

Rapid ecological assessment of arthropod diversity

Kenai National Wildlife Refuge

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Matthew Bowser¹

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Introduction

Purpose

The Long Term Ecological Monitoring Program of the Kenai National Wildlife Refuge (KENWR or the Refuge), initiated in 2004-2006, systematically sampled diverse taxa (vascular plants, birds, non-vascular plants, lichens, and terrestrial arthropods) over 800,000 ha of boreal landscape with the aim of monitoring biodiversity and species' distributions (Morton et al. 2009). Morphological identification methods limited the number of arthropod specimens and species that could be feasibly monitored (Bowser and Morton 2009).

Beginning in 2012, we plan to employ next-generation DNA barcoding technology (Valentini et al. 2009, Hajibabaei et al. 2011) as an identification tool for bulked arthropod samples for the purposes of monitoring. This requires the establishment of a library of DNA barcodes obtained from identified specimens. Our goals for the current project are (1) to expand the species inventory of the terrestrial and freshwater arthropods of the KENWR and (2) to build a corresponding library of DNA barcodes for these species.

Status of KENWR inventory and DNA barcode library

Currently, 1,582 species are known from KENWR, of which 384 are arthropods² (Table 1). Of these, 208 are currently represented by specimens in the arthropod collection of the KENWR (coden: KNWR) and DNA barcodes have been obtained for 59 of these species (Table 5). A total of 135 DNA barcode sequences have been obtained for KNWR specimens (Table 6), but some of these have not yet been added to the KENWR arthropod checklist due to some uncertainty of determinations or the use of provisional species names. Of the 135 sequences, 83 are Diptera, 51 are Lepidoptera, and one is Hemiptera. In addition, 10 DNA barcodes were obtained for Lepidoptera specimens from the private

¹ Kenai National Wildlife Refuge, Matt.Bowser@fws.gov

² Note that these numbers include only species with valid species names. For example, specimens with provisional names (e.g., *Sminthurus* sp. A *sensu* Christiansen and Bellinger (1998)) and identifications only to genera are not included in these counts.

collection of Dominique Collet (Sterling, Alaska). Twenty-two specimens of Formicidae representing all six ant species currently known from the Refuge were recently mailed to Alex Smith (Biodiversity Institute of Ontario) for DNA barcoding.

Table 1. Breakdown of species known from KENWR.

Category	Number of Species
Vascular plants	480
Other plants	173
Lichens	320
Fungi	14
Mammals	31
Birds	154
Amphibians	1
Fish	20
Arthropods	384
Molluscs	2
Other animals	3
Total	1582

Methods

Field methods

We will use the rapid ecological assessment approach (*sensu* Sayre et al. 1999), in which field methods will be optimized to collect as many species as possible in a short time. Over the course of one week, participants will sample all major habitat types using diverse sampling methods, including but not limited to malaise traps, sweep nets, pitfall traps, UV light traps, pan traps, Berlese funnels, aquatic nets, and sampling by hand.

In order to sample as many habitats as possible, collectors may split into multiple parties to visit disparate regions of the Refuge, but see safety requirements below. The number of sites visited by each party per day has been deliberately limited to provide time for specimen processing at the end of the day. Additional KNWR staff members may be available to help with specimen processing in the evenings.

Participants (Table 2) will be required to keep field notebooks, which must be scanned, photocopied, or photographed frequently. All specimens must be labeled in the field with at least the location (including GPS coordinates in decimal degrees, WGS84 datum), date, and collector. Bulk samples (i.e., vials and Whirl-Pak® bags) will be labeled as they are collected. Field-pinning will be encouraged, with one label

per series made when specimens are field-pinned. Folding paper boxes will be available for field-pinning.

Table 2. Participants in Field Sampling

Participant	Group(s)
Dan Bogan	Aquatics
Matt Bowser	Arthropoda
Jim Kruse	Lepidoptera
Derek Sikes	Coleoptera
David Wartinbee	Chironomidae

All specimens will be collected using DNA-friendly methods. Most specimens will either be immediately field pinned, placed in 90-100% ethanol, or immediately frozen in coolers with dry ice. Specimens collected into ethanol will be transferred to a freezer upon returning to the lab. Specimen handling in the field, labeling, and storage will be made to be as efficient as possible. Dichlorvos will not be used in traps because this killing agent interferes with DNA extraction and amplification (Espeland et al. 2010).

Since the object is to obtain representatives of as many species as possible, we will refrain from collecting long series of identical morphospecies when collecting by hand. For bulk samples obtained from traps, only the first 1-5 individuals of each morphospecies will be processed; the rest will be left in bulk samples.

Specimen processing and deposition

Field labels will be replaced with computer-generated labels according to label standards of the Biological Survey of Canada (Wheeler et al. 2001).

Most specimens will be temporarily stored in the KNWR arthropod collection while specimens are being sorted and identified, then they will be deposited at the University of Alaska Museum (coden: UAM). Some groups may be sent directly to UAM, but will remain accessible for identification and molecular work. Species identifications will be obtained by loaning specimens to collaborating scientists (Table 3), basically following the loan policy of UAM (<http://www.uaf.edu/museum/collections/ento/loan/>).

Table 3. Collaborators to whom arthropod specimens will be sent for determinations.

Collaborator	Group(s)
Kevin Barber	Anthomyzidae
Charles Bartlett	Delphacidae
Ernest Bernard	Tomoceridae
Robert Foottit	Aphididae, Psyllidae, Thysanoptera
Derek Sikes	Coleoptera
Joey Slowik	Dictynidae
David Wartinbee	Chironomidae

Specimen data for all specimens in the KNWR collection, including sampling locations, loaning of specimens, images of specimens, and associated documents are publicly available on Arctos (http://arctos.database.museum/KNWR_ento), with information updated in near real time (see an example of a KNWR specimen record at <http://arctos.database.museum/guid/KNWR:Ento:7016>). As determinations are obtained, species occurrence data will be published to the Global Biodiversity Information Facility (GBIF, <http://data.gbif.org/>) (Figure 1). For all species identified, at least one specimen will be sent to the Canadian Centre for DNA barcoding (<http://www.dnabarcoding.ca/>) for sequencing. The DNA barcode sequences will then be published to GenBank (<http://www.ncbi.nlm.nih.gov/genbank/>), where they will be publicly available for browsing and searching. From GenBank, sequences will be incorporated in the collective library of DNA barcodes used for species identifications (e.g., the BOLD Identification Engine, <http://www.boldsystems.org/views/idrequest.php>).

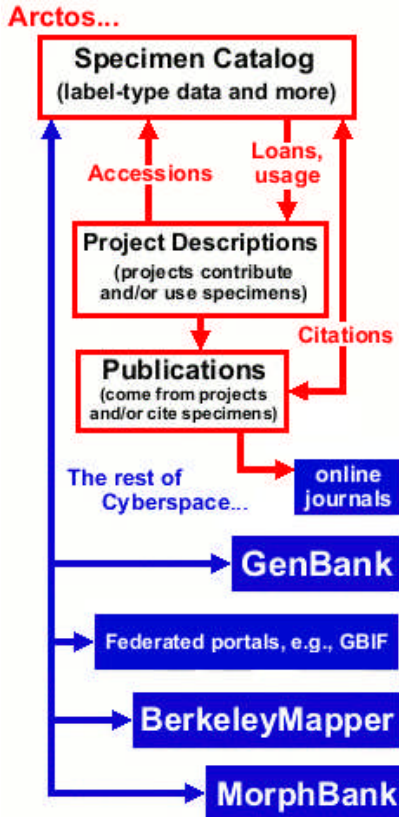


Figure 1. Schema of the interrelationships of Arctos and selected on-line resources. Image from <http://arctos.database.museum/home.cfm>.

Sampling locations

Target sampling sites are distributed over KENWR, with most sites accessible by car and boat (Figure 2). Locations were selected so that as many habitat types as possible can be sampled within one week.

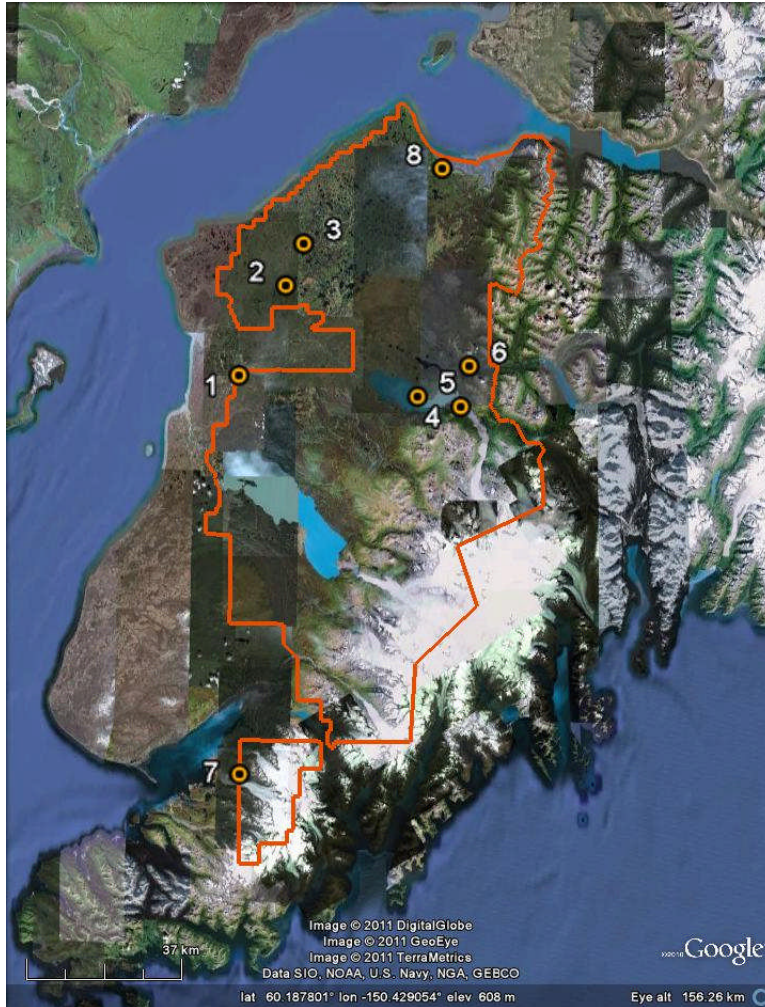


Figure 2. Sampling locations: 1. Refuge headquarters. 2. Finger Lakes. 3. Swanson River. 4. Skilak River floodplain. 5. Rocky north shoreline of Skilak Lake, 6. Kenai river slough, 7. Emerald Lake. 8. Chickaloon Flats. The KENWR boundary is shown in red.

Table 4. Prospective sampling locations.

Site	Latitude(°N)	Longitude(°W)
Refuge Headquarters	60.46470	151.07351
Finger Lakes	60.65516	150.87577
Swanson River	60.74415	150.79979
Skilak River floodplain	60.39917	150.12573
Rocky shoreline of Skilak Lake	60.42106	150.30966
Kenai River slough	60.48498	150.08818
Emerald Lake	59.62398	151.05530
Chickaloon Flats	60.90387	150.19990

Refuge Headquarters

Description: The headquarters building is situated on a hill surrounded by mixed forest including birch, cottonwood, aspen, white spruce, and black spruce, with a comparably mixed understory of alders, elderberry, and devil’s club. Black spruce muskeg, a large fen, and Headquarters Lake are accessible within a five minute’s walk.

Land cover within 1 km: Paper birch, 33%; Black spruce, 17%; Mixed forest, 17%; Lake, 19%; Wetland-graminoid, 13%; Urban/Cultural, 3%; White/Lutz/Sitka spruce, 2%; Willow, 1%.

Finger Lakes

Description: The area surrounding the Finger Lakes was burned in 1969 so that it is now dominated by young birch. The Finger Lakes are clear, oligotrophic lakes.

Land cover within 1 km: Paper birch, 58%; Mixed forest, 16%; Lake, 12%; Willow, 7%; Black spruce, 4%; White/Lutz/Sitka spruce 2%; Mixed deciduous, 1%.

Swanson River

Description: The focus of the Swanson River site is the Swanson River and its grassy floodplain. The river itself is a small, clear, tannin-stained stream supplied by springs and surface runoff.

Land cover within 1km: Black spruce, 57%; Mixed forest, 26%; White/Lutz/Sitka spruce, 12%; Wetland-graminoid, 5%.

Skilak River floodplain

Description: The Skilak River (Figure 3) is a silty, glacial, braided stream flowing from Skilak Glacier into Skilak Lake. The floodplain accessible from Skilak Lake offers access to open gravel bars, alder thickets, backwater pools, and grasses and forbs characteristic of braided streams.

Land cover within 1 km: Lake, 50%; Stream, 25%; Wetland-graminoid, 8%; Sparsely vegetated, 7%; Barren-wet, 4%; Mixed forest, 3%; Mixed deciduous, 2%; Paper birch, 1%.



Figure 3. Skilak River floodplain.

Rocky shoreline of Skilak Lake

Description: The north shore of Skilak Lake east of Upper Skilak Campground is characterized by bare rock outcrops, with scattered white spruce and a diverse community of low shrubs and herbs, such as *Saxifraga*, *Polemonium*, Lingonberry, and *Arctostaphylos uva-ursi*.

Land cover within 1 km: Lake, 55%; Mixed forest, 28%; Paper birch, 12%; Sparsely vegetated, 4%.

Kenai River slough

Description: The attraction of this site is the clear, still sloughs of the Kenai River accessible from the road.

Land cover within 1km: Mixed forest, 25%; White/Lutz/Sitka spruce, 22%; Alder, 13%; Aspen, 11%; Paper birch, 9%; Wetland-graminoid, 6%; Mixed deciduous, 5%; Stream, 5%; Alpine, 3%; Barren-wet, 1%; Black spruce, 1%.

Emerald Lake

Description: Emerald Lake (59.6240°N, 151.0553°W, elevation 355m, Figure 4), offers access to subalpine and alpine habitats without a long approach hike. The lake is surrounded by luxuriant shrubby and herbaceous vegetation. East of the lake are sub-alpine fens and meadows among mostly willow shrub land through which the lake's inlet streams flow. To the south of the lake is Grewingk Glacier and young, rocky moraines. To the north of the lake is a mountain ridge reaching an elevation of 1010m.

The western boundary of KENWR crosses the lake at 151.06°W, about 300m west of the east shore of the lake. All sampling will take place east of this boundary.

Land cover within 1 km: Alder, 53%; Alpine, 24%; White/Lutz/Sitka spruce, 11%; Lake, 9%; Mixed conifer, 1%; Mountain hemlock, 1%; Wetland-graminoid, 1%; Mixed forest, 1%.



Figure 4. Emerald Lake.

Chickaloon Flats

Description: Chickaloon Flats (60.903873°N, 150.199896°W, Figure 5) is a vast tidal marsh at the outlet of the Chickaloon River. Though the plant community is relatively simple, consisting mostly of grasses and sedges, it supports high densities of arthropods, especially Diptera.

Land cover within 1 km: Wetland-halophytic, 75%; Estuarine, 24%, Black spruce, 1%.



Figure 5. Chickaloon Flats.

General procedures

Collectors must sign up as volunteers before field work begins. All parties must call in to headquarters on the radio at least at the beginning of the day and again before close of business at 4:30 p.m.

Participants will be briefed in bear safety. Collecting parties will be accompanied by at least one USFWS employee charged with carrying a shotgun for bear protection and a radio. In addition, bear spray will be furnished to participants.

Housing

One cabin at the KENWR headquarters will be made available to traveling participants for the week of sampling.

Schedule

The schedule presented below is tentative to allow for weather considerations (especially with floatplane travel) and for the possibility that participants may split into separate groups.

Tuesday, June 28: Surroundings of KENWR headquarters

Volunteer sign-up, orientation, and some planning must take place on the first day that all the participants arrive. We will survey the surroundings of the KENWR headquarters including the forests, muskegs, fens, and lake nearby. Passive traps will be deployed and left out.

Wednesday, June 29: Skilak Lake Road, Skilak Lake, and Swanson River Road

Depending on how we are able to divide up the participants, we will send parties to sites on Swanson River Road, Skilak Lake Road, and Skilak Lake. One party will sample sites off of Skilak Lake (Skilak River outlet and the rocky north shoreline of the lake east of Lower Skilak campground) by skiff. This party or a separate party may visit sites off of or near Skilak Lake Road (e.g., Kenai River sloughs east of intersection of Skilak Loop Road and Sterling Highway, Hidden Lake, Rock Lake, etc.). Another party will sample locations off of Swanson River Road (Finger Lakes, Swanson River, and possibly the Discovery Well hemlock stand).

All parties should return in the afternoon, leaving time to prepare for remote field work over the next two days. Passive traps deployed in the vicinity of Refuge headquarters will be removed so that they can be re-deployed at remote locations the next day.

Thursday, June 30: Fly out to Emerald Lake and Chickaloon Flats

One party will fly out to Emerald Lake; a second party will fly out to Chickaloon Flats.

A party of three will drive out early in the morning to Homer, arriving at 07:30. From there, they will depart at 08:00 for Emerald Lake on a DeHavilland Beaver operated by Beluga Lake Float Plane Service. A camp will be established near the stream on the east side of Emerald Lake and passive traps will be deployed.

Participants based at Emerald Lake will need to decide how to access the multiple habitat types near Emerald Lake within the two days: the lake itself; shrubby thickets, meadows, and the stream immediately east of the lake; the alpine ridge rising from the north shore; and the young, rocky moraines south of the lake above Grewingk Glacier. The higher elevations above Emerald Lake can

become enshrouded in fog, so the hike up the ridge should be planned for the day when better weather is expected.



Figure 6. Field camp on east shore of Emerald Lake.

A party of two or three will drive to Island Lake floatplane base in Nikiski in the morning, then fly out at 11:00 on a Found Bush Hawk to the Pincher Creek cabin on Chickaloon Flats (Figure 7). The area around the cabin will be sampled in the afternoon and traps will be deployed overnight.



Figure 7. Pincher Creek cabin.

Friday, July 1: Return from Emerald Lake and Chickaloon Flats

The Emerald Lake participants will sample areas and habitats not visited on the previous day, then fly out in the evening at 17:00.

The party at Chickaloon Flats will have time to hike around sampling the graminoid-dominated wetlands near the cabin. Forest habitats are also accessible south of the cabin, but the emphasis here will be on the estuarine marsh. This party is scheduled to fly out at 3:00p.m.

References

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Budget

Item	cost
Flights to Chickaloon Flats and Emerald Lake	\$1550
Collecting equipment and supplies	\$558
Dry ice	\$100
Total	\$2208

Taxon Lists

Table 5. Checklists of arthropod species known from KENWR, species represented in KNWR arthropod collection, and species for which DNA barcodes have been obtained.

Species	In KNWR collection?	KNWR barcoded?
<i>Achorotile subarctica</i>	✓	
<i>Acidota quadrata</i>	✓	
<i>Acronicta impressa</i>	✓	
<i>Aegialia browni</i>	✓	
<i>Aeshna eremita</i>		
<i>Aeshna juncea</i>		
<i>Aeshna septentrionalis</i>	✓	
<i>Agelenopsis utahana</i>	✓	
<i>Agonum decentis</i>		
<i>Agriades glandon</i>		
<i>Albuna pyramidalis</i>	✓	✓
<i>Allantus albolabris</i>	✓	
<i>Alopecosa aculeata</i>		
<i>Amara alpina</i>	✓	
<i>Amphipsylla pollionis</i>	✓	
<i>Anaspis rufa</i>	✓	
<i>Anisotoma globososa</i>	✓	
<i>Aphelopus albopictus</i>	✓	
<i>Aphidius ervi</i>	✓	
<i>Aphodius aleutus</i>	✓	
<i>Aphodius congregatus</i>	✓	
<i>Apis mellifera</i>		
<i>Araneus marmoreus</i>	✓	
<i>Araniella displicata</i>	✓	

Species	In KNWR collection?	KNWR barcoded?
<i>Argyrotaenia velutinana</i>	✓	✓
<i>Athous rufiventris</i>	✓	
<i>Atomaria fimetarii</i>	✓	
<i>Baccha elongata</i>		
<i>Badonnelia titei</i>	✓	
<i>Balclutha manitou</i>	✓	
<i>Balclutha punctata</i>	✓	
<i>Baryphyma longitarsum</i>	✓	
<i>Baryphyma trifrons</i>	✓	
<i>Bassaniana utahensis</i>	✓	
<i>Bibio longipes</i>	✓	✓
<i>Bibio rufipes</i>	✓	✓
<i>Blethisa quadricollis</i>		
<i>Boloria chariclea</i>		
<i>Boloria freija</i>		
<i>Boloria selene</i>		
<i>Bromius obscurus</i>	✓	
<i>Cabera exanthemata</i>	✓	✓
<i>Cacopsylla rara</i>		
<i>Caecilius flavidus</i>	✓	
<i>Calathus advena</i>	✓	
<i>Calathus ingratus</i>	✓	
<i>Calathus ruficollis</i>		
<i>Calocoris fulvomaculatus</i>	✓	
<i>Calvia quatuordecimguttata</i>	✓	
<i>Campiglossa farinata</i>	✓	✓
<i>Camponotus herculeanus</i>	✓	
<i>Carabus taedatus</i>	✓	
<i>Carterocephalus palaemon</i>	✓	✓
<i>Catops alpinus</i>		
<i>Catops basilaris</i>		
<i>Catops egenus</i>	✓	
<i>Catops luridipennis</i>		
<i>Celestrina ladon</i>		
<i>Cephalops furnaceus</i>		
<i>Ceraticelus atriceps</i>	✓	
<i>Ceraticelus silus</i>	✓	
<i>Ceratinella ornatula</i>	✓	
<i>Ceratomegilla ulkei</i>		
<i>Ceratophyllus niger</i>	✓	
<i>Cheilosia lasiophthalmus</i>	✓	✓
<i>Cixius meridionalis</i>		

Species	In KNWR collection?	KNWR barcoded?
<i>Cladius difformis</i>		
<i>Clepsis moeschleriana</i>	✓	✓
<i>Clepsis virescana</i>	✓	✓
<i>Clinocera fuscipennis</i>		
<i>Coccinella trifasciata</i>		
<i>Coenagrion resolutum</i>	✓	
<i>Coenonympha kodiak</i>		
<i>Colias nastes</i>		
<i>Colias palaeno</i>		
<i>Colias philodice</i>		
<i>Coniopteryx tineiformis</i>	✓	
<i>Cordulia shurtleffii</i>		
<i>Craspedolepta alaskensis</i>	✓	
<i>Craspedolepta nebulosa</i>	✓	
<i>Craspedolepta subpunctata</i>	✓	
<i>Cricotopus annulator</i>		
<i>Cricotopus tremulus</i>		
<i>Criomorphus wilhelmi</i>	✓	
<i>Cryphalus ruficollis</i>		
<i>Ctenicera kendalli</i>		
<i>Ctenicera ochreipennis</i>	✓	
<i>Ctenicera resplendens</i>	✓	
<i>Ctenicera watsoni</i>		
<i>Cucujus clavipes</i>		
<i>Cyclosa conica</i>	✓	
<i>Cydia piperana</i>	✓	
<i>Delphacodes serrata</i>	✓	
<i>Dendroctonus rufipennis</i>		
<i>Dendroides ephemeroides</i>	✓	
<i>Dendrophagus cygnaei</i>		
<i>Dermestes lardarius</i>		
<i>Diarsia esurialis</i>	✓	✓
<i>Diarsia rosaria</i>	✓	✓
<i>Dictyna alaskae</i>	✓	
<i>Dictyna arundinacea</i>	✓	
<i>Dictyna major</i>	✓	
<i>Dilophus femoratus</i>	✓	✓
<i>Dinotiscus eupterus</i>	✓	
<i>Dismodicus alticeps</i>	✓	
<i>Dismodicus modicus</i>	✓	
<i>Dolerus elderi</i>	✓	
<i>Dolerus gilvipes</i>		

Species	In KNWR collection?	KNWR barcoded?
<i>Dolerus yukonensis</i>	✓	
<i>Dolichovespula arenaria</i>		
<i>Dolichovespula norvegicoides</i>		
<i>Dorylomorpha albitarsis</i>	✓	
<i>Dorylomorpha spinosa</i>	✓	✓
<i>Dorytomus leucophyllus</i>		
<i>Dorytomus luridus</i>	✓	
<i>Dorytomus mannerheimi</i>	✓	
<i>Dryocoetes affaber</i>		
<i>Dryocoetes autographus</i>		
<i>Dryocoetes caryi</i>		
<i>Ecliptopera silacaeta</i>		
<i>Elasmotethus interstinctus</i>	✓	
<i>Emblyna annulipes</i>	✓	
<i>Emblyna chitina</i>	✓	
<i>Empria ignota</i>		
<i>Empria improba</i>	✓	
<i>Empria maculata</i>	✓	
<i>Enallagma annexum</i>		
<i>Enallagma boreale</i>		
<i>Ephedrus incompletus</i>	✓	
<i>Ephedrus lacertosus</i>	✓	
<i>Epidemia dorcas</i>		
<i>Epiphanus cornutus</i>		
<i>Eremaeus translamellatus</i>		
<i>Eremocoris borealis</i>		
<i>Erigone tirolensis</i>	✓	
<i>Eriocampa ovata</i>		
<i>Eros aurora</i>	✓	
<i>Erythraeus tonsus</i>	✓	
<i>Estrandia grandaeva</i>	✓	
<i>Eukiefferiella claripennis</i>		
<i>Eukiefferiella coeruleascens</i>		
<i>Eukiefferiella ilkleyensis</i>		
<i>Eulia ministrana</i>	✓	✓
<i>Eupithecia sharronata</i>	✓	
<i>Evacanthus grandipes</i>		
<i>Evarcha prozysniskii</i>		
<i>Formica aserva</i>	✓	
<i>Formica gagatoides</i>	✓	
<i>Formica neorufibarbis</i>	✓	
<i>Galerucella nymphaeae</i>	✓	

Species	In KNWR collection?	KNWR barcoded?
<i>Gerris buenoi</i>		
<i>Gillmeria pallidactyla</i>	✓	✓
<i>Glaucopsyche lygdamus</i>		
<i>Glischrochilus vittatus</i>		
<i>Grammonota vittata</i>	✓	
<i>Gyrinus maculiventris</i>		
<i>Gyrinus minutus</i>		
<i>Gyrinus opacus</i>		
<i>Gyrinus picipes</i>		
<i>Helcomyza mirabilis</i>		
<i>Heleomyza nebulosa</i>		
<i>Helophora reducta</i>		
<i>Hesperinus brevifrons</i>	✓	✓
<i>Heterotrissocladius boltoni</i>		
<i>Hippodamia falcigera</i>		
<i>Homaemus aeneifrons</i>		
<i>Hoplocampa idaho</i>	✓	
<i>Hybomitra zonalis</i>	✓	✓
<i>Hydrobaenus fusistylus</i>		
<i>Hymenaphorura nearctica</i>		
<i>Hypenodes palustris</i>	✓	✓
<i>Hypnoidus bicolor</i>		
<i>Hypselistes florens</i>	✓	
<i>Hypsosinga pygmaea</i>	✓	
<i>Hystrichophora asphodelana</i>	✓	
<i>Ips borealis</i>		
<i>Ips perturbatus</i>		
<i>Isochnus flagellum</i>	✓	
<i>Ixodes angustus</i>		
<i>Javesella pellucida</i>	✓	
<i>Judolia montivagans</i>		
<i>Kaestneria anceps</i>		
<i>Kleidocerys resedae</i>	✓	
<i>Krenosmittia halvorseni</i>		
<i>Lacanobia nevade</i>		
<i>Lasioglossum behri</i>		
<i>Lauxania shewelli</i>	✓	✓
<i>Leiomyza curvinervis</i>	✓	✓
<i>Lejops perfidiosus</i>	✓	✓
<i>Leptyphantes alpinus</i>	✓	
<i>Leptobunus</i>	✓	
<i>Leptobunus borealis</i>		

Species	In KNWR collection?	KNWR barcoded?
<i>Leptothorax canadensis</i>	✓	
<i>Lepyrus gemellus</i>	✓	
<i>Leucorrhinia patricia</i>		
<i>Leucorrhinia proxima</i>		
<i>Libellula quadrimaculata</i>		
<i>Limnopus rufoscutellatus</i>		
<i>Liposcelis corrodens</i>		
<i>Lithobius stejnegeri</i>	✓	
<i>Lycæides idas</i>		
<i>Lygocoris pabulinus</i>		
<i>Lygus borealis</i>		
<i>Lygus lupini</i>		
<i>Lygus punctatus</i>		
<i>Lygus rugulipennis</i>		
<i>Lygus shulli</i>		
<i>Lygus striatus</i>		
<i>Lytogaster obscura</i>	✓	
<i>Macrosiphoniella oblonga</i>		
<i>Macrosteles fascifrons</i>		
<i>Megalepthyphantes nebulosus</i>		
<i>Megalothorax minimus</i>	✓	
<i>Megastigmus atedius</i>	✓	
<i>Megatoma cylindrica</i>		
<i>Melangyna lasiophthalma</i>	✓	✓
<i>Melanostoma mellinum</i>	✓	✓
<i>Meliera cana</i>	✓	
<i>Merolonche lupini</i>	✓	✓
<i>Micromus postichus</i>		
<i>Micropsectra nigriperla</i>		
<i>Misumena vatia</i>	✓	
<i>Mitopus morio</i>	✓	
<i>Monochamus scutellatus</i>		
<i>Monsoma pulveratum</i>		
<i>Myrmica alaskensis</i>	✓	
<i>Nanocladius spiniplenus</i>		
<i>Nebria piperi</i>		
<i>Nelima paessleri</i>	✓	
<i>Nemotaulius hostilis</i>		
<i>Nemotelus canadensis</i>	✓	✓
<i>Neriene radiata</i>	✓	
<i>Nicrophorus investigator</i>		
<i>Nicrophorus vespilloides</i>		

Species	In KNWR collection?	KNWR barcoded?
<i>Nothrus borussicus</i>		
<i>Notiophilus aquaticus</i>	✓	
<i>Notiphila uliginosa</i>	✓	
<i>Nymphalis antiopa</i>		
<i>Oeneis jutta</i>		
<i>Oeneis melissa</i>		
<i>Oeneis polixenes</i>		
<i>Olisthaerus megacephalus</i>		
<i>Omalus aenus</i>		
<i>Orgyia antiqua</i>		
<i>Ornithobius waterstoni</i>	✓	
<i>Orthocladus appersoni</i>		
<i>Orthocladus curtiseta</i>		
<i>Orthocladus frigidis</i>		
<i>Orthocladus luteipes</i>		
<i>Orthocladus oblidens</i>		
<i>Orthocladus odumbratus</i>		
<i>Orthocladus pedestais</i>		
<i>Orthocladus rivicola</i>		
<i>Orthocladus rivulorum</i>		
<i>Ostoma columbiana</i>		
<i>Pachyta lamed</i>		
<i>Paraliburnia kilmani</i>	✓	
<i>Parasyrphus tarsatus</i>	✓	✓
<i>Pardosa albomaculata</i>	✓	
<i>Pardosa diuturna</i>		
<i>Parorthocladus nigritus</i>		
<i>Parydra parasocia</i>	✓	✓
<i>Patrobus foveocollis</i>	✓	
<i>Pelecomalium testaceum</i>	✓	
<i>Pelina canadensis</i>	✓	✓
<i>Peritrechus convivus</i>		
<i>Phalangium opilio</i>	✓	
<i>Pherbellia albocostata</i>	✓	✓
<i>Pherbellia schoenherri maculata</i>	✓	✓
<i>Pherbellia tenuipes</i>	✓	✓
<i>Philodromus rufus</i>	✓	
<i>Philotelma alaskense</i>	✓	
<i>Phloeotribus piceae</i>		
<i>Phratora hudsoniana</i>		
<i>Phryganea cinerea</i>		
<i>Phyllonorycter populiella</i>	✓	✓

Species	In KNWR collection?	KNWR barcoded?
<i>Pieris angelika</i>		
<i>Pieris napi</i>		
<i>Pipunculus hertzogi</i>	✓	✓
<i>Pityophthorus nitidulus</i>		
<i>Plagiognathus alboradialis</i>	✓	
<i>Plateumaris flavipes</i>	✓	
<i>Plateumaris germari</i>		
<i>Platycheirus rosarum</i>		
<i>Platygaster obscuripennis</i>		
<i>Platynus decentis</i>	✓	
<i>Pocadicnemis pumila</i>	✓	
<i>Podabrus tetragonoderus</i>	✓	
<i>Polygonia faunus</i>		
<i>Polygraphus rufipennis</i>		
<i>Polypedilum albicorne</i>		
<i>Praon occidentale</i>	✓	
<i>Priognathus monilicornis</i>	✓	
<i>Pristiphora lativentris</i>		
<i>Pristiphora mollis</i>	✓	
<i>Pristiphora staudingeri</i>	✓	
<i>Profenusa thomsoni</i>		
<i>Prolita sexpunctella</i>	✓	✓
<i>Prosimulium travisi</i>	✓	✓
<i>Pseudobourletiella spinata</i>		
<i>Psilometriocnemus triannulatus</i>		
<i>Psylla minor</i>	✓	
<i>Pterostichus adstrictus</i>	✓	
<i>Pterostichus brevicornis</i>	✓	
<i>Pterostichus riparius</i>	✓	
<i>Pterourus canadensis</i>		
<i>Quedius plagiatus</i>		
<i>Renocera brevis</i>	✓	
<i>Rhamphomyia acuta</i>		
<i>Rhamphomyia auricoma</i>		
<i>Rhamphomyia laticaura</i>		
<i>Rheumaptera hastata</i>	✓	✓
<i>Rheumaptera subhastata</i>		
<i>Rhigognostis interrupta</i>	✓	✓
<i>Rhizophagus dimidiatus</i>		
<i>Rhogogaster viridis</i>	✓	
<i>Rhopobota dietziana</i>	✓	
<i>Robertus crosbyi</i>	✓	

Species	In KNWR collection?	KNWR barcoded?
<i>Rugathodes aurantius</i>	✓	
<i>Scaphinotus marginatus</i>	✓	
<i>Scaphium castanipes</i>		
<i>Scatella picea</i>	✓	✓
<i>Scierus pubescens</i>		
<i>Scopula inductata</i>	✓	✓
<i>Sepedon borealis</i>	✓	
<i>Sericomyia militaris</i>	✓	✓
<i>Sericus incongruus</i>	✓	
<i>Simulium rostratum</i>	✓	✓
<i>Simulium vittatum</i>	✓	✓
<i>Somatochlora albicincta</i>		
<i>Spilomicrus stigmatalis</i>	✓	
<i>Steatoda borealis</i>	✓	
<i>Stenodema trispinosa</i>	✓	
<i>Stenotrachelus aeneus</i>		
<i>Sthereus quadrituberculatus</i>	✓	
<i>Suillia apicalis</i>	✓	✓
<i>Suillia convergens</i>	✓	✓
<i>Swammerdamia caesiella</i>	✓	✓
<i>Sylvicola fuscatus</i>	✓	✓
<i>Sympetrum danae</i>		
<i>Synneuron decipiens</i>	✓	✓
<i>Synorthocladus semivirens</i>		
<i>Syrphus vitripennis</i>	✓	✓
<i>Tetanocera fuscinervis</i>	✓	✓
<i>Tetanocera montana</i>	✓	✓
<i>Tetanocera phyllophora</i>	✓	✓
<i>Tetanocera plebeja</i>	✓	✓
<i>Tetanocera silvatica</i>	✓	✓
<i>Tetragnatha extensa</i>	✓	
<i>Tetragnatha laboriosa</i>	✓	
<i>Tetropium parvulum</i>		
<i>Thecabius populimonilis</i>	✓	✓
<i>Theridion montanum</i>	✓	
<i>Theridion ohlerti</i>	✓	
<i>Theridion pictum</i>	✓	
<i>Tibellus maritimus</i>	✓	
<i>Tiso aestivus</i>	✓	
<i>Torymus cecidomyiae</i>		
<i>Torymus longistigmus</i>	✓	
<i>Trachypachus holmbergi</i>	✓	

Species	In KNWR collection?	KNWR barcoded?
<i>Trechus tenuiscapus</i>	✓	
<i>Trichalophus alternatus</i>	✓	
<i>Trichodectes canis</i>		
<i>Trichodezia albovittata</i>		
<i>Trypodendron lineatum</i>		
<i>Trypodendron retusum</i>		
<i>Trypodendron rufitarsus</i>		
<i>Tvetenia calvescens</i>		
<i>Udea washingtonalis</i>	✓	✓
<i>Upis ceramboides</i>		
<i>Urocera gigas</i>		
<i>Vacciniina optilete</i>		
<i>Valenzuela flavidus</i>	✓	
<i>Vespula vulgaris</i>	✓	
<i>Walckenaeria directa</i>	✓	
<i>Weberacantha octa</i>	✓	
<i>Xanthorhoe decoloraria</i>	✓	✓
<i>Xanthorhoe ferrugata</i>		
<i>Xanthorhoe fossaria</i>	✓	✓
<i>Xylechinus montanus</i>		
<i>Xylita laevigata</i>		
<i>Xylophagus decorus</i>	✓	✓
<i>Xylotrechus undulatus</i>		
<i>Xylotype acadia</i>		

Table 6. DNA barcodes of specimens from the KNWR arthropod collection.

Taxon	KNWR ID	Sequences (COI-5P)
<i>Acrocera</i>	6780	CACACTATATTTATTTTGGGGCATGGGCCGAATAGTTGGAACATCCC TAAGTATCCTAATTCGAATAGAACTCGGACACCCGGGGCATTAAATGGC GATGATCAAATTTATAATGTAATTTGTTACAGCCCATGCAATTTGTAATAAT TTTTTATAGTAATACCGATTAAATGGGGGATTTGGTAATTGATTAGTA CCTCTAATATTAGGGGCCCTGATATAGCCTTTCCACGAATAAATAATATA AG
<i>Aedes diantaeus</i>	6782	AACACTATACTTTATTTTGGGAGTTTGATCAGGAATAGTTGGAACATCACT AAGAATTTAATTCGTGCTGAATTAAGTCAACCAGGAATTTTATTGGAA ATGACCAAATTTATAACGTAATTTGTTACAGCTCATGCTTTCATTATAATTT CTTATAGTAATACCTATTATAATTTGGAGGATTTGGAACTGATTAGTCC TCTTATATTAGGAGCCCGATATAGCATTTCCTCGAATAAATAATATAAG
<i>Albuna pyramidalis</i>	6831	TACATTATATTTATTTTGGTATTTGATCTGGAATAGTGGAACTCTTTA AGTCTTTAATTCGAGCTGAATTAGGGATACCGGGTCTCTAATTGGGGA TGATCAGATTTATAACTATTGTTACAGCTCATGCAATTTATAATTTTT TTTATGGTAATACCCATTATAATTTGGGGATTTGGTAATTGATTAGTACCT TTAATATTGGGGCACCTGATATAGCTTTCCACGAATAAATAACATAAG AACTTTATATTTATATTTGGAGCATGAGCAGGAATAACTGGAACATCTA TAAGAATCTTATTCGAACAGAATTAGGTCATCCAGGAGCCTAATTGGT GATGATCAAATTTATAATGTTATTGTAAGTCTCATGCAATTTGTTATAATT TTTTTATAGTTATACCTATTATAATTGGAGGATTTGGAAATGATTAGTT CCATTAATATTAGGAGCNCAGATATAGCNTTTCCTCGAATAAATAATAT AAG
<i>Anthomyza</i>	1821	AACTTTATATTTATATTTGGAGCATGAGCAGGAATAGCTGGAACATCTA TAAGAATCTTATTCGAACAGAATTAGGACATCCAGGAGCCTAATTGGT GATGATCAAATTTATAATGTTATTGTAAGTCTCATGCAATTTGTTATAATT TTTTTATAGTTATACCTATTATAATTGGAGGATTTGGAAATGATTAGTT CCATTAATATTAGGAGCNCAGATATAGCNTTTCCTCGAATAAATAATAT AAG
<i>Anthomyza</i>	3886	AACTTTATATTTATATTTGGAGCATGAGCAGGAATAGCTGGAACATCTA TAAGAATCTTATTCGAACAGAATTAGGACATCCAGGAGCCTAATTGGT GATGATCAAATTTATAATGTTATTGTAAGTCTCATGCAATTTGTTATAATT TTTTTATAGTTATACCTATTATAATTGGAGGATTTGGAAATGATTAGTT CCATTAATATTAGGAGCNCAGATATAGCNTTTCCTCGAATAAATAATATA AG
<i>Anthomyza</i>	3105	AACTTTATATTTATATTTGGAGCATGGGCAGGAATAGCCGGAACATCAA TAAGAATCTTATTCGAACAGAATTGGGTATCCAGGTCCTAATTGGT GATGATCAAATTTATAATGTTATTGTTACTGCACATGCAATTTGTAATAATT TTTTTATAGTAATACCTATTATAATTGGAGGGTTTGGAAATGATTAGTT CCTTAATATTAGGAGCACCAGATATAGCTTTTCCTCGTATAAATAATATA AG
<i>Argyrotaenia velutinana</i>	4687	TACATTATATTTATTTTGGAAATTTGAGCAGGTATAGTAGGAACATCTTT AAGATTACTAATTCGTGCTGAATTAGGAAATCCTGATCATTAAATGGCG ATGATCAAATTTATAACTATTGTAACAGCTCATGCTTTCATTATAATTTT TTTCATAGTTACCTATTATAATTTGGAGGATTTGGAAATGATTAGTCC TCTTATATTAGGAGCCCGATATAGCTTTCCCTCGAATAAATAATATAAG
<i>Beris fuscipes</i>	3677	AACTTTATATTTATTTTGGGCTTGAGCAGGAATAGTGGAACTTCATT AAGTATTTAATTCGAGCTGAATTAGGTCATCCTGGAGCTTAAATGGAG ATGACCAAATTTATAATGTTATTGTAACAGCTCATGCAATTTGTAATAATTT TTTTTATAGTAATACCTATTATAATTGGAGGATTTGGAAATGACTTGTTCC CTTAAATATTAGGAGCCCGATATAGCTTTTCCCGAATAAATAATATAA G
<i>Bibio longipes</i>	1731	AACTTTATATTTATTTTGGGCTTGAGCTGGAATATTAGGAACCTCTTT AAGAATATTAATTCGTGCCGAATTAGGTCATCCAGGCTCTTCTAGGCA ATGACCAAATTTATAATGTTATTGTAAGTCTCATGCTTTTATTATAATTTT TTTTATAGTAATACCTATCATAATTGGAGGATTTGGAAATGATTGGTCCC ACTAATATTAGGAGCCCGATATAGCTTTTCCCTCGAATAAATAATATAA G
<i>Bibio rufipes</i>	4414	AACTTTATATTTATTTTGGGCTTGAGCAGGAATATTAGGAACCTTCCT AAGAATATTAATCCGAGCTGAATTAGGTCATCCTGGGCTTTACTTTGGAA ATGATCAAATTTATAATGTAATTTGTAAGTCTCATGCTTTCATTATAATTTT TTTTATAGTAATACCAATTATAATTTGGAGGATTTGGAAATGATTAGTCC TTAATATTAGGAGCCCGATATAGCTTTTCCCTCGAATAAATAATATAAG AATATTATATTTATTTTGGAGCATGAGCAGGAATAGTAGGTAATCTTT AAGAATTTAATTCGAGCAGAAATTAGGTCATCCAGGAGCCTAATTGGAG ATGATCAAATTTATAATGTAATTTGTTACAGCTCATGCTTTATCATAATTTT TTTCATAGTTATACCCATTATAATCGGAGGATTTGGAAATGATTAGTCC TTAATATTAGGAGCCCGATATAGCATTTCCTCGAATAAATAATATAAG
<i>Boletina</i>	2666	AATATTATATTTATTTTGGAGCATGAGCAGGAATAGTAGGTAATCTTT AAGAATTTAATTCGAGCAGAAATTAGGTCATCCAGGAGCCTAATTGGAG ATGATCAAATTTATAATGTAATTTGTTACAGCTCATGCTTTATCATAATTTT TTTCATAGTTATACCCATTATAATCGGAGGATTTGGAAATGATTAGTCC TTAATATTAGGAGCCCGATATAGCATTTCCTCGAATAAATAATATAAG

Taxon	KNWR ID	Sequences (COI-5P)
<i>Bolitophila</i>	3285	AACACTATATTTTATTTTGGTGCTTGATCAGGAATAGTTGGTACATCTTT AAGAATATTAGTTCGAGCTGAATTAGGTCATCCTGGAGCATTAAATGGAG ACGATCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTGTATAATTTT TTTTATAGTAATACCAATTATAAATGGTGATTTGGTAATTGATTAGTCCC TCTTATATTAGGAGCCCCGATATAGCTTTCCCTCGAATAAATAACATAAG
<i>Cabera exanthemata</i>	4079	AACITTTATATTTTATTTTGGAAATTTGAGCAGGAATAGTAGGAACATCATT AAGTTTATTAATTCGAGCTGAATTAGGAAATCCAGGATCTTTAATCGGAG ATGATCAAATTTATAATACTATTGTTACTGCGCATGCTTTTATTATAATTTT TTTTATGTTATACCAATTATAAATGGAGGATTTGGTAATTGATTAGTGCC TTAATACTTGAGCTCCAGATATAGCATTCCACGAATAAATAATATAA G
<i>Cabera exanthemata</i>	3800	AACITTTATATTTTATTTTGGAAATTTGAGCAGGAATAGTAGGAACATCATT AAGTTTATTAATTCGAGCTGAATTAGGAAATCCAGGATCTTTAATCGGAG ATGATCAAATTTATAATACTATTGTTACTGCGCATGCTTTTATTATAATTTT TTTTATGTTATACCAATTATAAATGGAGGATTTGGTAATTGATTAGTGCC TTAATACTTGAGCTCCAGATATAGCATTCCACGAATAAATAATATAA G
<i>Caloptilia</i>	3630	AACITTTATATTTTATTTTGGAAATTTGATCTGGAAATATTAGGAACATCCTT AAGAATATTAATTCGAGCTGAATTAGGAAATCCAGGATCTTTAATGGAG ATGACCAGATTTATAATACTATTGTAAGTCTCATGCTTTTATTATAATTTT CTTTATAGTTATACCTATTATAATCGGGGGATTTCGAAATGATTAGTCCC CTTAATATTAGGAGCCCCAGATATAGCTTTCCCTCGATTAATAATATAAG
<i>Campiglossa farinata</i>	2640	AACATTATATTTTATTTTGGTGCTTGAGCAGGAATATTGGAACCTCATT AAGAATCTTAATTCGAGCAGAATTAGGACACCCAGGAGCTTTAATTGGA AATGATCAAATTTATAATGTTATTGTAACATCTCATGCAATTTGTAATAATT TTCTTATAGTAATACCAATTATAAATGGAGGATTTGGTAATTGATTAATT CCTCTAATACTAGGAGCCCCGATATAGCATTCCCCGAATAAACAATAT AAG
<i>Carpatolechia</i>	4521	TACITTTATATTTTATTTTGGAAATTTGAGCAGGAATAGTCGGAACATCTTT AAGATTACTAATTCGAGCAGAATTAGGAAACCCAGGGTCTTTAATCGGG GATGATCAAATTTATAATACTATTGTCACAGCTCATGCTTTTATTATAATTT TTTTTATAGTTATACCTATTATAATTGGAGGATTTGGAAATGATTAGTTC CTTTAATATTAGGAGCCCCGATATAGCTTTCCACGAATAAATAATATAA G
<i>Carpatolechia</i>	4522	TACITTTATATTTTATTTTGGAAATTTGAGCAGGAATAGTCGGAACATCTTT AAGATTACTAATTCGAGCAGAATTAGGAAACCCAGGGTCTTTAATCGGG GATGATCAAATTTATAATACTATTGTCACAGCTCATGCTTTTATTATAATTT TTTTTATAGTTATACCTATTATAATTGGAGGATTTGGAAATGATTAGTTC CTTTAATATTAGGAGCCCCGATATAGCTTTCCACGAATAAATAATATAA G
<i>Carpatolechia</i>	4154	TACITTTATATTTTATTTTGGAAATTTGAGCAGGAATAGTCGGAACATCTTT AAGATTACTAATTCGAGCAGAATTAGGAAACCCAGGGTCTTTAATCGGG GATGATCAAATTTATAATACTATTGTCACAGCTCATGCTTTTATTATAATTT TTTTTATAGTTATACCTATTATAATTGGAGGATTTGGAAATGATTAGTTC CTTTAATATTAGGAGCCCCGATATAGCTTTCCACGAATAAATAATATAA G
<i>Carpatolechia</i>	4153	TACITTTATATTTTATTTTGGAAATTTGAGCAGGAATAGTCGGAACATCTTT AAGATTACTAATTCGAGCAGAATTAGGAAACCCAGGGTCTTTAATCGGG GATGATCAAATTTATAATACTATTGTCACAGCTCATGCTTTTATTATAATTT TTTTTATAGTTATACCTATTATAATTGGAGGATTTGGAAATGATTAGTTC CTTTAATATTAGGAGCCCCGATATAGCTTTCCACGAATAAATAATATAA G
<i>Carpatolechia</i>	4152	TACITTTATATTTTATTTTGGAAATTTGAGCAGGAATAGTCGGAACATCTTT AAGATTACTAATTCGAGCAGAATTAGGAAACCCAGGGTCTTTAATCGGG GATGATCAAATTTATAATACTATTGTCACAGCTCATGCTTTTATTATAATTT TTTTTATAGTTATACCTATTATAATTGGAGGATTTGGAAATGATTAGTTC CTTTAATATTAGGAGCCCCGATATAGCTTTCCACGAATAAATAATATAA G
<i>Carpatolechia</i>	4148	TACITTTATATTTTATTTTGGAAATTTGAGCAGGAATAGTCGGAACATCTTT AAGATTACTAATTCGAGCAGAATTAGGAAACCCAGGGTCTTTAATCGGG GATGATCAAATTTATAATACTATTGTCACAGCTCATGCTTTTATTATAATTT TTTTTATAGTTATACCTATTATAATTGGAGGATTTGGAAATGATTAGTTC CTTTAATATTAGGAGCCCCGATATAGCTTTCCACGAATAAATAATATAA G

Taxon	KNWR ID	Sequences (COI-5P)
<i>Carpatolechia</i>	3863	TACITTTATATTTTATTTTGGAAATTTGAGCAGGAATAGTCGGAACATCTTT AAGATTACTAATTCGAGCAGAATTAGGAAACCCAGGGTCTTTAATCGGG GATGATCAAATTTATAAATACTATTGTCACAGCTCATGCTTTTATTATAATTT TTTTTATAGTTATACCTATTATAATTGGAGGATTTGGAAATTTGATTAGTTC CTTTAATATTAGGAGCCCCTGATATAGCTTTCCACGAATAAATAATATAA G
<i>Carpatolechia</i>	3540	TACITTTATATTTTATTTTGGAAATTTGAGCAGGAATAGTCGGAACATCTTT AAGATTACTAATTCGAGCAGAATTAGGAAACCCAGGGTCTTTAATCGGG GATGATCAAATTTATAAATACTATTGTCACAGCTCATGCTTTTATTATAATTT TTTTTATAGTTATACCTATTATAATTGGAGGATTTGGAAATTTGATTAGTTC CTTTAATATTAGGAGCCCCTGATATAGCTTTCCACGAATAAATAATATAA G
<i>Carpatolechia</i>	3300	TACITTTATATTTTATTTTGGAAATTTGAGCAGGAATAGTCGGAACATCTTT AAGATTACTAATTCGAGCAGAATTAGGAAACCCAGGGTCTTTAATCGGG GATGATCAAATTTATAAATACTATTGTCACAGCTCATGCTTTTATTATAATTT TTTTTATAGTTATACCTATTATAATTGGAGGATTTGGAAATTTGATTAGTTC CTTTAATATTAGGAGCCCCTGATATAGCTTTCCACGAATAAATAATATAA G
<i>Carpatolechia</i>	4151	TACITTTATATTTTATTTTGGAAATTTGAGCAGGAATAGTCGGAACATCTTT AAGATTACTAATTCGAGCAGAATTAGGAAACCCAGGGTCTTTAATCGGG GATGATCAAATTTATAAATACTATTGTCACAGCTCATGCTTTTATTATAATTT TTTTTATAGTTATACCTATTATAATTGGAGGATTTGGAAATTTGATTAGTTC CTTTAATATTAGGAGCCCCTGATATAGCTTTCCACGAATAAATAATATAA G
<i>Carterocephalus palaemon</i>	6829	AACITTTATATTTTATTTTGGAAATTTGAGCTGGTATAGTAGGAACATCTTT AAGTTTATTAATCCGAACAGAAGTAGGTAATCCTGGATCTTTAATTTGGAG ATGATCAAATTTATAAATACTATTGTTACAGCACATGCCTTTATTATAATTT CTTTATGGTTATGCCTATCATAATCGGAGGATTTGGTAATTTGATTAGTACC TTTAATATTAGGAGCCCCTGATATAGCTTTCCACGAATAAATAATATAAG
<i>Cheilosia lasiophthalmus</i>	6775	AACITTTATATTTTATTTTGGAAATTTGAGCAGGAATAGTTGGTACTTCATT AAGTATTTAATTCGAGCTGAATTAGGACATCCAGGAGCTTTAATTTGGAG ATGATCAAATTTATAAATGTAATTTGAACTGCTCATGCAATTTGTAATAATTT TTTTTATAGTTATACCTATTATAATTGGAGGATTTGGAAATTTGATTAGTAC CCTTAATATTAGGAGCTCCTGATATAGCTTTCCCTCGAATAAATAATATAA G
<i>Chlorops sahlbergii</i>	2143	AACACTATATTTTATGTTCCGGAGCCTGAGCTGGAATAGTAGGAACCTCTT TAAGAATTATTATTCGAGCAGAATTAGGACATCCAGGAACCTTAATTTGGA AATGACCAAATTTATAACGTTATTGTAACAGCCCATGCTTTTGTAAATAATT TTTTTATGGTAATACCTATTATAATTGGTGGATTTGGAAATTTGACTAGTA CCCCTAATACTAGGAGCCCCAGATATAGCATTTCCACGAATAAATAATAT AAG
<i>Clepsis moeschleriana</i>	2616	TACATTATACITTTATTTTGGAAATTTGAGCAGGTATAATAGGAACATCATT AAGATTGTTAATTCGAGCTGAATTAGGAAATCCGGGATCATTAAATTTGGA GATGATCAAATTTATAAATACTATTGTCACAGCTCATGCTTTTATTATAATTT TTTTTATAGTAATACCTATTATAATTGGAGGATTTGGAAATTTGATTAGTTC CTTTAATATTAGGAGCGCCTGATATAGCTTTCCCTCGTATAAATAATATAA G
<i>Clepsis virescana</i>	6828	AACATTATATTTTATTTTGGTATTGAGCAGGTATAGTAGGAACCTCTCT AAGATTATTAATTCGAGCTGAATTAGGTAATCCTGGATCTTTAATTTGGAG ATGATCAAATTTATAAATACTATTGTTACAGCTCATGCTTTTATTATAATTT TTTTATAGTTATACCTATTATAATTGGAGGATTTGGTAATTTGATTAGTACC TTTAATATTAGGAGCCCCAGATATAGCTTTCCCTCGAATAAATAATATAAG
<i>Cnodacophara</i>	3098	AGCATTGAGCAGGAATAGTAGGAACCTCTTAAAGAAATTCCTGTACGAGCT GAATTAGGTATCCTGGGCATTAATTGGAGATGATCAAATTTATAATGT GATCGTAACTGCTCATGCCTTTGTAATAATTTTTTTTATAGTTATACCTATT ATAATTGGAGGATTTGGTAATTTGATTAGTGCCATTAATATTAGGAGCACC AGATATAGCTTTCCACGAATAAATAATATAAG
<i>Coleophora</i>	2538	AACITTTATATTTTATTTTGGAAATTTGAGCAGGAATAGTAGGAACCTCTTT AAGTTTATTAATTCGAGCTGAATTAGGAAATCCAGGTTCTTTAATTTGGAG ATGATCAAATTTATAAATGTAATTTGAACTGCTCATGCTTTCAATATAATTT TTTTTATAGTTATACCTATTATAATTGGAGGATTTGGAAATTTGATTAGTACC CCTCATATTAGGAGCCCCTGATATAGCTTTCCCCCGAATAAATAATATAAG

Taxon	KNWR ID	Sequences (COI-5P)
<i>Coleophora</i>	4150	AACCTTATATTTATTTTTGGAAATTTGAGCAGGAATAATAGGAACCTCTTT AAGTTTATTAATTCGAGCTGAATTAGGAAATCCAGGTTCTTTAATTGGAG ATGATCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTT TTTTATAGTTATACCTATTATAATTGGAGTTTTGGAAATTTGATTAGTACC CCTCATATTAGGAGCCCCGATATAGCTTTCCCGCAATAAATAATATAAG
<i>Cyrtopogon dasyllis</i>	6777	AACCTTTACTTTATTTTAGGAGCCTGAGCCGGAATAGTAGGAACATCTC TTAGAATTTAATCCGAGCAGAATTAGGTCATCCTGGATCACTAATTGGT GACGATCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTATTATAATT TTTTTATAGTTATACCTATTATAATTGGAGGATTTGGAACTGATTAGTT CCACTAATATTAGGAGCCCCAGATATAGCATTCCACGAATAAATAATAT AAG
<i>Delia lineariventris</i>	3840	AACCTTATATTTATTTTTGGTGCCTGATCAGGAATAGTAGGAACCTCATT AAGTATTTAATTCGAGCTGAATTAGGACACCTGGAGCATTAAATGGAG ATGATCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTATTATATTTT TTTTATAGTAATACCTATTATAATTGGAGGATTTGGAACTGATTAGTTCC TTAATATTAGGTGCCCGAGATATAGCTTTCCACGAATAAATAATATAAG
<i>Delia simpla</i>	3848	AACCTTATATTTATTTTTGGTGCCTGATCAGGAATAGTAGGAACCTCATT AAGTATTTAATTCGAGCTGAATTAGGACACCTGGAGCATTAAATGGAG ATGATCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTATTATATTTT TTTTATAGTAATACCTATTATAATTGGAGGATTTGGAACTGATTAGTTCC TTAATATTAGGTGCCCGAGATATAGCTTTCCACGAATAAATAATATAAG
<i>Diarsia esurialis</i>	6813	AACATTATATTTATTTTTGGTATTTGAGCTGGAATAGTGGGAACCTCTTT AAGATTATTAATTCGAGCTGAATTAGGTAACCCCGGATCTTTAATTGGAG ATGATCAAATTTATAATACTATTGTTACAGCCCATGCTTTTATTATAATTTT TTTTATAGTTATACCTATTATAATTGGAGTTTTGGTAATTGACTTGATACC TTAATATTAGGAGCCCCAGATATAGCATTCCCGCAATAAATAATATAA G
<i>Diarsia esurialis</i>	6812	AACATTATATTTATTTTTGGTATTTGAGCTGGAATAGTGGGAACCTCTTT AAGATTATTAATTCGAGCTGAATTAGGTAACCCCGGATCTTTAATTGGAG ATGATCAAATTTATAATACTATTGTTACAGCCCATGCTTTTATTATAATTTT TTTTATAGTTATACCTATTATAATTGGAGTTTTGGTAATTGACTTGATACC TTAATATTAGGAGCCCCAGATATAGCATTCCCGCAATAAATAATATAA G
<i>Diarsia rosaria</i>	6815	AACATTATATTTATTTTTGGTATTTGAGCTGGAATAGTAGGAACCTCTTT AAGATTATTAATTCGAGCTGAATTAGGTAACCCCGGATCTTTAATTGGAG ATGATCAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTT TTTTATAGTTATACCTATTATAATTGGAGTTTTGGTAATTGACTTGATACC TTAATATTAGGAGCCCCAGATATAGCATTCTCGAATAAATAATATAA G
<i>Diarsia rosaria</i>	6814	AACATTATATTTATTTTTGGTATTTGAGCTGGAATAGTAGGAACCTCTTT AAGATTATTAATTCGAGCTGAATTAGGTAACCCCGGATCTTTAATTGGAG ATGATCAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTT TTTTATAGTTATACCTATTATAATTGGAGTTTTGGTAATTGACTTGATACC TTAATATTAGGAGCCCCAGATATAGCATTCTCGAATAAATAATATAA G
<i>Dilophus femoratus</i>	2867	TACTTTATATTTATTTTTGGGCATGAGCAGGATACTAGGAACCTCCCT AAGAATTAATTCGGCTGAATTAGGCCACCAGGAGCATTAAATGGG AATGACCAAATTTATAATGTAATTGTAAGTCCCATGCTTTTATTATAATT TTTTTCATAGTAATACCTATTATAATTGGAGGATTCGTAATTGATTAGTT CCCTAATATTAGGGGCCCGAGATATAGCTTTCCACGTATAAATAATATA AG
<i>Dolichopus bakeri</i>	2978	AACCTTATATTTATTTTTGGTCTTGAGCAGGTATAGTGGGAACATCTCT TAGAATTATTGTTGAGCAGAATCGGACACCAGGAGCACTAATTGGA GATGACCAAATTTACAATGTAGTAGTAACAGCTCATGCTTTGTTATAAAT TTCTTTATAGTAATACCAATTATAATTGGAGGATTTGGTAAGTACTGCTGTA CCCTAATATTAGGGGCCCGAGATATAGCTTTCCACGAATAAATAATAT AAG
<i>Dolichopus plumipes</i>	2936	AACCTTATATTTATTTTTGGGCTTGAGCAGGTATAGTGGGAACATCTCT TAGTATTATTGTTGAGCAGAATTAGGACATCCAGGTGCCTTAATTGGTG ATGACCAAATTTATAATGTAGTAGTTACAGCCACGCATTTGTTATAATTT TCTTTATAGTAATACCAATTATGATTGGAGGATTTGGTAAGTACTGCTGTT CTTTAATGTTAGGTGCCCGAGATATAGCTTTCCCGAATAAATAATATAA G

Taxon	KNWR ID	Sequences (COI-5P)
<i>Dolichopus remipes</i>	6783	AAC TT T A T A T T T T A T T T T T G G G G C T T G A G C A G G T A T A G T G G G A A C A T C T C T T A G A A T T A T T G T T C G A G C A G A A C T A G G C C A C C G G G T G C T T T A A T T G G A G A T G A C C A A T T T A T A A T G T A G T A G T T A C A G C C C A T G C A T T T G T T A A T T T T C T T T A T A G T A A T A C C A A T C A T A A T T G G G G A T T T G G T A A C T G G C T A G T G C C T T A A T A T T A G G T G C C C C A G A C A T A G C A T T T C C C G A A T A A A T A A T A T A A G
<i>Dolichopus sordidatus</i>	6784	AAC TT T A T A T T T T A T T T T T G G G G C T T G A G C A G G C A T A G T G G G A A C A T C T C T T A G A A T T A T T G T T C G A G C T G A A C T A G G T C A C C C A G G T G C T T T A A T T G G A G A T G A T C A A A T T T A T A A T G T A G T A G T T A C A G C C C A T G C A T T T G T T A A T T T T C T T T A T G G T A A T A C C A A T C A T A A T T G G T G G A T T T G G T A A C T G A C T T G T G C C C T T A A T A T T A G G T G C C C C A G A T A T A G C A T T T C C A C G A A T A A A T A A T A T A A G
<i>Dolichopus stenhammari</i>	6785	AAC TT T A T A T T T C A T T T T T G G G G C T T G A G C G G G T A T A G T G G G A A C A T C T C T T A G T A T T A T T G T T C G G G C T G A A T T A G G A C A T C C A G G T G C T A A T T G G A G A T G A T C A A A T T T A T A A T G T A G T A G T T A C A G C T C A C G C A T T T G T T A A A T T T T C T T A T A G T A A T A C C T A T T A T A A T T G G A G G G T T T G G T A A C T G A C T T G T C C C T T A A T A T T A G G A G C C C A G A T A T A G C T T T C C C C G A A T A A A T A A T A T A A G
<i>Dorylomorpha spinosa</i>	4382	AAC TT T A T A T T T T A T A T T T G G T G C C T G A G C A G G A A T A G T G G G T A C A T C C C T A A G A A T C C T T A T T C G A G C T G A A C T A G G A C A T C C A G A T C A C T A A T T G G A G A T G A C C A A T T T A T A A C G T A A T T G T A A C A G C T C A T G C T T T T G T G A A A T T T T T T T A T A G T A A T A C C T A T T A T A A T T G G A G G A T T C G G G A A T T G A C T A G T A C C C T A A T A C T A G G A G C T C T G A C A T A G C A T T C C C T C G T A T A A C A A T A T A A G
<i>Dryomyza</i>	3356	T A C C C T T A T T T C A T C T T C G A G C T T G A G C A G G T A T A G T T G G G A C A T C T T A A G A A T C C T A A T C G A G C T G A A C T A G G T C A C C T G G T G C T T A T T G G A G A T G A T C A A A T T T A T A A C G T A A T T G T A A C A G C T C A T G C T T T T G T A A T G A T T T T T C A T A G T T A C C T A T T A T A A T T G G A G G A T T T G G A A A C T G A T T A G T A C C C T A A T A T T A G G G C C C T G A T A T G G C C T T T C C T C G A A T A A A T A A T A T A A G
<i>Eudorylas</i>	6769	AAC T C T A T A T T T T A T A T T T G G G C A T G A G C A G G A A T A G T A G G T A C T C A C T A A G T A T T T A A T T C G A G C T G A A T T A G G C A T C C A G G T T C C C T A A T T G G T G A T G A T C A A A T T T A T A A T G T A A T T G T A C A G C T C A T G C T T T T G T T A A T T T T T T T A T A G T A A T A C C A A T T A T A A T C G G T G G A T T T G G T A A T T G A C T A G T T C C T T T A A T A T T A G G A G C C C A G A T A T A G C T T T T C C A C G A A T A A A T A A T A A G A A C A T T A T A T T T T A T T T T G G A A T T G A G C T G G A A T A A T T G G A A C T C T T T A A G A A T A C T T A T C C G A G C T G A A T T A G G A A T C C A G G A T T T A A T T G G A G A T G A T C A A A T T T A T A A T A C T A T T G T A C T G C T C A T G C T T T T A T T A A T T T T T T T A T A G T A A T A C C A A T T A T A A T T G G A G G A T T T G G A A A T T G A T T A G T A C C T T T A A T A T T A G G A G C C C C A G A T A T A G C T T T C C C C G A A T A A A T A A T A T A A G
<i>Eutrichota</i>	2264	AAC ATT A T A T T T T A T T T T C G G A G C T T G A T C G G G A A T A G T A G G A A C T T C A T T A A G T A T T T A A T T C G A G C T G A A T T A G G A C A T C C T G G A G C A C T A A T T G G A G A T G A T C A A A T T T A T A A T G T A A T T G T A A C A G C A C A T G C T T T T A T T A A T T T T T T T A T A G T A A T A C C T A T T A T A A T T G G A G G A T T T G G A A A T T G A T T A G T T C C T T T A A T A T T A G G A G C C C T G A T A T A G C T T T C C T C G A A T G A A T A A T A T A A G A A C A T A T A T T T C A T T T T T G G T G C T T G A T C T G G A A T A G T A G G T A C T T C T T T A A G T A T T T A A T T C G A G C T G A A T T A G G A C A T C C T G G A G C A T T A A T T G G T G A T G A T C A A A T T T A T A A T G T A A T T G T A A C A G C A C A T G C T T T T A T T A A T T T T T T T A T A G T A A T A C C T A T T A T A A T T G G A G G G T T C G G A A A T T G A T T A G T T C C T T T G A T A T T A G G A G C C C T G A C A T A G C T T T T C C A C G A A T A A A T A A T A T A A G
<i>Fannia brevicauda</i>	2005	AAC A C T A T A T T T C A T T T T T G G T G C T T G A T C T G G A A T A G T A G G T A C T T C T T A A G T A T T T A A T T C G A G C T G A A T T A G G A C A T C C T G G A G C A T T A A T T G G T G A T G A T C A A A T T T A T A A T G T A A T T G T A A C A G C A C A T G C T T T T A T T A A T T T T T T T A T A G T A A T A C C T A T T A T A A T T G G A G G G T T C G G A A A T T G A T T A G T T C C T T T G A T A T T A G G A G C C C T G A C A T A G C T T T T C C A C G A A T A A A T A A T A T A A G
<i>Fannia serena</i>	2144	AAC C T T A T A T T T T A T C T T T G G T G C T T G A T C T G G A A T A G T T G G A A C T T C A T T A A G A A T T T T A A T T C G A G C T G A A T T A G G T C A T C C A G A G C A T T A A T T G G T G A T G A T C A A A T T T A T A A T G T A A T T G T A A C A G C T C A T G C T T T T A T T A A T T T T T T T A T G G T A A T A C C T A T T A T A A T T G G A G G A T T T G G T A A T T G A T T A G T T C C T T T A A T A T T A G G A G C C C T G A T A T A G C A T T T C C T C G A A T A A A T A A T A T A A G A A C T T T A T A T T T T A T T T T G G T G C T T G A T C T G G A A T A G T A G G T A C T T C T T T A A G T A T T T T A A T T C G A G C T G A A T T A G G A C C C T G G A G C A T T A A T T G G C G A T G A T C A A A T T T A A T G T A A T T G T A A C A G C C C A T G C T T T T A T T A A T T T T T T T T A T A G T A A T A C C A A T T A T A A T T G G A G G A T T T G G T A A C T G A T T A G T C C C A T T A A T A T T A G G A G C C C C G A T A T A G C T T T C C A C G A A T A A A T A A T A A G
<i>Fannia spathiophora</i>	1888	AAC TT T A T A T T T T A T T T T T G G G C T T G A G C A G G T A T A G T G G G A A C A T C T C T T A G A A T T A T T G T T C G A G C A G A A C T A G G C C A C C G G G T G C T T T A A T T G G A G A T G A C C A A T T T A T A A T G T A G T A G T T A C A G C C C A T G C A T T T G T T A A T T T T C T T T A T A G T A A T A C C A A T C A T A A T T G G G G A T T T G G T A A C T G G C T A G T G C C T T A A T A T T A G G T G C C C C A G A T A T A G C A T T T C C A C G A A T A A A T A A T A T A A G

Taxon	KNWR ID	Sequences (COI-5P)
<i>Gelechioidea</i>	2278	AACATTATATTTTATTTTGGAAATTGATCTGGTATAGTAGGAACATCTTT AAGACTTAATTCGAGCAGAATTAGGAAACCTGGATCATAAATGGTG ATGATCAAATTTATAACACTATCGTTACTGCTCATGCTTTTATTATAATTT TTTCATAGTGATACCTATTATAAATGGAGGATTTGGAAATGATTAGTACC TTTAAATATTAGGAGCACCTGATATAGCTTTCCCTCGAATAAATAACATAAG
<i>Gelechioidea</i>	2499	AACITTTATATTTTATTTAGGAATCTGAGCAGGAATAATTGGAACATCTTT AAGACTATTAATTCGAGCTGAATTAGGAAATCCTGGCTCTTTAATGGGG ATGATCAAATTTATAATACAATTGTTACAGCTCATGCTTTTATTATAATTT TTTTATAGTTATACCTATTATAAATGGAGGATTTGGTAATGATTAGTCCC TCTTATGTTAGGAGCTCTGATATAGCTTTCCCCGGAATAAATAATATAAG
<i>Gillmeria pallidactyla</i>	6826	AACATTATATTTTATTTTGGAAATTTGGGAGGAAATAATTGGAACATCTTT AAGTTTATTAATTCGAGCAGAATTAGGAACTCTGGTTCATTAATTGGAG ATGATCAAATTTATAACTCAATTGTAACAGCTCATGCAATTTATTATAATTT TTTTATAGTTATACCTATTATAATCGGAGGATTTGGAAATGACTGTTC TTAATACTAGGAGCTCCAGATATAGCTTTCCCTCGTATAAATAACATAAG
<i>Heleomyza</i>	6773	AACATTGTATTTTATATTTGGAGCTTGAGCTGGAATAGTTGGAACCTCTCT AAGTATTTAATTCGAGCAGAATTAGGACACCCAGGTGCTCTAATTTGGTG ACGATCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTGTAAATAATTT TTTTATAGTAATACCTATTATAATGGAGGATTTGGAAATGATTAGTTC CTNTAATATTAGGAGCTCTGATATAGCATTTCCCTCGAATAAATAATATAA G
<i>Hesperinus brevifrons</i>	6781	AACITTTATATTTTATTTAGGAGCTTGGGCTGGTATAATTGGAACCTCTCT AAGAATTAATTCGAGCAGAATTAGGACATCCTGGTCAATTAATTGGAG ATGATCAGATTTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTT TTTTATAGTAATACCTATTATAATGGAGGATTTGGAAATGATTAGTTC ATTAATACTAGGAGCCCCAGATATAGCTTTCCACGAATAAATAATATAA G
<i>Hybomitra zonalis</i>	2293	AACATTATATTTTATTTTGGAGCATGAGCTGGAATAATTGGTACTTCATT AAGTATCCTAATTCGAGCTGAATTAGGACACCTGGATCATAAATGGGG ATGACCAAATTTATAATGTAATTGTAACAGCACATGCTTTTGTAAATAATTT TCTTTATAGTAATACCTATTATAATGGAGGATTTGGAAATGATTAGTTC CTTTAATATTAGGAGCTCTGATATAGCATTTCCCTCGAATAAATAATATAA G
<i>Hydrellia</i>	3190	AACATTATATTTTATTTTGGGGCTTGATCCGGAATAGTAGGAACCTCTTT AAGAATCTTATTCGCGCCGAATTAGGCCATCCAGGTGCCTTAATTGGTG ATGATCAAATTTATAATGTAATTGTACAGCACATGCATTTATTATAATTT TTTTTATAGTAATGCCAATTATAATGGAGGATTTGGGAATGATTAGTCC CATTAATATTAGGAGCTCTGATATAGCTTTCCCTCGAATAAATAATATAA G
<i>Hypenodes palustris</i>	3864	AACATTATACTTCATCTTTGGGATCTGAGCTGGAATAGTAGGAACATCCC TCAGACTATTAATTCGAGCAGAATTAGGTACACCTGGATCTTAATTTGGA GATGATCAAATTTATAACACTATTGTTACAGCCACGCTTTTATTATAAAT TTTTTATAGTAATACCAATCATAATTGGAGGATTTGGTAATTGATTAGTA CCCCTTATACTAGGAGCCCCTGATATAGCATTTCCCCGGAATAAATAATATA AG
<i>Lauxania shewelli</i>	2634	AACATTATATTTTATTTTGGTGCTTGAGCAGGAATAGTAGGTACTTCTTT AAGAATCTTAATCCGGCAGAATTAGGTATCCCGGGCTTTAATCGGA GATGATCAAATCTATAATGTAATTGTTACAGCCACGCTTTTGTAAATAATTT TTTTTCATAGTTATACCTATTATAAATGGAGGATTTGGAAATGATTAGTC CCTTAATACTAGGGGCCCCCTGATATAGCTTTCCCTCGAATAAATAATATG AG
<i>Leiomyza curvinervis</i>	5452	AACITTTATATTTTATATTTGGAGCCTGAGCTGGAATAGTAGGTACTTCTTT AAGAATTTAATTCGCTGCTGAACCTAGGACACCCAGGAGCTTTAATGGAG ATGATCAAATTTATAATGTGATTGTTACTGCCATGCTTTTGTATAATTTT TTTTATAGTTATACCAATTATAAATGGGGGTTTGGAACTGATTGGTCC CACTAATATTAGGTGCCCCGACATAGCATTTCCACGAATAAATAATATA AG
<i>Lejops perfidiosus</i>	6082	AACITTTATATTTTGTATTTGGTACATGAGCAGGAATAGTAGGTACTTCTCT AAGTATATTAATTCGTATAGAACTGGTACCCAGGAGCATAAATGGTG ATGACCAAATTTATAATGTAATTGTTACTGCCATGCAATTTGTAAATAATTT TTTTTATAGTTATACCAATTATAATGGAGGATTTGGAACTGATTAGTTC CCCTTATATTAGGAGCTCCAGATATAGCATTTCCCTCGAATAAATAATATAA G

Taxon	KNWR ID	Sequences (COI-5P)
<i>Lepidoptera</i>	4730	AACACTATATTTTATTTTGGAAATTTGATCTGGAAATAGTAGGAACATCATT AAGATTATTAATCCGAGCTGAATTAGGTAATCCTGGATCATTAAATGGAG ACGATCAAATTTATAATACTATTGTAACGCTCATGCTTTATTATAATTTT TTTTATAGTAATACCTATTATAAATGGAGGATTTGGAAATGATTAGTTC TTAATGTTAGGTGCACCTGATATAGCTTTCCACGAATAAATAATATAAG
<i>Lepidoptera</i>	3511	AACITTAATTTTATTTTGGAAATTTGATCTGGACTAGTAGGGACATCTTT AAGACTATTAATTCGTGCTGAACTAGGAAATCCAGGATCTTTTATTGGAG ATGATCAAATTTATAATACTAATTGTAACAGCTCATGCTTTTATTATAATTT TTTTATAGTAATACCAATTATAAATGGAGGATTTGGAAATGATTAGTGC CTTAATATTAGGAGCTCCTGATATAGCTTTCCACGATTAATAACATAA G
<i>Lepidoptera</i>	3699	AACATTATATTTTATTTTGGAAATTTGATCTGGTATAGTAGGAACATCTTT AAGATTACTAATTCGAGCAGAATTAGGAAACCTGGATCATTAAATGGTG ATGATCAAATTTATAACTATCGTTACTGCTCATGCTTTTATTATAATTTT TTTCATGTTGATACCTATTATAAATGGAGGTTTTGGAAATGATTAGTACC TTAATATTAGGAGCCTGATATAGCTTTCCCTCGAATAAATAACATAAG
<i>Lepidoptera</i>	4729	AACACTATATTTTATTTTGGAAATTTGATCTGGAAATAGTAGGAACATCATT AAGATTATTAATCCGAGCTGAATTAGGTAATCCTGGATCATTAAATGGAG ACGATCAAATTTATAATACTATTGTAACGCTCATGCTTTTATTATAATTTT TTTTATAGTAATACCTATTATAAATGGAGGATTTGGAAATGATTAGTTC TTAATGTTAGGTGCACCTGATATAGCTTTCCACGAATAAATAATATAAG
<i>Liriomyza</i>	1698	AACATTAATTTTATATTCGGAGCTTGAGCTGGAATAGTAGGAACCTCTCT TAGTATTTAATTCGAGCAGAATTAGGACACCCAGGTGCTTAATGGAG ACGACCAAATTTATAATGTAATTGTTACTGCTCATGCTTTTATCATAATTTT TTTTATAGTTATACCTATTATAAATGGAGGATTCGAAATGATTAGTACC TTAATATTAGGTGCCCCAGATATAGCTTTCCCTCGAATAAATAACATAAG
<i>Melangyna lasiophthalma</i>	5175	AACATTATACITTTTATTTTGGAACTTGAGCTGGAATAGTAGGAACATCTTT AAGTGTTTTAATTCGTGAGCAACTGGTCAATCCAGGTGCTTAATGGAG ATGATCAAATTTATAATGTAATTGTTACTGCTCATGCTTTTGTAAATAATTTT TTTTATAGTAATACCTATTATAAATGGAGGATTTGGAAATGATTAGTTC TTAATATTAGGAGCTCCTGATATAGCATTTCCTCGTAAATAATATAAG
<i>Melanostoma mellinum</i>	4325	AACITTAATTTTATTTTGGAGCTTGAGCAGGTATAGTAGGAACATCATT AAGTATACTAATTCGTGCTGAACTGGTCAATCCAGGTGCTTAATGGAG ATGATCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTGTATAATTTT TTTTATAGTTATACCAATTATAAATGGAGGATTTGGAAATGATTAGTTC ATTAATATTAGGAGCCCCGATATAGCATTTCCTCGAATAAATAATATAA G
<i>Merolonche lupini</i>	6827	AACITTAATTTTATTTTGGTATTTGAGCAGGAATAGTAGGTACTTCATT AAGATTACTAATTCGAGCAGAGTTAGGAACCCCCGGATCTTAATGGAG ATGATCAAATTTATAATACTATTGTAACAGCTCATGCTTTTATTATAATTTT TTTTATAGTAATACCTATTATAAATGGAGGATTTGGTAAATGATTAGTACC TTAATATTAGGAGCCCCAGATATAGCATTCCACGAATAAATAATATAA G
<i>Mesembrina latreillii</i>	5940	AACCTTACTITTTATTTTGGATCATGAGCTGGAATAACAGGAACCTCATT AAGTATTTAATTCGAGCTGAATTAGGACACCCAGGTGCATTAATGGTG ATGACCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTT TTTTATAGTTATACCTATTATAAATGGAGGATTTGGAAATGATTAGTTC TTAATATTAGGAGCTCCTGATATAGCTTTCCCGAATAAATAATATAAG
<i>Metendothenia</i>	4155	AACATTATATTTTATTTTGGCAATTTGAGCTGGAATAATGGAACTCTTT AAGATTATTAATTCGAGCTGAATTAGGAAACCCAGGATCATTAAATGGAG ATGATCAAATTTATAATACTATTGTAACGCTCATGCTTTTATTATAATTTT TTTTATAGTTATACCTATTATAAATGGAGGATTTGGAAATGATTAGTACC ATTAATATTAGGAGCTCCTGATATAGCTTTCCACGAATAAATAATATAAG
<i>Mycetophila</i>	2120	AATCTTTATTTTATTTTGGAAATTTGATCTGGAATAGTAGGTACATCTTTA AGTGTTATTTATTCGAACTGAACTGGACACCCAGGAGCATTAAATGGAAA TGACCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTT TTTTATAGTTATACCTATTATAAATGGAGGATTTGGAAATGATTAGTTCCT CTTACTTGGAGCTCCTGATATAGCTTTCCCTCGAATAAATAATATAAG
<i>Nemotelus canadensis</i>	3109	GGTGCATGAGCAGGAATAGTCGGTACATCTTTAAGAATTAATTCGAAC TGAGTTAGGACATCCTGGATCATTAAATGGTAACGATCAAATTTATAATG TAATGTTACAGCTCATGCTTTTCGTAATAATTTTTTATTAGTTATACCAAT CATAATGGGGGATTCGTAACGACTAGTCCCTTGATATTAGGGGCC CTGATATAGCATTCCACGAATAAATAATATAAG

Taxon	KNWR ID	Sequences (COI-5P)
<i>Neoascia</i>	6085	AACATTATATTTTTATTGGAACTTGAGCTGGAATAGTGGGGACATCTTT AAGAATTTTAATTCGAGCAGAATTAGGACATCTGGAGCCTTAATTGGAG ATGATCAAATTTATAATGTAATTGTTACTGCCACGCATTATTATAATTTT TTTTATAGTAATACCTATTATAAATGGAGGATTTGGAAATGACTTGTACC TTTAATATTAGGAGCCCCTGATATAGCTTTTCCCTCGAATAAATAATATAAG
<i>Parasyrphus relictus</i>	6776	AACATTATATTTCTATTTGGTTCTTGAGCCGGTATAGTAGGTACTTCTTT AAGAATTTTGATTTCGAGCAGAACTTGGTCATCTCGTGCTTTAATTGGTG ACGATCAAATTTATAATGTAATTGTTACTGCACATGCTTTTGAATAATTT TTTTATAGTAATACCAATTATAAATGGAGGATTTGGAAATGATTAGTTC CTTTGATACTAGGAGCTCCTGATATAGCATTCCCTCGAATAAATAATATAA G
<i>Parasyrphus tarsatus</i>	3891	TACATTATATTTTTATTGGAACTTGAGCTGGAATAGTTGGTACTTCTTT AAGTGTGTTAATTCGTCAGAACTTGGTCATCCAGGTGCTTTAATTGGTG ATGATCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTGAATAATTT TTTTATAGTAATACCTATTATAAATGGTGGATTTGGAAATGATTAGTTC CTTTAATATTAGGAGCTCCTGATATAGCTTTTCCCTCGTATAAACAATAATA G
<i>Parydra parasocia</i>	3089	AACACTTTATTTTTATTTTCGGGGCTTGATCAGGAATAATTGGAACCTCATT AAGAATTTTAATTCGAGCAGAACTTGGACATCTGGTGCTTTAATTGGTG ATGACCAAATTTATAATGTAATTGTAACAGCTCATGCTTTGTAATAATTT TTTTATAGTAATACCTGTAATAATTGGTGGTTTTGGAAATGATTAGTTC CATTAATATTGGGAGCTCCAGATATAGCTTTCCCTCGAATAAATAATATAA G
<i>Pelina canadensis</i>	3101	AATTCGAATTCGAGCTGAATTAGGTCACCCAGGAGCTTTAATTGGAGATG ATCAAATTTATAATGTAATTGTTACAGCTCATGCTTTGTAATAATTTTTT CATGGTAATACCAATTATAAATGGAGGATTTGGTAATTGATTAGTTCCTTT AATACTAGGAGCCCCAGATATAGCATTTCCTCGAATAAATAATATAAG
<i>Pherbellia albocostata</i>	1791	TACCTTACTTCTTATTTGGAGCTTGAGCTGGAATAGTAGGAACCTCTTT AAGTATCTTAATTCGAGCCGAATTAGGACATCCAGGAGCCTTAATTGGAG ATGACCAAATTTATAACGTAATTGTAACCTGCCATGCTTTTGTACATAATTT TTTTATAGTTATACCTATTATAAATGGTGGATTTGGAAATGATTGGTAC CCTTAATATTAGGAGCTCCAGATATAGCATTTCCTCGAATAAATAATATAA G
<i>Pherbellia schoenherri maculata</i>	2036	TACATTATATTTCTATTTCGGGGCTGAGCCGGGATAGTAGGAACCTCCT TGAGATTTTTAATTCGAGCAGAATTAGGTCACCCAGGAGCTTTAATTGGGA GACGACCAGATTTATAACGTAATTGTTACTGCTCATGCTTTTGAATAAATT TTTTTATGGTAATACCGATTATAAATGGAGGTTTTGGGAATTGACTAGTA CCCCTAATACTAGGAGCCCCAGATATAGCCTTCCCTCGAATAAACAATAT AAG
<i>Pherbellia tenuipes</i>	3682	AACATTACTTCTTATTTGGAGCTTGGGCTGGAATAGTAGGAACCTCAT TAAGAATTTTAATTCGAGCAGAATTAGGACATCCAGGAGCATTAAATGGGA GACGATCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTGAATAAATT TTTTTATAGTAATACCTATTATAAATGGTGGATTTGGGAATTGACTAGTA CCCCTAATACTAGGAGCCCCAGATATAGCTTTTCCCTCGAATAAATAACATA AG
<i>Phyllodesma americana</i>	4584	AACTTTATATTTTTATTTTCGGTATTTGAGCAGGAATAGTAGGAACCTCTTT AAGATTATTAATTCGAGCAGAATTAGGAACCCAGGATCTTTAATTGGAG ATGATCAAATCTATAACTATTGTAACAGCTCATGCTTTTATTATAATTTT TTTTATAGTTATACCTATTATAAATGGAGGATTTGGTAATTGATTAGTACC TTTAATATTAGGAGCCCCTGATATAGCATTCCCCGAATAAATAATATAA G
<i>Phyllonorycter populiella</i>	4037	AACATTATATTTTTATTTTGGAAATTTGATCAGGAATAGTAGGTACTTCTTT AAGATTAATAATTCGAATAGAATTAGGAATCCTGGATCTTTAATTGGAG ATGATCAAATTTATAACTATCGTTACAGCTCATGCTTTTATTATAATTTT TTTTATAGTAATGCCAATTATAAATGGAGGATTTGGAAATGATTAGTTC CTTAATACTTGGAGCCCCTGATATAGCATTCCCCGTATAAATAATATAAG AACATTATATTTTATATTTGGGGCTTGAGCAGGAATAGTAGGAACATCCC TAAGAATTTTAGTTCGAGCTGAATTAGGACATCCCGGAGCATTAAATGGGA GATGACCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTGAATAAATT TTTTTATAGTAATACCATCATAAATGGAGGATTTGGAAATGATTAGTTC CCTTGATATTAGGGGCCCCAGACATAGCATTCCACGAATAAATAATAT AAG

Taxon	KNWR ID	Sequences (COI-5P)
<i>Platycheirus</i>	2808	AACATTATATTTTTATTGGTGCTTGAGCTGGTATAGTAGAACCTCTTT AAGAATTTAATTCGTGCAGAACTGGTCATCCAGGAGCTTTAATTGGAG ATGACCAAATTTATAATGTAATTGTTACTGCTCATGCTTTTGTATAATTT TTTTATAGTAATACCAATTATAAATTGGAGGATTTGGTAATTGATTAGTCC TTTAATATTAGGAGCTCCAGATATAGCTTTTCCCTCGAATAAATAATATAAG
<i>Platycheirus</i>	2288	AACITTTACTTTTTATTGGAGCTTGAGCAGGTATAGTAGGAACATCATT AAGTATACTAATTCGTGCTGAACTGGTCATCCAGGTGCTTTAATTGGAG ATGATCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTGTATAATTT TTTTATAGTTATACCAATTATAAATTGGAGGATTTGAAATTGATTAGTCC ATTAATATTAGGAGCCCTGATATAGCATTTCCCTCGAATAAATAATATAA G
<i>Prolita sexpunctella</i>	4389	AACITTTATTTTTATTTTTGGAATTGAGCAGGAATAGTAGGAACATCTTT AAGTCTTTAATTCGAGCTGAATTAGGAAATCCAGGTTCTTTTATTGGAG ATGATCAAATTTATAACTATTGTTACAGCTCATGCTTTTATTATAATTT TTTTATGTAATACCAATTATAAATTGGTGGATTTGGAACCTGATTAGTCCC TTTAATATTAGGAGCTCCTGATATAGCTTTCCCTCGAATAAATAATATAAG
<i>Prosimulium trivisi</i>	3742	AACCCITTTATTTTATTTGGGGCATGAGCCGGTATGGTTGGNACTTCCCT AAGTATACTAATTCGAGCAGAAATTAGGACACCCCGGATCCCTAATTGGAG ACGATCAAATTTATAATGTAATTGTCAGTCCCATGCTTTTGTAAATTT TCTTCATAGTTATGCCATTATAATTGGGGATTGGAAATTGACTGTTC CTTTTACTCGGAGCACNGATATGGCTTTCCACGAATAAATAATATA AG
<i>Protocalliphora</i>	6778	TACITTTATTTTTATCTTCGGAGCTTGATCAGGAATAATTGGAACCTCACT AAGAATTCTAATTCGAGCAGAAATTAGGACACCCCTGGAGCATTGATTGGA GATGACCAAATTTACAATGTAATTGTAACAGCTCATGCTTTTATTATAATT TTTTTATAGTAATACCAATTATAAATTGGTGGATTTGGTAATTGACTAGTT CCCCTAATATTAGGAGCTCCAGATATAGCTTTCCACGAATAAATAATATA AG
<i>Protophormia terraenovae</i>	6779	TACITTTATTTTCATTTTCGGAGCTTGATCAGGAATAGTAGGAACCTCTTT AAGAATCCTAATTCGAGCTGAATTAGGGCACCCCTGGAGCACTAATTGGA GATGACCAAATTTATAATGTAATTGTAACGGCTCACGCTTTTATTATAATT TTCTTTATAGTAATACCAATTATAAATTGGAGGATTTGGAAATTGACTAGTT CCCCTTATATTAGGGGCTCCTGATATAGCATTTCCCTCGAATAAATAATATA AG
<i>Pseudocalliope</i>	2001	AACITTTATTTCTTATTTGGAGCTTGAGCGGGAATGGTTGGAACCTCTCT AAGAATTTAATTCGAGCTGAATTAGGTACCCAGGAGCTCTAATTGGAG ATGATCAGATCTATAATGTAATTGTTACAGCTCACGCTTTGTAATAATTT TTTTCATAGTTATACCTATTATAATTGGAGGATTTGGAAATTGATTAGTTC CTTTAATATTAGGAGCTCCTGATATAGCATTTCCCTCGAATAAATAATATA G
<i>Psilopa girschneri</i>	3079	AACITTTACTTTATTTTTCGGAGCTTGAGCAGGAATAGTAGGAACCTCATT AAGTATCTAATTCGAGCTGAATTAGGACATCCGGNGCTTTAATTGGAG ATGACCAAATTTATAACGTAATTGTTACAGCTCATGCTTTTGTATGATTT TCTTTATAGTAATACCTATTATAATTGGAGGATTTGGAAATTGATTAGTTC CTTTAATGTTAGGAGCTCCTGATATAGCATTTCCCTCGAATAAATAATATA G
<i>Rhaphium discolor</i>	2940	AACATTATATTTTTATTTTTGGAGCATGAGCTGGAATAGTAGGTAACCTCATT AAGTATTATTCCGAGCTGAGTTAGGACATCCGGAGCATTAAATTGGTG ACGATCAAATTTATAATGTAGTAGTTACCGCTCATGCTTTATTATAATTT TCTTTATAGTTATACCAATTATAAATTGGAGGGTTCGGAAACTGACTAGTTC CATTAACTAGGAGCCCCAGATATGGCTTTCCACGTATAAATAATATA AG
<i>Rhaphium elegantulum</i>	6786	AACCCATATTTTTATTTTTGGTGATGAGCCGGAATAGTAGGTAACCTCATT AAGTATTATTTCGAGCTGAATTAGGACACGCTGGTGCTAATTGGAG ATGACCAAATTTATAATGTTGATGTTACCGCCACGCATTCTATTATAATTT TTTTTATAGTTATGCCAATTATAAATTGGAGGATTTGGTAACGATTAGTTC CATTAAATTAGGAGCTCCAGATATAGCTTTTCCCGAATAAATAATATA G
<i>Rhaphium femoratum</i>	2944	AACITTTATTTTTATTTTCGGAGCATGAGCTGGAATAGTAGGAACATCAC TAAGAATTATTTCGAGCCGAATTAGGTCTATGAGGAGCACTAATCGGA GACGACCAAATTTATAATGTAGTAGTTACAGCTCACGCATTATTATAATT TTCTTTATAGTTATACCAATTATAAATTGGAGGATTCGGAAATTGACTAGTC CCATTAATATTAGGAGCCCTGACATGGCTTTCCACGAATAAACAATAT AAG



Taxon	KNWR ID	Sequences (COI-5P)
<i>Rheumaptera hastata</i>	6817	AAC TTTATATTTTATTTTGGAAATTTGAGCTGGAATAGTTGGAACCTCATT AAGATTATTAATTCGAGCTGAACTAGGAAATCCAGGTTCTTTAATTGGAG ATGATCAAATTTATAACTATTGTTACGGCTCATGCTTTTATTATAATTTT TTTTATAGTAATACCTATTATAAATGGAGGATTTGGAAATGATTAGTTCC TTTAATATTAGGAGCCCCTGATATGGCCTTCCCACGAATAAATAATATAA G
<i>Rheumaptera hastata</i>	6816	AAC TTTATATTTTATTTTGGAAATTTGAGCTGGAATAGTTGGAACCTCATT AAGATTATTAATTCGAGCTGAACTAGGAAATCCAGGTTCTTTAATTGGAG ATGATCAAATTTATAACTATTGTTACGGCTCATGCTTTTATTATAATTTT TTTTATAGTAATACCTATTATAAATGGAGGATTTGGAAATGATTAGTTCC TTTAATATTAGGAGCCCCTGATATGGCCTTCCCACGAATAAATAATATAA G
<i>Rheumaptera hastata</i>	6818	AAC TTTATATTTTATTTTGGAAATTTGAGCAGGAATAATCGGAACCTCTTT AAGATTATTAATTCGAGCTGAATTAGGAAATCCAGGATTTTAAATTGGAG ATGATCAAATTTATAACTATCGTAACTGCTCATGCTTTTATTATAATCTT TTTTATAGTTATACCTATTATAAATGGAGGTTTTGGAAATGATTAGTACC ATTAATATTAGGAGCCCCTGATATAGCTTTCCCGGATAAATAATATAA G
<i>Rhigognostis interrupta</i>	6832	TACCTTATATTTTATTTTGGAAATTTGAGCAGGAATAGTAGGAACCTCTCT AAGTTTATTAATTCGAGCCGAATTAGGAAACCCGGATCATTAAATTGGAG ATGATCAAATTTATAATACAATTGTGACAGCTCACGCATTCTTTATAATTT TTTTATAGTTATACCTATTATAAATGGAGGATTTGGAAATGATTAGTGC CTTTAATATTAGGGCCCCAGATATAGCTTTCCCTCGAATAAATAATATAA G
<i>Sapromyza</i>	1772	AACACTATACTTTCTATTGGTGCTTGAGCTGGAATAGTGGGGACATCTT TAAGAATTTTAAATTCGAGCTGAACTGGGACACCCAGGAGCTTAAATTGGA GATGATCAAATTTATAATGTAATTGTTACTGCTCATGCATTTGTAATGATT TTTTTATAGTAATACCNATTATAAATGGAGGATTTGGAAACTGATTGGTC CCTTTAATATTAGGAGCCCCAGATATAGCATTTCCTCGAATAAATAATATA AG
<i>Scatella picea</i>	3066	AACACTTTACTTTATTTTCGGAGCATGATCAGGAATAGTAGGAACCTCAC TAAGAATTTCTAATTCGAGCTGAATTAGGACATCCTGGAGCTTTAATTGGA GATGATCAAATTTATAACGTAATTGTTACAGCTCATGCATTTGTAATAATN TTCTTTATAGTAATACCTATTATAAATGGAGGATTTGGAAATGATTAGTG CCTTTAATATTAGGAGCTCCTGATATAGCATTTCCTCGAATAAATAACATA AG
<i>Sceptonia</i>	3472	ATATTTCAATTTTGGAAATTTGATCGGGAATAGTAGGAACCTCATTAAAGTT AATTATTCGTACAGAATTAGGTCACCCAGGATCCTTAATTGGGAATGATC AAATTTATAACGTAATTGTTACTGCTCATGCTTTTATTATAATTTCTTTAT AGTTATACCTATTATAAATGGAGGATTCGGAATGATTAATTCCTCTTAT ACTAGGAGCCCCTGATATAGCTTTCCCTCGAATAAATAATATAAG
<i>Scopula inductata</i>	6819	AACATTATATTTTATTTTGGAAATGAAAGAGGTATAGTAGGAACATCAT TAAGATTATTAATTCGAGCTGAATTAGGAAATCCAGGATCATTAAATTGGA GATGATCAAATTTATAACTATTGTAACAGCTCATGCTTTTATTATAATTT TTTTTATAGTAATACCTATTATAAATGGAGGATTTGGAAATGATTAGTTC CTTTAATATTAGGAGCTCCTGATATAGCATTTCCTCGAATAAATAATATAA G
<i>Sericomyia militaris</i>	1564	AACATTATATTTTATTTTGGTACATGAGCTGGTATAGTAGGAACATCTTT AAGAATTTAATTCGTGCAGAATTAGGTCATCCAGGTGCTTTAATTGGTG ATGACCAAATTTATAATGTAATTGTTACAGCACATGCTTTTGAATAATTT TTTTTATAGTAATACCTATTATAAATGGAGGTTTTGGAAATGATTAGTTC CTTTAATATTAGGAGCTCCTGATATAGCATTTCCTCGAATAAATAATATAA G
<i>Simulium rostratum</i>	2024	AACCTTATATTTTATTTTGGAGCTTGAGCAGGAATAGTAGGAACCTCCCT TAGAATACTTATTCGAGCTGAATTAGGACATCCTGGATCTCTTATTGGAG ACGATCAAATTTATAATGTGATTGTTACTGCTCATGCCTTTGTAATAATTT TTTTCATAGTTATACCAATTATGATTGGAGGATTTGGAAATGATTAGTTC CTTTAATATTAGGAGCCCCTGATATGGCCTTTCCTCGAATAAATAATATAA G

Taxon	KNWR ID	Sequences (COI-5P)
<i>Simulium vittatum</i>	2881	AAC TT T A C T T T A T C T T C G G A G C T T G A G C T G G A A T A G T A G G T A C T T C C C T T A G T A T A C T T A T T C G A G C T G A A T T A G G C C A C C C A G G A T C T T T A A T T G G G G A T G A C C A A A T T T A T A A T G T T A T T G T A A C A G C A C A T G C T T T T G T T A A T T T T C T T C A T A G T T A T A C C C A T T A A T T G G A G G A T T T G G A A T T G A C T T G T C C C T C T T A T A T T A G G A G C T C C C G A T A T A G C A T T C C C A C G A A T A A A T A T A T A A G
<i>Siphona maculata</i>	4240	A A C G T T A T A T T T T A T T T T T G G G G C T T G A G C T G G T A T A T A G G A A C T T C T C T A A G A A T T C T A A T C C G A G C T G A A T T A G G A C A C C C A G G G T C A T T A A T T G G G G A T G A C C A A A T C T A T A A T G T A A T T G T A A C A G C T C A C G C T T T C A T T A T A A T T T T T T T A T A G T A A T A C C A G T A A T A T C G G A G G A T T T G G T A A T T G A T T A G T T C C T T T A A T T A G G A G C T C C A G A T A T A G C T T T C C C T G T A T A A C A A T A T A A G
<i>Speyeria mormonia</i>	6830	A A C T T T A T A T T T T A T T T T T G G A A T T T G G G C A G G A A T A G T A G G A A C A T C A C T A A G T T T A T T A A T T C G A A C T G A A C T A G G T A A T C C A G G A T C A T T A A T T G G A G A T G A T C A A A T T T A T A A T A C C A T T G T A A C A G C T C A T G C T T T T A T T A A T T T T T T T T A T A G T T A T A C C A A T T A A A T T G G T G G A T T T G G T A A C T G A T T A G T C C C C C T A A T T A G G A G C T C C A G A T A T A G C T T T C C C T G T A T A A A A T A A T A A G A A C A T T A T A T T T T C T A T T T G G A G C T T G A G C N G G A A T A G T A G G A A C T C T T T A A G T A T T T A A T T C G T A T A G A A C T T G G T C A T C C A G G A G C A T T A A T T G G A G A T G A N C A A A T T T A T A A T G T A A T T G T T A C T G C A C A T G C T T T T G T T A A T T T T T T T A T A G T A A T A C C T A T T A A T T G G A G A T T T G G T A A T T G A T T A G T T C C T T T A A T T A G G A G C T C T G A T A T A G C T T T C C C C G A A T A A A T A A T A T A A G
<i>Sphaerophoria</i>	3393	A A C A T T A T A T T T T C T A T T T G G A G C T T G A G C N G G A A T A G T A G G A A C T C T T T A A G T A T T T A A T T C G T A T A G A A C T T G G T C A T C C A G G A G C A T T A A T T G G A G A T G A N C A A A T T T A T A A T G T A A T T G T T A C T G C A C A T G C T T T T G T T A A T T T T T T T A T A G T A A T A C C T A T T A A T T G G A G A T T T G G T A A T T G A T T A G T T C C T T T A A T T A G G A G C T C T G A T A T A G C T T T C C C C G A A T A A A T A A T A T A A G
<i>Suillia apicalis</i>	2117	A A C A C T T T A T T T T A T A T T C G G G C A T G A G C T G G A A T A G T C G G A A C T C T T T A A G A A T T T T A A T T C G A G C T G A A T T A G G T C A C C C A G G A G C T T T A A T T G G T G A T G A T C A A A T T T A T A A T G T A A T T G T T A C C G C C A T G C T T T T G T A A A T T T T T T T T A T A G T A A T A C C A A T T A T A A T T G G T G G G T T T G G A A A T T G A T T A G T A C C C C T A A T T A G G A G C C C T G A C A T A G C T T T C C A C G T A T A A A T A A T A T A A G
<i>Suillia convergens</i>	3283	A A C C T T A T A T T T T A T T T T T G G T G C C T G A G C T G G A A T A G T G G G A A C T T C T C T A A G T A T T T T A A T T C G G G C A G A A T T A G G T C A T C C T G G T G C T T T A A T T G G T G A T G A C C A A A T T T A T A A T G T A A T T G T T A C T G C T C A T G C T T T T G T A A A T T T T T T T C A T A G T A A T A C C T A T T A T A A T T G G A G G A T T C G G A A C T G A C T A G T T C C C T T A A T A C T A G G T G C C C A G A T A T A G C A T T T C C G A A T A A A T A A T A T A A G A A C A T T A T A T T T T A T T T T T G G T A T T T G A T C T G G A A T A G T A G G A A C T C C T T A A G A C T T T T A A T T C G A G C A G A A T T A G G A A T C C T G G A T C T T T A A T T G G A G A T G A T C A A A T T T A T A A T A C T A T T G T T A C A G C T C A T G C T T T T A T T A A T T T T T T T T A T A G T C A T A C C T A T T A A T A A T C G G A G G A T T T G G T A A T T G A T T A G T T C C T T T A A T T A G G A G C T C C A G A T A T A G C T T T C C C A C G A A T A A A T A A T A T A A G
<i>Swammerdamia caesiella</i>	3299	A A C A T T A T A T T T T A T T T T T G G T A T T T G A T C T G G A A T A G T A G G A A C T C C T T A A G A C T T T T A A T T C G A G C A G A A T T A G G A A T C C T G G A T C T T T A A T T G G A G A T G A T C A A A T T T A T A A T A C T A T T G T T A C A G C T C A T G C T T T T A T T A A T T T T T T T T A T A G T C A T A C C T A T T A A T A A T C G G A G G A T T T G G T A A T T G A T T A G T T C C T T T A A T T A G G A G C T C C A G A T A T A G C T T T C C C A C G A A T A A A T A A T A T A A G
<i>Sylvicola fuscatus</i>	2045	A A C C T T T A T T T T A T T T T T G G G G C T T G A G C T A G A A T A G T T G G A A C A T C C C T A A G A A T T A A T T C G T G C T G A A T T A G G T C A T C C T G G G C T T T A A T T G G T G A C G A T C A A A T T T A T A A T G T A A T T G T T A C T G C T C A C G C T T T C G T A A A T T T T C T T C A T A G T T A T A C C T A T T A T A A T T G G A G G A T T C G G A A A C T G A C T T G T T C C C T T A A T T A G G G C T C T G A T A T G G C A T T C C C T C G A A T A A A T A A T A T A A G
<i>Symphoromyia</i>	2848	A A C T T T A T A T T T T A T T T T T G G G G C C T G A G C A G G A A T A G T A G G G A C T T C A T T A A G T A T A T T A A T T C G A G C T G A A T T A G G A C A T C C G G A G C T T T A A T T G G A G A C G A T C A A A T T T A T A A C G T A A T T G T T A C A G C A C A T G C T T T T G T A A A A T T T T T T T A T G G T A A T A C C A A T T A A T T G G G G G G T T T G G A A A T T G A T T A G T T C C T T T A A T T A G G G G C C C A G A T A T A G C A T T C C C A C G A A T A A A T A A T A T A A G
<i>Synneuron decipiens</i>	6788	T A C T C T A T A T T T T A T T T T T G G A G C T T G A G C A G G A A T A A T T G G C A C A T C T A T A A G T T T A T T A A T T C G T G C C G A A T T A A T C A C C C A G G T A T A C T A A T T G G T A A T G A C C A A A T C T A T A A T G T A A T T G T T A C T A C A C A T G C T T T T G T A A T G A T T T T T T T A T A G T A A T A C C T A T T A T A A T T G G A G G G T T T G G A A A T T G A T T A G T C C A T T G A T A T T A G G A G C C C C T G A T A T A G C T T T C C T C G A A T A A A T A A T A A G A A C A T T A T A T T T T A T T T T T G G A A C T T G A G C T G G T A T A G T A G G A A C A T C A T T A A G T G T A T T A A T T C G T G C A G A A C T T G G T C A T C C A G G A G C T T T A A T T G G A G A T G A T C A A A T T T A T A A T G T T A T T G T A A C T G C T C A T G C T T T T G T T A A T T T T T T T T A T A G T A A T A C C A A T T A T A A T T G G A G G A T T T G G T A A T T G A T T A G T T C C T T T A A T T A G G A G C T C C T G A T A T A G C A T T T C C T G T A T A A A T A A T A T A A G
<i>Syrphus vitripennis</i>	1566	A A C A T T A T A T T T T A T T T T T G G A A C T T G A G C T G G T A T A G T A G G A A C A T C A T T A A G T G T A T T A A T T C G T G C A G A A C T T G G T C A T C C A G G A G C T T T A A T T G G A G A T G A T C A A A T T T A T A A T G T T A T T G T A A C T G C T C A T G C T T T T G T T A A T T T T T T T T A T A G T A A T A C C A A T T A T A A T T G G A G G A T T T G G T A A T T G A T T A G T T C C T T T A A T T A G G A G C T C C T G A T A T A G C A T T T C C T G T A T A A A T A A T A T A A G

Taxon	KNWR ID	Sequences (COI-5P)
<i>Tetanocera fuscinervis</i>	5353	AACACTCTACTTCATCTTCGGAGCTTGGGCCGGTATGGTCGGAACCTCTT TGAGAATCTTGATTTCGAGCCGAACTTGGCCATCCAGGAGCTTTAATTGGA GATGATCAGATCTATAATGTAATTGTTACTGCTCATGCATTTGTAATAATT TTTTTATAGTAATGCCAATTATAATTGGAGGATTTGAAACTGGCTAGT ACCCCTAATACTAGGCGCACCAGATATAGCATTTCTCGAATAAATAATA TGAG
<i>Tetanocera montana</i>	1589	AACACTTTATTTTCATCTTCGGAGCTTGGGCTGGAATAGTTGGAACCTCATT GAGAGTGATTATCCGTGCTGAACTTGGACACCCAGGAGCATTAAATTGGA GATGATCAGGTCTACAATGTGATTGTTACAGCTCATGCTTTTGTAAATAATT TTTTTATAGTAATGCCTATTATAATTGGAGGATTTGAAACTGGCTAGTA CCCCTAATACTAGGAGCACCAGATATAGCATTCCCTCGAATGAATAATAT GAG
<i>Tetanocera phyllophora</i>	6133	AACCTCTACTTCATTTTCGGCGCTTGAGCCGGAATAGTAGGAACCTCTCT GAGAATGCTTATTCGTGACAGAACTTGGTACCCCTGGCGCTTAAATCGGCG ATGATCAAAATTTATAACGTAATTGTCAGTCTCATGCCTTTGTAATAATCT TTTTTATAGTGATACCTATTATAATTGGAGGATTTGAAACTGGCTAGTA CCCCTAATACTAGGCGCACCAGATATAGCTTTTCTCGAATAAATAATATG AG
<i>Tetanocera plebeja</i>	6772	AACACTTTATTTTCATCTTCGGAGCTTGGGCTGGAATAGTTGGAACCTCATT GAGAGTGATTATCCGTGCTGAACTTGGACACCCAGGAGCATTAAATTGGA GATGATCAGGTCTACAATGTGATTGTTACAGCTCATGCTTTTGTAAATAATT TTTTTATAGTAATGCCTATTATAATTGGAGGATTTGAAACTGGCTAGTA CCCCTAATACTAGGAGCACCAGATATAGCATTCCCTCGAATGAATAATAT GAG
<i>Tetanocera silvatica</i>	6771	AACCTCTACTTCATCTTGGAGCTTGGAGCAGGAATAGTGGGGACTTCCC TAAGAACTCTTATTCGTGCTGAACTGGTCCACCCAGGAGCTCTAATTGGA GATGATCAAACTATAATGTAATTGTTACAGCTCATGCTTTTGTAAATAATT TTTTTCATAGTTATACCTATTATAATCGGAGGATTTGAAATTGACTAGTA CCCCTAATACTAGGAGCCCCAGATATAGCATTCCCGAATAAATAATAT AAG
<i>Thaumatomyia trifasciata</i>	2910	AACATTATATTTTCATATTGGAGCATGAGCTGGAATAGTAGGAACCTCCC TAAGTATTCTAATTCGAGCTGAATTAGGACATCCAGGAGCCTTAATTGGT GATGACCAAAATTTATAATGTAATTGTAAGTCTCAGCATTGTTATAATT TCTTTATAGTTATACCTATTATAATTGGGGATTCGAAAATTGATTAGTT CCTTAAATGTTAGGAGCCCCGATATAGCATTCTCGAATAAATAATATA AG
<i>Thecabius populimonilis</i>	6350	AACATTATATTTTCTATTGGAAATTTGATCAGGAATAATTGGATCTTCACT TAGAATTTAATTTCGATTAGAATTAAGTCAAAATTAATTCTATTATAATAA TAATCAACTATATAATGTAATTGTTACTATTATGCTTTTATAAATTTTC TTCATAACAATACCTATTGTAATCGGAGGATTTGGTAATTGATTAATTCT ATAATAATAGGATGCCCTGATATATCATTTCACGATTAATAAATATTAG
<i>Tortricidae</i>	3395	AACACTACTCTTATTTTGGTATTGAGCTGGAATAATTGGAACATCATT AAGTTTACTAATTCGTGCTGAATTAGGTAATCCAGGATCTTAAATTGGAG ATGATCAAAATTTATAACTATCGTAACTGCACATGCATTTATTATAATTTT TTTTATAGTAATACCAATTATAATTGGAGGATTTGAAATTGATTAGTACC TTAATATTAGGAGCCCCGATATAGCCTTCCCGTATAAAACAATATAA G
<i>Udea washingtonalis</i>	6825	AACTTTATATTTTATTTTGGGATTTGAGCAGGAATAGTAGGAACATCTCT TAGATTATTAATTCGAGCAGAATTAGGTAATCCTGGATCTTTTATTGGAG ATGATCAAAATTTACAATACTATTGTAACAGCTCATGCATTTATTATAATTT TTTCATAGTTATACCTATTATAATTGGAGGATTTGAAATTGATTAGTACC CTTAAATATTAGGGCCCCCGATATAGCATTCCCGAATAAATAATATAA G
<i>Xanthorhoe decoloraria</i>	6821	AACTTTACTTTATTTTGGAAATTTGAGCAGGAATAGTTGGAACATCTTT AAGTTTATTAATTCGAGCAGAATTAGGAAACCCAGGATCTCTAATTGGAG ATGACCAAATTTATAACACTATTGTTACAGCCCATGCTTTTATTATAATTT CTTTATAGTTATACCTATTATAATTGGAGGATTTGAAATTGATTAGTACC TTAATATTAGGAGCCCCGATATAGCATTCCCTCGAATAAACAATATAA G
<i>Xanthorhoe decoloraria</i>	6820	AACTTTATATTTTATTTTGGAAATTTGAGCAGGAATAGTTGGAACATCTTT AAGTTTATTAATCCGAGCAGAATTAGGAAACCCAGGATCTCTAATTGGAG ATGATCAAAATTTATAACACTATTGTTACCGCCATGCTTTTATTATAATTT CTTTATAGTTATACCTATTATAATTGGAGGATTTGAAATTGATTAGTACC TTAATATTAGGAGCCCCGATATAGCATTCCCTCGAATAAATAATATAAG

Taxon	KNWR ID	Sequences (COI-5P)
<i>Xanthorhoe fossaria</i>	6823	AAC TT TATA CTT TAT TTT TGG AATT GAG CAG GAAT AG TTG GAAC AT CTT T AAG TTT ATTA ATT CGAG CAGA ATT AGG AA ACC CAG GAT CTCT AATT GGAG ATG ACC AAA TT TATA A CACT ATT GTT ACAG CCC ATG CTT TTT ATTA AAT TTT CTT TAT AG TT ATAC CTATT ATA AATT GGAG GATT TGG AA ATT GATT AGT ACC TTT AAT ATT AGG AG CCC CTG AT ATAG CATT CCCT CGA ATA AACA ATATA A G
<i>Xanthorhoe fossaria</i>	6822	AAC TT TATA CTT TAT TTT TGG AATT GAG CAG GAAT AG TTG GAAC AT CTT T AAG TTT ATTA ATT CGAG CAGA ATT AGG AA ACC CAG GAT CTCT AATT GGAG ATG ACC AAA TT TATA A CACT ATT GTT ACAG CCC ATG CTT TTT ATTA AAT TTT CTT TAT AG TT ATAC CTATT ATA AATT GGAG GATT TGG AA ATT GATT AGT ACC TTT AAT ATT AGG AG CCC CTG AT ATAG CATT CCCT CGA ATA AACA ATATA A G
<i>Xylophagus decorus</i>	6767	AAC ACT ATA CTT TAT TTT TGG AG CCT GAG CAG GAAT AG TAG GA ACT TCT T TAAGA ATA ATA ATT CGGG CAGA ATT AGG AC ATC CTGG AT CCTT AATT GGT GAC GAT CAA ATTT ATA ATG TA ATT GTT ACT GCT CAT GC ATTT ATTA TA ATT TTTT TAT AG TT ATAC CTATT ATA AATT GGT GG ATT TGG AA ATT GATT AGT C CCC TA AT ATT AG GGG CCC CTG AT ATAG CTT TCC TCGA ATA AATA ACATA AG

Embedded files

OLE object	Description
 2011_KENWR_Arthropod_REA_map.kmz	Map of sampling locations in compressed Google Earth Keyhole Markup Language (KML) format.
 Pincher_Creek_cabin_permit.pdf	Permit for use of the Pincher Creek cabin.