone tirolensis</i>	J. A. Slowik	2
Araneae	Linyphiidae	<i>Erigoninae</i> St. Matt 1	J. A. Slowik	6
Araneae	Linyphiidae	<i>Hilaira vexatrix</i>	J. A. Slowik	29
Araneae	Linyphiidae	<i>Improphanes complicatus</i>	J. A. Slowik	13
Araneae	Linyphiidae	<i>Islandiana cristata</i>	J. A. Slowik	1
Araneae	Linyphiidae	<i>Islandiana falsifica</i>	J. A. Slowik	9
Araneae	Linyphiidae	Linyphiidae	J. A. Slowik	140
Araneae	Linyphiidae	<i>Mughiphantes whymperi</i> ?	J. A. Slowik	2
Araneae	Linyphiidae	<i>Oreoneta arctica</i>	J. A. Slowik	16
Araneae	Linyphiidae	<i>Oreonetides vaginatus</i>	J. A. Slowik	49
Araneae	Linyphiidae	<i>Porrhomma convexum</i>	J. A. Slowik	1
Araneae	Linyphiidae	<i>Sisicottus nesides</i>	J. A. Slowik	26
Araneae		Araneae	J. A. Slowik	2
Mesostigmata	Laelapidae	<i>Haemogamasus ambulans</i>	G. P. Holland	R&R
Mesostigmata	Laelapidae	<i>Laelaps kochi</i>	G. P. Holland	R&R
Opiliones	Phalangiidae	<i>Liopilio yukon</i>	Matt Bowser	10
Diplostraca	Chydoridae	<i>Eury cercus lamellatus</i>	M. S. Wilson	R&R
Harpacticoida	Canthocamptidae	<i>Paracamptus reggiae</i>	M. S. Wilson	R&R
		Ostracoda	Dan Bogan	0
Coleoptera	Byrrhidae	<i>Simplocaria metallica</i>	P. J. Johnson	2
		Continued on next page...		

<sup>4</sup><http://mczbase.mcz.harvard.edu/guid/MCZ:IZ:84407>

Order	Family	Scientific Name	Identified By	Count
Coleoptera	Carabidae	<i>Amara alpina</i>	C. H. Lindroth	1
Coleoptera	Carabidae	<i>Amara alpina</i>	D. S. Sikes	17
Coleoptera	Carabidae	<i>Amara alpina</i>	F. Hieke	1
Coleoptera	Carabidae	<i>Bembidion</i> sp.	D. S. Sikes	13
Coleoptera	Carabidae	<i>Carabus truncaticollis</i>	D. S. Sikes	1
Coleoptera	Carabidae	<i>Carabus truncaticollis</i>	G. Ball	1
Coleoptera	Carabidae	<i>Diacheila polita</i>	C. H. Lindroth	1
Coleoptera	Carabidae	<i>Diacheila polita</i>	D. S. Sikes	23
Coleoptera	Carabidae	<i>Nebria nivalis</i>	C. H. Lindroth	1
Coleoptera	Carabidae	<i>Nebria nivalis</i>	D. S. Sikes	203
Coleoptera	Carabidae	<i>Notiophilus borealis</i>	D. S. Sikes	8
Coleoptera	Carabidae	<i>Pterostichus (Cryobius)</i> sp.	D. S. Sikes	2
Coleoptera	Carabidae	<i>Pterostichus agonus</i>	D. S. Sikes	4
Coleoptera	Carabidae	<i>Pterostichus brevicornis</i>	C. H. Lindroth	1
Coleoptera	Carabidae	<i>Pterostichus brevicornis</i>	G. Ball	1
Coleoptera	Carabidae	<i>Pterostichus brevicornis</i> ?	D. S. Sikes	25
Coleoptera	Carabidae	<i>Pterostichus empetricola</i>	D. S. Sikes	55
Coleoptera	Carabidae	<i>Pterostichus empetricola</i> ?	D. S. Sikes	14
Coleoptera	Carabidae	<i>Pterostichus nivalis</i>	G. Ball	1
Coleoptera	Carabidae	<i>Pterostichus nivalis</i> ?	D. S. Sikes	6
Coleoptera	Carabidae	<i>Pterostichus parasimilis</i>	C. H. Lindroth	1
Coleoptera	Carabidae	<i>Pterostichus pinguedineus</i>	G. Ball	1
Coleoptera	Carabidae	<i>Pterostichus pinguedineus</i>	C. H. Lindroth	1
Coleoptera	Carabidae	<i>Pterostichus similis</i>	C. H. Lindroth	1
Coleoptera	Carabidae	<i>Pterostichus ventricosus</i>	C. H. Lindroth	1
Coleoptera	Carabidae	<i>Pterostichus ventricosus</i>	D. S. Sikes	18
Coleoptera	Carabidae	<i>Pterostichus ventricosus</i>	G. Ball	1
Coleoptera	Curculionidae	<i>Lepidophorus lineaticollis</i>	D. S. Sikes	4
Coleoptera	Curculionidae	<i>Sthereus ptinoides</i>	D. S. Sikes	25
Coleoptera	Dytiscidae	<i>Agabus</i> sp.	Dan Bogan	0
Coleoptera	Dytiscidae	<i>Liodesmus</i> sp.	Dan Bogan	0
Coleoptera	Dytiscidae	<i>Sanfilippodytes</i> sp.	Dan Bogan	0
Coleoptera	Hydrophilidae	<i>Helophorus</i> sp.	Dan Bogan	0
Coleoptera	Scarabaeidae	<i>Agoliinus</i> sp.	D. S. Sikes	1
Coleoptera	Staphylinidae	Aleocharinae	D. S. Sikes	1
Coleoptera	Staphylinidae	<i>Atheta (Dimetrota)</i> sp.	J. Klimaszewski	4
Coleoptera	Staphylinidae	<i>Atheta terranova</i> ?	J. Klimaszewski	1
Coleoptera	Staphylinidae	<i>Boreostiba frigida</i>	J. Klimaszewski	1
Coleoptera	Staphylinidae	<i>Eucnecosum brachypterum</i>	M. Thayer	76
Coleoptera	Staphylinidae	<i>Eucnecosum brunnescens</i>	M. Thayer	13
Coleoptera	Staphylinidae	<i>Lathrobium</i> sp.	D. S. Sikes	1
Coleoptera	Staphylinidae	<i>Micralymma brevilingue</i> <sup>5</sup>	M. Thayer	5
Coleoptera	Staphylinidae	<i>Olophrum consimile</i>	M. Thayer	5
Coleoptera	Staphylinidae	<i>Olophrum latum</i>	M. Thayer	4
Coleoptera	Staphylinidae	<i>Olophrum rotundicolle</i>	M. Thayer	15
Coleoptera	Staphylinidae	Staphylinidae	D. S. Sikes	1
Coleoptera	Staphylinidae	<i>Tachinus apterus</i>	A. Newton	2
Coleoptera	Staphylinidae	<i>Tachinus apterus</i>	D. S. Sikes	65
Coleoptera		Coleoptera	J. Williamson	1

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<sup>5</sup>May refer to *Micralymma dicksoni* (Mäklin, 1881) based on DNA barcode results (Sikes et al., in press)

Order	Family	Scientific Name	Identified By	Count
Collembola	Sminthuridae	<i>Sminthuridae</i>	Dan Bogan	0
Collembola		<i>Collembola</i>	Dan Bogan	0
Collembola		<i>Collembola</i>	J. Williamson	1188
Diptera	Anthomyiidae	<i>Anthomyiidae</i>	S. Peek	194
Diptera	Anthomyiidae	<i>Anthomyiidae</i> ?	J. Williamson	59
Diptera	Anthomyiidae	<i>Botanophila rubrigena</i>	S. Peek	23
Diptera	Anthomyiidae	<i>Botanophila</i> sp.	S. Peek	14
Diptera	Anthomyiidae	<i>Delia pilifemur</i>	S. Peek	1
Diptera	Anthomyiidae	<i>Delia</i> sp.	S. Peek	42
Diptera	Anthomyiidae	<i>Fucellia</i> sp.	S. Peek	2
Diptera	Bibionidae	<i>Bibio</i> sp.	S. Peek	1
Diptera	Calliphoridae	<i>Calliphoridae</i> ?	J. Williamson	3
Diptera	Calliphoridae	<i>Cynomya cadaverina</i>	unknown	R&R
Diptera	Calliphoridae	<i>Cynomya mortuorum</i>	S. Peek	43
Diptera	Calliphoridae	<i>Cynomya mortuorum</i>	unknown	R&R
Diptera	Ceratopogonidae	<i>Ceratopogonidae</i>	J. Williamson	7
Diptera	Ceratopogonidae	<i>Ceratopogonidae</i> ?	J. Williamson	5
Diptera	Chironomidae	<i>Nanocladius (Plecotoperacoluthus)</i> sp.	Dan Bogan	0
Diptera	Chironomidae	<i>Acritopus</i> sp.	Dan Bogan	0
Diptera	Chironomidae	<i>Chaetocladius dentiforceps</i> group	Dan Bogan	0
Diptera	Chironomidae	<i>Chaetocladius</i> sp.?	Dan Bogan	0
Diptera	Chironomidae	<i>Chironomidae</i>	J. Williamson	5
Diptera	Chironomidae	<i>Chironomidae</i>	S. Peek	46
Diptera	Chironomidae	<i>Chironomidae</i> ?	J. Williamson	3
Diptera	Chironomidae	<i>Chironominae</i>	Dan Bogan	0
Diptera	Chironomidae	<i>Chironomus</i> sp.	Dan Bogan	0
Diptera	Chironomidae	<i>Constempellina</i> sp.	Dan Bogan	0
Diptera	Chironomidae	<i>Corynoneura lobata</i>	Dan Bogan	0
Diptera	Chironomidae	<i>Corynoneura scutellata</i>	Dan Bogan	0
Diptera	Chironomidae	<i>Cricotopus (Isocladius)</i> sp.	Dan Bogan	0
Diptera	Chironomidae	<i>Cricotopus</i> or <i>Orthocladius</i>	Dan Bogan	0
Diptera	Chironomidae	<i>Cricotopus</i> sp.	Dan Bogan	0
Diptera	Chironomidae	<i>Cricotopus tremulus</i> group	Dan Bogan	0
Diptera	Chironomidae	<i>Cryptochironomus stylifera</i>	Dan Bogan	0
Diptera	Chironomidae	<i>Diamesa</i> sp.	Dan Bogan	0
Diptera	Chironomidae	<i>Eukiefferiella brehmi</i> group	Dan Bogan	0
Diptera	Chironomidae	<i>Eukiefferiella claripennis</i> group	Dan Bogan	0
Diptera	Chironomidae	<i>Eukiefferiella coerulescens</i> group	Dan Bogan	0
Diptera	Chironomidae	<i>Eukiefferiella gracei</i> group	Dan Bogan	0
Diptera	Chironomidae	<i>Heterotrissocladius maeaeri</i> group	Dan Bogan	0
Diptera	Chironomidae	<i>Hydrobaenus conformis</i> group	Dan Bogan	0
Diptera	Chironomidae	<i>Hydrobaenus lapponicus</i> group	Dan Bogan	0
Diptera	Chironomidae	<i>Hydrobaenus</i> sp.	Dan Bogan	0
Diptera	Chironomidae	<i>Metriocnemus eurynotes</i> group	Dan Bogan	0
Diptera	Chironomidae	<i>Metriocnemus fuscipes</i> group	Dan Bogan	0
Diptera	Chironomidae	<i>Micropsectra</i> sp.	Dan Bogan	0
Diptera	Chironomidae	<i>Oliveridia</i> sp.	Dan Bogan	0
Diptera	Chironomidae	<i>Orthocladiinae</i>	Dan Bogan	0
Diptera	Chironomidae	<i>Orthocladiinae</i> genus "Greenland"	Dan Bogan	0
Diptera	Chironomidae	<i>Orthocladius (Eudactylocladius)</i> sp. 1	Dan Bogan	0
Diptera	Chironomidae	<i>Orthocladius (Eudactylocladius)</i> sp. 2	Dan Bogan	0
Diptera	Chironomidae	<i>Orthocladius (Euorthocladius)</i> sp. 1	Dan Bogan	0

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Order	Family	Scientific Name	Identified By	Count
Diptera	Chironomidae	<i>O. (Mesorthocladius) cf. frigidus</i>	Dan Bogan	0
Diptera	Chironomidae	<i>Orthocladius (Mesorthocladius) sp. 1</i>	Dan Bogan	0
Diptera	Chironomidae	<i>Orthocladius (Orthocladius) cf. doreanus</i>	Dan Bogan	0
Diptera	Chironomidae	<i>O. (Orthocladius) cf. obumbratus</i>	Dan Bogan	0
Diptera	Chironomidae	<i>O. (Orthocladius) cf. rubicundus</i>	Dan Bogan	0
Diptera	Chironomidae	<i>Orthocladius (Orthocladius) sp. 1</i>	Dan Bogan	0
Diptera	Chironomidae	<i>Orthocladius (Pogonocladius) sp. 1</i>	Dan Bogan	0
Diptera	Chironomidae	<i>Paratanytarsus</i> sp.	Dan Bogan	0
Diptera	Chironomidae	<i>Psectrocladius limbatus</i> group	Dan Bogan	0
Diptera	Chironomidae	<i>Psectrocladius psilopterus</i> group	Dan Bogan	0
Diptera	Chironomidae	<i>Psectrocladius sordidellus</i> group	Dan Bogan	0
Diptera	Chironomidae	<i>Psectrocladius</i> sp.	Dan Bogan	0
Diptera	Chironomidae	<i>Pseudokiefferiella</i> sp.	Dan Bogan	0
Diptera	Chironomidae	<i>Pseudosmittia</i> sp.	Dan Bogan	0
Diptera	Chironomidae	<i>Psilometriocnemus</i> sp.	Dan Bogan	0
Diptera	Chironomidae	<i>Smittia</i> sp.	Dan Bogan	0
Diptera	Chironomidae	<i>Thienemanniella</i> sp.	Dan Bogan	0
Diptera	Chironomidae	<i>Tvetenia</i> sp.	Dan Bogan	0
Diptera	Coelopidae	<i>Coelopa</i> sp.	S. Peek	16
Diptera	Dolichopodidae	<i>Chrysotus</i> sp.	S. Peek	4
Diptera	Empididae	<i>Clinocera</i> sp.	Dan Bogan	0
Diptera	Empididae	<i>Empididae</i>	J. Williamson	3
Diptera	Empididae	<i>Empis</i> sp.	S. Peek	21
Diptera	Empididae	<i>Heleodromia</i> sp.	S. Peek	1
Diptera	Empididae	<i>Rhamphomyia</i> sp.	S. Peek	36
Diptera	Ephydriidae	<i>Ephydriidae</i> ?	J. Williamson	16
Diptera	Fanniidae	<i>Fannia</i> sp.	S. Peek	6
Diptera	Heleomyzidae	<i>Aecothea</i> sp.	S. Peek	5
Diptera	Heleomyzidae	<i>Neoleria</i> sp.	S. Peek	1
Diptera	Muscidae	<i>Muscidae</i>	S. Peek	2
Diptera	Muscidae	<i>Muscidae</i> ?	J. Williamson	18
Diptera	Muscidae	<i>Phaonia bidentata</i>	S. Peek	1
Diptera	Muscidae	<i>Phaonia consobrina</i>	S. Peek	85
Diptera	Muscidae	<i>Phaonia</i> sp.	S. Peek	38
Diptera	Muscidae	<i>Spilogona</i> sp.	S. Peek	60
Diptera	Mycetophilidae	<i>Boletina borealis</i>	J. Salmela	1
Diptera	Mycetophilidae	<i>Boletina</i> sp.	S. Peek	1
Diptera	Mycetophilidae	<i>Coelosia</i> sp.	S. Peek	3
Diptera	Mycetophilidae	<i>Mycetophila</i> sp.	S. Peek	9
Diptera	Mycetophilidae	<i>Mycetophilidae</i>	J. Williamson	1
Diptera	Mycetophilidae	<i>Mycetophilidae</i>	S. Peek	11
Diptera	Mycetophilidae	<i>Mycetophilidae</i> ?	J. Williamson	69
Diptera	Phoridae	<i>Megaselia</i> sp.	S. Peek	4
Diptera	Phoridae	<i>Phoridae</i>	S. Peek	30
Diptera	Piophilidae	<i>Parapiophila</i> sp.	S. Peek	1
Diptera	Piophilidae	<i>Piophilidae</i> ?	J. Williamson	2
Diptera	Rhagionidae	<i>Chrysopilus</i> sp.	S. Peek	10
Diptera	Scathophagidae	<i>Gimnomera</i> sp.	S. Peek	1
Diptera	Scathophagidae	<i>Microprosopa pallidicauda</i>	S. Peek	3
Diptera	Scathophagidae	<i>Microprosopa</i> sp.	S. Peek	10
Diptera	Scathophagidae	<i>Scathophaga</i> sp.	unknown	R&R
Diptera	Scathophagidae	<i>Scathophaga</i> sp.	S. Peek	495

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Order	Family	Scientific Name	Identified By	Count
Diptera	Scathophagidae	Scathophagidae ?	J. Williamson	10
Diptera	Sciaridae	<i>Lycoriella</i> sp.	S. Peek	5
Diptera	Sciaridae	Sciaridae	J. Williamson	8
Diptera	Sciaridae	Sciaridae	S. Peek	51
Diptera	Sciaridae	Sciaridae ?	J. Williamson	65
Diptera	Simuliidae	<i>Prosimulum</i> sp.	Dan Bogan	0
Diptera	Simuliidae	<i>Prosimulum ursinum</i>	unknown	R&R
Diptera	Simuliidae	Simuliidae	Dan Bogan	0
Diptera	Simuliidae	<i>Simulium</i> sp.	Dan Bogan	0
Diptera	Sphaeroceridae	<i>Copromyza</i> sp.	S. Peek	2
Diptera	Sphaeroceridae	Sphaeroceridae	S. Peek	30
Diptera	Sphaeroceridae	Sphaeroceridae ?	J. Williamson	1
Diptera	Syrphidae	<i>Helophilus</i> sp.	S. Peek	1
Diptera	Tipulidae	<i>Dicranota</i> sp.	Dan Bogan	0
Diptera	Tipulidae	Limoniinae	S. Peek	1
Diptera	Tipulidae	<i>Ormosia</i> sp.	Dan Bogan	0
Diptera	Tipulidae	<i>Tipula</i> sp.	Dan Bogan	0
Diptera	Tipulidae	<i>Tipula</i> sp.	S. Peek	12
Diptera	Tipulidae	Tipulidae	Dan Bogan	0
Diptera	Trichoceridae	Trichoceridae ?	J. Williamson	2
Diptera		Diptera	C. Coon	10
Diptera		Diptera	J. Williamson	81
Diptera		Diptera	S. Peek	1
Hemiptera	Aphididae	Aphididae	J. Williamson	10
Hemiptera	Saldidae	<i>Chiloxanthus stellatus</i>	D. S. Sikes	2
Hemiptera		Heteroptera	D. S. Sikes	1
Hymenoptera	Apidae	<i>Bombus polaris</i>	P. H. Williams	11
Hymenoptera	Apidae	<i>Bombus polaris</i>	unknown	1
Hymenoptera	Ichneumonidae	Ichneumonidae	D. S. Sikes	2
Hymenoptera		Apocrita	D. S. Sikes	24
Hymenoptera		Apocrita	J. Williamson	9
Hymenoptera	Cynipoidea	Cynipoidea	D. S. Sikes	1
Hymenoptera		Hymenoptera	D. S. Sikes	91
Hymenoptera		Hymenoptera	J. Williamson	20
Hymenoptera		Hymenoptera	S. Peek	6
Hymenoptera		Sympyta	D. S. Sikes	1
Hymenoptera		Sympyta	J. Williamson	21
Lepidoptera	Erebidae	<i>Pararctia subnebulosa</i>	K. W. Philip	1
Lepidoptera	Noctuidae	<i>Xestia alaskae</i>	C. D. Ferris	2
Lepidoptera		Lepidoptera	D. S. Sikes	4
Lepidoptera		Lepidoptera	J. Williamson	14
Plecoptera	Capniidae	<i>Capnia</i> sp.	Dan Bogan	0
Plecoptera	Capniidae	Capniidae	Dan Bogan	0
Plecoptera	Nemouridae	<i>Nemoura arctica</i>	K. Stewart	2
Plecoptera	Nemouridae	<i>Nemoura arctica</i> ?	D. S. Sikes	43
Plecoptera	Nemouridae	<i>Nemoura</i> sp.	Dan Bogan	0
Plecoptera	Nemouridae	<i>Nemoura</i> sp.	K. Stewart	1
Plecoptera	Nemouridae	Nemouridae	Dan Bogan	0
Plecoptera	Nemouridae	Nemouridae sp1	Dan Bogan	0
Plecoptera	Nemouridae	<i>Podmosta</i> sp.	Dan Bogan	0
Plecoptera		Plecoptera	D. S. Sikes	30
Plecoptera		Plecoptera	J. Williamson	1

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Order	Family	Scientific Name	Identified By	Count
Siphonaptera	Ceratophyllidae	<i>Amalaraeus penicilliger</i>	G. P. Holland	R&R
Siphonaptera	Ceratophyllidae	<i>Megabothris groenlandicus</i>	G. P. Holland	R&R
Trichoptera	Apataniidae	<i>Apatania</i> sp.	Dan Bogan	0
Trichoptera	Brachycentridae	<i>Brachycentrus</i> sp.	Dan Bogan	0
Trichoptera	Brachycentridae	<i>Micrasema scissum</i>	Dan Bogan	0
Trichoptera	Lepidostomatidae	<i>Lepidostoma</i> sp.	H. H. Ross	R&R
Trichoptera	Limnephilidae	<i>Dicosmoecus</i> sp.	Dan Bogan	0
Trichoptera	Limnephilidae	<i>Glyphopsyche</i> sp.	H. H. Ross	R&R
Trichoptera	Limnephilidae	<i>Grensia</i> sp.	H. H. Ross	R&R
Trichoptera	Limnephilidae	<i>Grensia praeterita</i>	unknown	1
Trichoptera	Limnephilidae	<i>Grensia</i> sp.	Dan Bogan	0
Trichoptera	Limnephilidae	<i>Limnephilidae</i>	Dan Bogan	0
Trichoptera	Limnephilidae	<i>Limnephilidae</i> sp1	Dan Bogan	0
Trichoptera	Limnephilidae	<i>Limnephilus</i>	H. H. Ross	R&R
Trichoptera	Limnephilidae	<i>Limnophilus picturatus</i>	unknown	1
Trichoptera		Trichoptera	C. Coon	1
Trichoptera		Insecta	J. Williamson	2
		Insecta	A. Haberski	3
		Insecta	J. Williamson	121
Amphipoda	Crangonyctidae	<i>Crangonyx</i> sp.	Dan Bogan	0
Isopoda	Chaetiliidae	<i>Saduria entomon</i>	M. S. Wilson	R&R
Isopoda	Chaetiliidae	<i>Saduria</i> sp.	D. S. Sikes	1
Calanoida	Diaptomidae	<i>Diaptomus pribilofensis</i>	M. S. Wilson	R&R
Calanoida	Temoridae	<i>Eurytemora gracilicauda</i>	M. S. Wilson	R&R
Cyclopoida	Cyclopidae	<i>Cyclops kolensis</i>	M. S. Wilson	R&R
		Copepoda	Dan Bogan	0
Podocopida	Candonidae	<i>Candonia subgibba</i>	M. S. Wilson	R&R
Anthoathecata	Hydridae	<i>Hydra</i>	unknown	R&R
Veneroida	Sphaeriidae	<i>Pisidium lilljeborgi</i>	unknown	R&R
Veneroida	Sphaeriidae	<i>Sphaeriidae</i>	Dan Bogan	0
Basommatophora	Planorbidae	<i>Gyraulus deflectus</i>	unknown	R&R
Basommatophora	Planorbidae	<i>Gyraulus parvus</i>	Dan Bogan	0
Basommatophora	Planorbidae	Planorbidae	Dan Bogan	0
Heterostropha	Valvatidae	<i>Valvata</i> sp.	Dan Bogan	0
Stylommatophora	Succineidae	<i>Succinea strigata</i>	unknown	R&R
		Gastropoda	J. Williamson	18
		Mollusca	J. Williamson	1
		Nematoda	Dan Bogan	0
Neorhabdocoela	Typhloplanidae	<i>Mesostoma platygastricum</i>	unknown	R&R
		Animalia	J. Williamson	1

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