

# Checklist of the sawflies (Hymenoptera) of Canada, Alaska and Greenland

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## Abstract

A distributional checklist of the sawflies (Hymenoptera) of Canada, Alaska (USA) and Greenland (Denmark) is presented. In total, 758 extant, described species, classified in 113 genera in 12 families are recorded. Of these, 729 (in 113 genera in 12 families) are reported from Canada, 183 (in 48 genera in 8 families) from Alaska, and 7 (in 1 genus) from Greenland. The list includes 69 new species records and 5 new generic records for Canada and 29 new species records and 7 new generic records for Alaska. The family Xiphydriidae is also newly recorded from Alaska. No new records are reported from Greenland. Eighty-four new combinations are proposed for species of Nematinae (Tenthredinidae). Distributions are listed for all species, for those in Canada by province or territory, except the province of Newfoundland and Labrador is divided into the island of Newfoundland and the region of Labrador. This inventory is compared with previous Nearctic and Palaearctic surveys, checklists and catalogues.

## Keywords

Northern North America, sawflies, species distributions

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## Introduction

Sawflies (including horntails) comprise an ancient series of lineages in the order Hymenoptera. Including fossils, there are 8618 described species of sawflies in the world (Taeger et al. 2018) compared to a total of about 154,000 in the order Hymenoptera (Huber 2017). The earliest known fossils of Hymenoptera are sawflies of the family Xyelidae (Riek 1955; Lara et al. 2014) from the middle to late Triassic. Previously, sawflies were classified in the suborder Symphyta (Smith 1979a); however, morphology-based phylogenetic studies on the order Hymenoptera established that sawflies were part of a paraphyletic grade of lineages that diverged prior to the origin of the suborder Apocrita, a clade that includes all other extant families of Hymenoptera (Königsmann 1977; Rasnitsyn 1988; Ronquist et al. 1999). This hypothesis of relationships has been supported by more recent studies using molecular data, e.g., Heraty et al. 2011; Peters et al. 2017. In most of these studies, the sawfly superfamily Xyeloidea (family Xyelidae) is sister group to all other Hymenoptera (but see Peters et al. 2017) and superfamily Orussoidea (family Orussidae) is sister group to Apocrita. Sawflies are currently classified into seven extant superfamilies and fourteen extant families (Taeger et al. 2010, 2018). All extant superfamilies are present in northern North America with representatives of all families except for Blasticotomidae (Tenthredinoidea) and Megalodontesidae (Pamphilioidea) (Taeger et al. 2018; Bennett et al. 2019) (Table 1 and Figs 2–26).

In terms of biology, all sawflies are herbivorous as larvae, except for Orussoidea which are parasitoids of horntails (Hymenoptera: Siricidae) (Rawlings 1957) and wood-boring beetles (Coleoptera) (Powell and Turner 1975). Most larvae are external feeders on angiosperms, but some taxa feed externally on conifers, for example, Diprionidae (Benson 1939), Pamphiliidae (Middlekauff 1958) as well as some Tenthredinidae (e.g., Prous et al. 2017). A few taxa, mostly in the tenthredinid subfamily Selandriinae, feed externally on ferns (Smith 1969b). Feeding inside plants has evolved several times, for example, wood-boring in Anaxyelidae (Wickman 1967), Siricidae (Schiff et al. 2012) and Xiphydriidae (Smith 1976a). Some larvae develop internally in stems, especially stem sawflies (Cephalidae) (Ries 1937), whereas others feed and develop inside reproductive organs of their host plants, e.g., species of *Xyela* Dahlman (Xyelidae) in the staminate cones of pine trees (*Pinus* Linnaeus) (Burdick 1961). Some species, especially in the genus *Euura* Newman have larvae that are gall-makers (Benson 1960). In addition, some are leaf-miners, especially within the tenthredinid subfamily Heterarthrinae (Leppänen et al. 2012). Because of their herbivory, some species can be pests, e.g., the wheat stem sawfly, *Cephus cinctus* Norton (Cephalidae) is a widespread pest of wheat and other cereals in North America (Shanower and Hoelmer 2004) and *Sirex noctilio* Fabricius (Siricidae), a recent invasive species in North America, is a major pest of pine trees in many parts of the world (Hoebeker et al. 2005). As adults, most sawflies, especially females, feed on pollen and nectar, but some taxa, especially in the tenthredinid subfamilies Allantinae, Selandriinae and Tenthredininae are active predators of other insects (Benson 1950) (Fig. 17).

On a world level, sawfly researchers are very well-served by the online Electronic World Catalog of Symphyta (ECatSym) (Taeger et al. 2018), which provides a comprehensive compilation of the taxonomic and distributional information and literature sources for all species of sawflies. With respect to surveys of sawflies within the Nearctic region, the catalogue of Smith (1979a) recorded 992 species in America North of Mexico and included distributional ranges for all species, including those known in Alaska and Greenland up to 1974. Masner et al. (1979) calculated the number of described species of sawflies by family in Canada (443). A comprehensive survey of the sawflies of the state of Alaska (USA) has not been made since Smith (1979a), whereas Vilhelmsen (2015) recently reviewed the sawflies of Greenland. Taxonomically, the Nearctic sawfly fauna is very well-studied relative to other groups of Hymenoptera (see references in Table 2), and on a regional level is probably better studied than any other part of the world except for Europe (see comparison in Results and Discussion). Historically, early workers provided catalogues of Nearctic sawflies, e.g., Edward Norton (1867, 1868). In the late 19<sup>th</sup> and early 20<sup>th</sup> centuries Alexander MacGillivray and, later, Sievert Rohwer both described over 500 species of sawflies (Taeger et al. 2010), the majority of which were Nearctic. In addition, Charles Marlatt revised the North American species of the taxonomically challenging tenthredinid subfamily Nematinae (Marlatt 1896). Starting in the 1930s Herbert Ross contributed to our knowledge of Nearctic sawflies, most importantly with his classification of the genera (Ross 1937) as well as his catalog of the sawflies of North America, north of Mexico (Ross 1951). More recently, from the 1960s to the present, David Smith revised many groups, described over 500 species and provided the catalogue of the sawflies of America North of Mexico (Smith 1979a). Goulet (1992) provided keys to the genera and subgenera of the sawflies of Canada and Alaska. It is the purpose of this paper to provide a distributional checklist of the sawflies of Canada, Alaska and Greenland, incorporating previously published, substantiated records as well as new records based on authoritatively identified specimens.

## Methods

### Sources of data

Most records in this study are based on examination of specimens deposited in the Canadian National Collection of Insects, Arachnids and Nematodes, Ottawa (**CNC**). Other examined specimens are deposited in the following collections (with current curator and acronym used in Table 2): Centre for Biodiversity Genomics, University of Guelph, Guelph, Ontario, Canada (J. deWaard) (**BIOUG**); California Academy of Sciences, San Francisco California, USA (R. Zuparko) (**CAS**); Cornell University, Ithaca, New York, USA (J. Dombroskie) (**CUIC**); University of Guelph Insect Collection, Guelph, Ontario, Canada (S. Marshall) (**DEBU**); Utah State University, Logan, UT, USA (D. Wahl) (**EMUS**); Florida State Collection of Arthropods, Gainesville, FL, USA (E. Talamas) (**FSCA**); Illinois Natural History Survey, Champaign, Illinois,

USA (T. McElrath) (**INHS**), Northern Forestry Centre, Edmonton, Alberta, Canada (D. Langor) (**NOFC**); Collection Entomologique Ouellet-Robert, Département des Sciences Biologiques, Université de Montréal, QC, Canada (E. Normandin-Leclerc) (**QMOR**); Royal Ontario Museum, Toronto, Ontario, Canada (D.C. Darling) (**ROM**); Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany (A. Taeger) (**SDEI**); University of Alaska Museum, Fairbanks, AK, USA (D. Sikes) (**UAM**); University of Alberta, Strickland Museum, Edmonton, AB, Canada (F. Sperling) (**UASM**); National Museum of Natural History, Smithsonian Institution, Washington, DC, USA (D. Smith) (**USNM**). Some records are based on literature sources for which specimens could not be examined (literature citations shown in Table 2). A few records are based on comparison of DNA barcodes and photos on the Barcode of Life Data-systems (BOLD) website (Ratnasingham and Hebert 2007). These are denoted with the BIOUG acronym in Table 2. Finally, we do mention records from the 242 km<sup>2</sup> French Overseas Collectivity of Saint Pierre and Miquelon islands located 25 km from the southern coast of Newfoundland that were obtained from the TAXREF database (Gargominy et al. 2020) managed by the Muséum national d'Histoire naturelle, Paris, but specimens were not examined and these records are only mentioned in the text, not included in Table 2. We did not include any other records known only from websites or museum databases. We only include described species, not undescribed taxa or specimens identified only to genus. Fossils are not included in the checklist. All records published up to October 1, 2020 were evaluated for the current checklist.

## Presentation of data

Distributions of taxa are indicated using acronyms of 18, mostly political regions of northern (mostly north of 45° latitude) North America. For practical purposes the province of Newfoundland and Labrador is divided into the island of Newfoundland and the region of Labrador on mainland Canada. The acronyms used for the regions are: AK = Alaska (USA), GL = Greenland (Denmark), CAN = Canada and, within Canada, AB = Alberta, BC = British Columbia, LB = Labrador, MB = Manitoba, NB = New Brunswick, NF = Newfoundland island, NS = Nova Scotia, NT = Northwest Territories, NU = Nunavut, ON = Ontario, PE = Prince Edward Island, QC = Quebec, SK = Saskatchewan, SPM = Saint Pierre and Miquelon, YT = Yukon Territory. These regions are shown in Fig. 1. The distributional data are presented in two ways. Table 1 is a summary of the numbers of described, recorded species of sawflies in Canada, Alaska and Greenland totalled for each family by region. Table 2 is the species checklist arranged alphabetically by superfamily for the same regions. The regions are depicted in the tables approximately from West to East beginning with northernmost continental North America (AK to NU) and then across more southern Canada (BC to NF), to Greenland, which provides a pictorial representation of the species' overall west-to-east distribution across northern North America. It contains three types of distributional records: 1) a published record for which we have examined a specimen; 2) a new (unpublished) record for which we have examined a specimen or a photo and sequence on the BOLD website; and 3) a published record for which we have not examined a speci-

men, but which we trust. Records from BOLD were considered as new (unpublished) records. The different types of records are indicated by different fonts and colours in Table 2 (see Table heading).

Literature references (shown in the far right column of Table 2) are only noted for previously published records for which no specimens were examined. Relevant major references for higher taxa, e.g., revisions of genera, regional checklists, are cited directly under the higher taxon names in Table 2. Our list is not a catalogue, therefore other than for most species of Nematinae (Tenthredinidae) (see below), synonyms and previous combinations are generally not included; these can be found in Taeger et al (2018). In addition to the published checklist, the data presented in Table 2 have been added to Canadensys (<https://data.canadensys.net/ipr/resource?r=aafc-hymenoptera-canada-ak-gl>) and are also registered on GBIF (Bennett 2021b).

## Classification

Classification follows Taeger et al. (2018) except for the spelling of Anaxyeloidea Martynov, 1925, instead of Anaxyleoidea. Of note, the checklist follows the relatively recent changes to the generic classification of Nematinae (Prous et al. 2014). For ease of use, previous taxonomic combinations are provided for those species that recently moved genus, e.g., most of the species now placed in *Euura*. For those combinations suggested by Taeger et al. (2018), but not yet formally published, we propose them as new. In total 84 new combinations in *Euura* and *Nematus* Panzer are proposed (see Table 2).

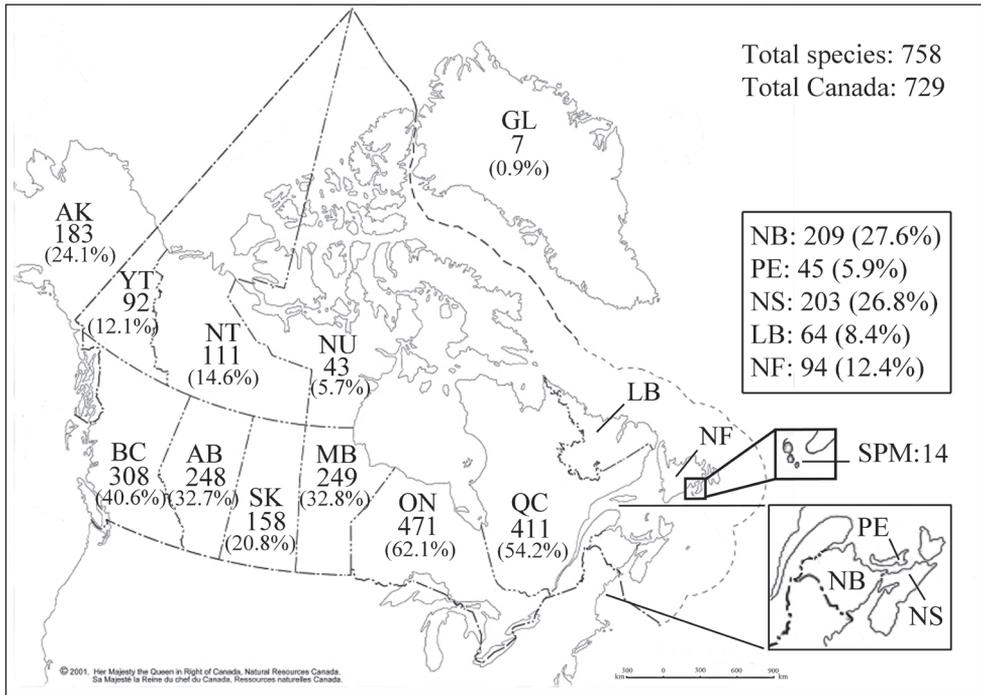
## Results and discussion

A total of 758 described, extant species of sawflies in 113 genera in 12 families are recorded in Canada, Alaska and Greenland (Tables 1, 2). This represents 8.2% of the 9250 species of Hymenoptera recorded from northern North America (Bennett 2021a). Of these, 729 species, in the same 113 genera and 12 families, are recorded from Canada. This is a 64.6% increase from the 443 species reported in Masner et al. (1979). Taeger et al. (2018) recorded 1245 extant described species in the Nearctic region, which means that northern North America has about 61% of the described Nearctic species, not taking into account new distributional records and species not included in Taeger et al. (2018).

Relative to other parts of the Northern Hemisphere, Canada's sawfly fauna is less speciose and/or less well-known than other countries/regions. The land mass of Canada is 9.985 million km<sup>2</sup>, which equates to one species per 13,697 km<sup>2</sup>. Adding Alaska (1.718 million km<sup>2</sup>) and Greenland (2.166 million km<sup>2</sup>) to this calculation, the average species density of sawflies in northern North America is one species per 18,297 km<sup>2</sup>. In contrast, Taeger et al. (2006) published a checklist of the sawflies of Europe, which recorded 1392 species of sawflies. Considering the land mass of Europe (10.18 million km<sup>2</sup>), this equals an average of one sawfly species per 7313 km<sup>2</sup>. Other Northern

**Table 1.** Described, recorded species of sawflies in Canada, Alaska and Greenland totalled for each taxon and in each region. See Methods (Presentation of data) for description of distributional acronyms and Fig. 1 for a map of their locations. Northwest Territories (NT) and Newfoundland (NF) totals each include six ambiguous records that may have been collected in Nunavut (NU) or Labrador (LB), respectively (denoted by NT\* and NF\* in Table 2).

Taxon	CAN+AK+GL	CAN(New)	AK	YT	NT	NU	BC	AB	SK	MB	ON	QC	NB	PE	NS	LB	NF	GL
<b>ANAXYLOIDEA</b>	<b>1</b>	<b>1 (0)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Anaxyelidae	1	1 (0)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
<b>CEPHOIDEA</b>	<b>12</b>	<b>12(2)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>3</b>	<b>3</b>	<b>5</b>	<b>7</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>1</b>	<b>0</b>
Cephiidae	12	12(2)	0	0	0	0	7	3	3	5	7	6	1	0	5	0	1	0
<b>ORUSSOIDEA</b>	<b>5</b>	<b>5(1)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Orussidae	5	5(1)	0	0	0	0	2	0	1	1	4	2	0	0	0	0	0	0
<b>PAMPHILIOIDEA</b>	<b>55</b>	<b>54(5)</b>	<b>6</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>25</b>	<b>15</b>	<b>10</b>	<b>16</b>	<b>40</b>	<b>35</b>	<b>25</b>	<b>3</b>	<b>19</b>	<b>2</b>	<b>8</b>	<b>0</b>
Pamphiliidae	55	54(5)	6	1	1	0	25	15	10	16	40	35	25	3	19	2	8	0
<b>SIRICOIDEA</b>	<b>28</b>	<b>28(2)</b>	<b>4</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>14</b>	<b>11</b>	<b>10</b>	<b>10</b>	<b>17</b>	<b>15</b>	<b>10</b>	<b>5</b>	<b>11</b>	<b>4</b>	<b>4</b>	<b>0</b>
Siricidae	20	20(0)	3	3	2	2	13	11	9	8	10	10	7	4	8	3	4	0
Xiphytriidae	8	8(2)	1	0	1	0	1	0	1	2	7	5	3	1	3	1	0	0
<b>TENTHREDINOIDEA</b>	<b>641</b>	<b>613(56)</b>	<b>172</b>	<b>84</b>	<b>104</b>	<b>41</b>	<b>251</b>	<b>213</b>	<b>133</b>	<b>217</b>	<b>393</b>	<b>346</b>	<b>172</b>	<b>37</b>	<b>166</b>	<b>58</b>	<b>80</b>	<b>7</b>
Argidae	29	29(3)	4	3	4	0	10	9	4	11	21	19	10	2	9	1	2	0
Cimbicidae	10	9(2)	4	4	4	1	6	6	4	4	7	6	3	0	3	2	4	0
Diprionidae	25	25(1)	2	0	0	0	8	4	3	10	21	15	11	2	7	2	4	0
Pergidae	4	4(0)	0	0	0	0	0	0	0	0	3	3	0	0	2	0	0	0
Tenthredinidae	573	546(50)	162	77	96	40	227	194	122	192	341	303	148	33	145	53	70	7
<b>XYELOIDEA</b>	<b>16</b>	<b>16(3)</b>	<b>1</b>	<b>4</b>	<b>3</b>	<b>0</b>	<b>8</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>10</b>	<b>7</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>0</b>
Xyelidae	16	16(3)	1	4	3	0	8	6	1	0	10	7	1	0	2	0	1	0
<b>TOTALS</b>	<b>758</b>	<b>729(69)</b>	<b>183</b>	<b>92</b>	<b>111</b>	<b>43</b>	<b>308</b>	<b>248</b>	<b>158</b>	<b>249</b>	<b>471</b>	<b>411</b>	<b>209</b>	<b>45</b>	<b>203</b>	<b>64</b>	<b>94</b>	<b>7</b>



**Figure 1.** Map of Canada, Alaska and Greenland showing number of described, recorded sawfly species and percentage of total species for each region. Canada is comprised of all regions except for Alaska and Greenland. See Methods, Presentation of data section for acronyms of regions treated in the checklist.

**Table 2.** Checklist of described species of sawflies of Canada, Alaska and Greenland. See Methods for description of acronyms of regions and Fig. 1 for their locations. Black, regular font records are previously published and a specimen has been examined. Red, boldface records are new (unpublished) and a specimen has been examined. All specimens examined are deposited in the CNC, except if a depository acronym is noted in the far right column. Blue, italicized records are previously published but no specimen has been examined. Literature references are only noted for italicized records. For species with multiple italicized records based on multiple references, the references are listed in order from left to right, corresponding with the distributional records depicted from left to right, unless otherwise noted. An asterisk (\*) denotes a record that was collected prior to the establishment of Nunavut or Labrador, and it is uncertain whether the record is from the Northwest Territories or Nunavut, or from the island of Newfoundland or Labrador, respectively. § indicates a species that has been introduced from outside of North America in the last 500 years and has established a population.

ORDER HYMENOPTERA													
SUPERFAMILY ANAXYELOIDEA													
FAMILY ANAXYELIDAE													
Genus <i>Syntexis</i> Rohwer, 1915													
<i>S. libocedrii</i> Rohwer, 1915	CAN	-	-	-	-	BC	-	-	-	-	-	-	-
SUPERFAMILY CEPHOIDEA													
FAMILY CEPHIDAE													
Nearctic revision – Ries 1937													
Genus <i>Caenocephus</i> Konow, 1896													
<i>C. aldrichi</i> Bradley, 1905	CAN	-	-	-	-	BC	-	-	-	-	-	-	-
Genus <i>Calamenta</i> Konow, 1896													
Key to Nearctic species – Smith and Schiff 2005													
<i>C. clavata</i> (Norton, 1869)	<b>CAN</b>	-	-	-	-	<b>BC</b>	-	-	-	-	-	-	-
Genus <i>Cephus</i> Latreille, 1802													
<i>C. cinctus</i> Norton, 1872	CAN	-	-	-	-	BC	AB	SK	MB	ON	<b>QC</b>	-	-
<i>C. pygmaeus</i> (Linnaeus, 1767)§	CAN	-	-	-	-	-	-	-	-	ON	-	-	<i>NS</i>
Goulet 1987													
Genus <i>Janus</i> Stephens, 1835													
Key to Nearctic species – Smith and Solomon 1989													
<i>J. abbreviatus</i> (Say, 1824)	CAN	-	-	-	-	-	<i>AB</i>	SK	MB	ON	QC	-	-
												<i>NS</i>	-
													Emond and Wong 1987
<i>J. bimaculatus</i> (Norton, 1869)	CAN	-	-	-	-	-	-	-	-	ON	QC	-	-
												<i>NS</i>	NS-BIOUG
<i>J. integer</i> (Norton, 1861)	CAN	-	-	-	-	<b>BC</b>	<i>AB</i>	<b>SK</b>	MB	ON	QC	-	-
													<i>NF</i>
													Smith 1979a
Genus <i>Phylloecus</i> Newman, 1838													
(= <i>Hartigia</i> Schiodte; see Liston and Proulx 2014). Nearctic Revision – Smith 1986c as <i>Hartigia</i>													
<i>P. bicinctus</i> Provancher, 1875	CAN	-	-	-	-	-	-	-	MB	ON	QC	-	-
<i>P. cowichanus</i> (Ries, 1937)	CAN	-	-	-	-	BC	-	-	-	-	-	-	-
<i>P. riesi</i> (D.R. Smith, 1986)	CAN	-	-	-	-	BC	-	-	-	-	-	-	-
<i>P. trimaculatus</i> (Say, 1824)	CAN	-	-	-	-	<i>BC</i>	-	-	<i>MB</i>	ON	QC	<i>NB</i>	<b>NS</b>
													BC, MB-Ries 1937; NB-Smith 1986c
Genus <i>Trachelus</i> Jurine, 1807													
<i>T. tabidus</i> (Fabricius, 1775)§	<b>CAN</b>	-	-	-	-	-	-	-	-	-	-	-	<b>NS</b>
SUPERFAMILY ORUSSOIDEA													
FAMILY ORUSSIDAE													
Genus <i>Orussus</i> Latreille, 1796													
Nearctic revision – Middlekauff 1983													
<i>O. minutus</i> Middlekauff, 1983	CAN	-	-	-	-	-	-	-	<i>MB</i>	ON	-	-	-
													Skvarla et al. 2015
<i>O. occidentalis</i> Cresson, 1879	CAN	-	-	-	-	BC	-	<i>SK</i>	-	ON	-	-	-
													Middlekauff 1983
<i>O. sayi</i> Westwood, 1835	CAN	-	-	-	-	-	-	-	-	ON	<b>QC</b>	-	-
<i>O. terminalis</i> Newman, 1838	CAN	-	-	-	-	-	-	-	-	ON	QC	-	-
<i>O. thoracicus</i> Ashmead, 1898	<b>CAN</b>	-	-	-	-	<b>BC</b>	-	-	-	-	-	-	-
													INHS
SUPERFAMILY PAMPHILIOIDEA													
FAMILY PAMPHILIIDAE													
SUBFAMILY CEPHALCIINAE													
Genus <i>Acantholyda</i> Costa, 1894													
Nearctic revision – Middlekauff 1958													









**FAMILY PERGIDAE**

Nearctic checklist – Smith 2006a

**Genus *Acordulecera* Say, 1836**

<i>A. dorsalis</i> Say, 1836	CAN	-	-	-	-	-	-	-	-	ON	QC	-	-	NS	-	-	-	Goulet 1987
<i>A. maculata</i> MacGillivray, 1908	CAN	-	-	-	-	-	-	-	-	-	QC	-	-	-	-	-	-	
<i>A. mellina</i> MacGillivray, 1908	CAN	-	-	-	-	-	-	-	-	ON	QC	-	-	NS	-	-	-	Goulet 1987
<i>A. pellucida</i> (Konow, 1898)	CAN	-	-	-	-	-	-	-	-	ON	-	-	-	-	-	-	-	CAN-Smith 2006a; ON- INHS

**FAMILY TENTHREDINIDAE**

**SUBFAMILY ALLANTINAE**

Nearctic revision – Smith 1979b

**Genus *Allantus* Panzer, 1801**

<i>A. albolabris</i> (Rohwer, 1917)	CAN	AK	-	-	BC	AB	SK	-	-	-	-	-	-	-	-	-	-	
<i>A. basalis</i> (Klug, 1818) §	CAN	-	-	-	-	-	-	-	-	-	-	-	-	NS	-	NF	-	
<i>A. cinctus</i> (Linnaeus, 1758) §	CAN	-	-	-	BC	-	-	-	ON	QC	NB	-	NS	-	NF	-	-	ON, NB-Smith 1979b; NS- BIOUG
<i>A. mellipes</i> (Norton, 1861)	CAN	-	-	NT	-	AB	SK	MB	ON	QC	NB	-	NS	-	-	-	-	
<i>A. rubmus</i> D.R. Smith, 1979	CAN	AK	-	NT	-	-	-	-	-	-	-	-	-	-	-	-	-	AK-USNM
<i>A. umbonatus</i> Wong, 1966	CAN	-	-	-	BC	AB	SK	MB	ON	QC	-	-	-	-	-	-	-	
<i>A. viemensis</i> (Shrank, 1781)	CAN	-	-	-	-	-	-	-	ON	-	-	-	-	-	-	-	-	

**Genus *Ametastegia* Costa, 1882**

<i>A. angusta</i> (Kincaid, 1900)	CAN	AK	-	-	BC	-	-	-	-	-	-	-	-	-	-	-	-	
<i>A. aperta</i> (Norton, 1861)	CAN	AK	-	-	-	AB	-	MB	ON	QC	-	-	NS	-	NF	-	-	Smith 1979b
<i>A. articulata</i> (Klug, 1818)	CAN	-	-	-	-	-	-	-	ON	QC	NB	-	-	-	-	-	-	
<i>A. coloradensis</i> (Weldon, 1907)	CAN	AK	YT	-	BC	AB	-	-	-	-	-	-	-	-	LB	-	-	
<i>A. equiseti</i> (Fallén, 1808)	CAN	AK	-	NT	-	BC	SK	-	ON	QC	-	PE	NS	-	-	-	-	
<i>A. glabrata</i> (Fallén, 1808) §	CAN	-	-	-	BC	AB	SK	MB	ON	QC	NB	-	NS	-	-	-	-	
<i>A. pallipes</i> (Spinola, 1808) §	CAN	AK	-	-	BC	AB	-	-	ON	QC	NB	-	NS	-	NF	-	-	AK-UAM
<i>A. recens</i> (Say, 1836)	CAN	AK	-	-	BC	-	-	-	-	-	-	-	-	-	NF*	-	-	Smith 1979a
<i>A. rocia</i> D.R. Smith, 1979	CAN	-	-	NT	-	-	-	-	ON	QC	NB	-	-	-	-	-	-	
<i>A. tenera</i> (Fallén, 1808) §	CAN	AK	-	-	BC	-	-	-	ON	QC	NB	-	-	-	-	-	-	AK-USNM
<i>A. xenia</i> D.R. Smith, 1979	CAN	-	-	-	-	-	-	-	ON	QC	NB	-	NS	-	NF	-	-	Smith 1979b

**Genus *Aphilodactium* Ashmead, 1898**

<i>A. fidum</i> (Cresson, 1880)	CAN	-	-	-	BC	AB	SK	MB	ON	QC	-	-	NS	-	-	-	-	
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**Genus *Dimorphopteryx* Ashmead, 1898**

<i>D. abnormis</i> Rohwer, 1911	CAN	-	-	-	-	-	SK	-	ON	QC	NB	-	-	-	-	-	-	
<i>D. melanognathus</i> Rohwer, 1910	CAN	-	-	-	-	-	-	-	ON	QC	NB	PE	NS	-	NF	-	-	Smith 1979b
<i>D. pinguis</i> (Norton, 1860)	CAN	-	-	-	-	-	SK	MB	ON	QC	NB	PE	NS	-	-	-	-	Smith 1979b
<i>D. virginica</i> Rohwer, 1911	CAN	-	-	-	-	-	-	-	ON	QC	-	-	NS	-	-	-	-	

**Genus *Empria* Lepeletier, 1828**

<i>E. alpina</i> Benson, 1938	CAN	-	YT	NT	NU	BC	-	-	-	-	-	-	-	-	-	-	-	Smith 1979b
<i>E. candidata</i> (Fallén, 1808)	CAN	AK	YT	NT	-	BC	AB	-	MB	ON	QC	NB	-	NS	-	-	-	SK-INHS
<i>E. coryli</i> (Dyar, 1897)	CAN	-	-	-	-	-	-	-	-	QC	-	-	-	-	-	-	-	
<i>E. evansi</i> D.R. Smith, 1980	CAN	-	-	-	-	AB	-	-	-	-	-	-	-	-	-	-	-	Smith 1980a
<i>E. ignota</i> (Norton, 1867)	CAN	AK	YT	NT	-	BC	AB	SK	MB	ON	QC	NB	-	NS	LB	NF	-	Smith 1979b
<i>E. improba</i> (Cresson, 1880)	CAN	AK	YT	NT	-	BC	AB	SK	MB	ON	QC	-	-	NS	LB	-	-	
<i>E. maculata</i> (Norton, 1861)	CAN	AK	YT	-	-	BC	AB	SK	MB	ON	QC	NB	-	NS	LB	-	-	
<i>E. multicolor</i> (Norton, 1862)	CAN	-	-	-	-	BC	AB	SK	MB	ON	QC	NB	-	NS	-	NF	-	NF-INHS
<i>E. nordica</i> Ross, 1936	CAN	-	-	NT	-	-	-	MB	ON	QC	-	-	-	-	-	-	-	
<i>E. obscurata</i> (Cresson, 1880)	CAN	AK	YT	NT	NU	BC	AB	SK	MB	ON	QC	NB	-	-	LB	-	-	Smith 1979b

**Genus *Eriocampa* Hartig, 1837**

<i>E. juglandis</i> (Fitch, 1857)	CAN	-	-	-	-	-	-	-	ON	QC	NB	-	-	-	-	-	-	
<i>E. ovata</i> (Linnaeus, 1760) §	CAN	AK	-	-	-	BC	AB	-	ON	QC	-	-	-	-	-	-	-	AK-USNM

**Genus *Macremphytus* MacGillivray, 1908**

<i>M. loveti</i> MacGillivray, 1923	CAN	-	-	-	BC	AB	-	-	-	-	-	-	-	-	-	-	-	
<i>M. semicornis</i> (Say, 1836)	CAN	-	-	-	BC	AB	SK	MB	ON	QC	-	-	-	-	NF	-	-	SK-INHS; MB, NF-Smith 1979b
<i>M. tarsatus</i> (Say, 1836)	CAN	-	-	-	-	-	-	-	ON	QC	NB	-	NS	-	NF	-	-	Smith 1979b
<i>M. testaceus</i> (Norton, 1861)	CAN	-	-	-	BC	AB	SK	MB	ON	QC	NB	-	-	-	-	-	-	Smith 1979b

**Genus *Monostegia* Costa, 1859**

<i>M. abdominalis</i> (Fabricius, 1798) §	CAN	-	-	-	-	-	-	-	ON	QC	-	-	-	-	-	-	-	
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**Genus *Monsoma* MacGillivray, 1908**

<i>M. inferentium</i> (Norton, 1868)	CAN	-	-	-	BC	AB	-	MB	ON	QC	NB	-	NS	LB	NF	-	-	Smith 1979b
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<i>M. pulveratum</i> (Retzius, 1783) <sup>§</sup>	CAN	AK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NF	Kruse et al. 2010
<b>Genus <i>Phrontosoma</i> MacGillivray, 1908</b>																			
<i>P. belfragei</i> (Cresson, 1880)	CAN	-	-	-	-	AB	-	MB	ON	QC	-	-	NS	-	-	-	-	-	-
<i>P. broca</i> D.R. Smith, 1979	CAN	-	-	-	-	AB	-	MB	-	QC	-	-	-	-	-	-	-	-	Smith 1980a
<i>P. usta</i> D.R. Smith, 1979	CAN	-	-	-	-	-	-	-	ON	QC	-	-	-	-	-	-	-	-	-
<b>Genus <i>Pseudosiobla</i> Ashmead, 1898</b>																			
<i>P. excavata</i> (Norton, 1862)	CAN	-	-	-	-	-	-	-	-	QC	-	-	-	-	-	-	-	-	-
<b>Genus <i>Taxonus</i> Hartig, 1837</b>																			
<i>T. borealis</i> MacGillivray, 1895	CAN	-	-	-	-	-	-	-	ON	QC	-	-	NS	LB	NF	-	-	-	Smith 1979b
<i>T. epicera</i> (Say, 1836)	CAN	-	-	-	-	-	-	-	ON	QC	-	-	-	-	-	-	-	-	-
<i>T. pallidocoxus</i> (Provancher, 1885)	CAN	-	-	-	-	BC	AB	-	MB	ON	QC	NB	-	NS	-	-	-	-	Smith 1979b
<i>T. pallidicornis</i> (Norton, 1868)	CAN	-	-	-	-	-	-	-	ON	QC	-	-	-	-	-	-	-	-	-
<i>T. pallipes</i> (Say, 1823)	CAN	-	-	-	-	-	-	-	ON	QC	-	-	-	-	-	-	-	-	-
<i>T. proximus</i> (Provancher, 1885)	CAN	-	-	-	-	-	-	MB	ON	QC	-	-	NS	-	-	-	-	-	-
<i>T. rufocinctus</i> (Norton, 1860)	CAN	-	-	-	-	-	-	-	ON	QC	-	-	-	-	-	-	-	-	-
<i>T. spiculatus</i> (MacGillivray, 1908)	CAN	-	-	-	-	-	-	-	ON	QC	-	-	-	-	-	-	-	-	-
<i>T. terminalis</i> (Say, 1824)	CAN	-	-	-	-	-	-	SK	MB	ON	QC	NB	PE	NS	-	-	-	-	-
<b>SUBFAMILY ATHALIINAE</b>																			
<b>Genus <i>Athalia</i> Leach, 1817</b>																			
Nearctic distribution – Hoebeke et al. 2011																			
<i>A. cornubiae</i> Benson, 1931 <sup>§</sup>	CAN	-	-	-	-	-	-	-	ON	-	-	-	-	-	-	-	-	-	-
<b>SUBFAMILY BLENNOGAMPINAE</b>																			
Nearctic revision – Smith 1969c																			
<b>Genus <i>Apareophora</i> Sato, 1928</b>																			
<i>A. dyari</i> (Benson, 1930)	CAN	-	-	-	-	-	-	-	ON	QC	NB	-	-	-	-	-	-	-	-
<i>A. rassi</i> D.R. Smith, 1969	CAN	-	-	-	-	-	-	-	ON	-	-	-	-	-	-	-	-	-	-
<b>Genus <i>Ardis</i> Konow, 1886</b>																			
<i>A. atrata</i> (Harrington, 1894)	CAN	-	-	-	-	BC	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>A. pallipes</i> (Serville, 1823) <sup>§</sup>	CAN	AK	-	NT	-	BC	AB	SK	MB	ON	QC	-	-	NS	-	-	-	-	AK-USNM; Goulet 1987
<b>Genus <i>Blennogeneris</i> MacGillivray, 1923</b>																			
<i>B. coloradensis</i> (Rohwer, 1911)	CAN	-	-	-	-	-	-	-	MB	-	-	-	-	-	-	-	-	-	-
<i>B. spissipes</i> (Cresson, 1880)	CAN	-	-	-	-	BC	AB	SK	MB	ON	-	-	-	-	-	-	-	-	-
<b>Genus <i>Claremontia</i> Rohwer, 1909</b>																			
<i>C. conspiculata</i> (MacGillivray, 1908)	CAN	-	-	-	-	-	-	-	ON	QC	-	-	NS	-	-	-	-	-	-
<i>C. osgoodi</i> (D.R. Smith, 1969)	CAN	-	-	-	-	-	-	-	ON	-	-	-	-	-	-	-	-	-	-
<i>C. paupera</i> (Provancher, 1882)	CAN	-	-	-	-	AB	SK	-	ON	QC	-	-	-	LB	-	-	-	-	Smith 1969c
<i>C. quebecensis</i> (D.R. Smith, 1969)	CAN	-	-	-	-	-	-	-	ON	QC	-	-	-	-	-	-	-	-	-
<i>C. typica</i> Rohwer, 1909	CAN	-	-	-	-	BC	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Genus <i>Eupareophora</i> Enslin, 1914</b>																			
<i>E. parca</i> (Cresson, 1880)	CAN	-	-	-	-	AB	SK	MB	ON	QC	NB	-	-	-	-	-	-	-	Williams 2007; Smith 1969c
<b>Genus <i>Eutomostethus</i> Enslin, 1914</b>																			
<i>E. ephippium</i> (Panzer, 1798) <sup>§</sup>	CAN	-	-	-	-	BC	-	-	ON	QC	NB	-	NS	-	NF	-	-	-	-
<i>E. luteiventris</i> (Klug, 1816) <sup>§</sup>	CAN	AK	-	-	-	BC	AB	-	ON	QC	-	-	NS	-	-	-	-	-	AK-USNM
<b>Genus <i>Halidamia</i> Benson, 1939</b>																			
<i>H. affinis</i> (Fallén, 1807) <sup>§</sup>	CAN	-	-	-	-	BC	-	-	ON	-	-	-	-	-	-	-	-	-	-
<b>Genus <i>Lagonis</i> Ross, 1937</b>																			
<i>L. nevadensis</i> (Cresson, 1880)	CAN	AK	-	-	-	BC	AB	-	-	-	-	-	-	-	-	-	-	-	AK-USNM; Smith 1969c
<b>Genus <i>Lycaota</i> Konow, 1903</b>																			
<i>L. sodalis</i> (Cresson, 1880)	CAN	-	-	-	-	BC	AB	SK	-	-	-	-	-	-	-	-	-	-	-
<b>Genus <i>Monardis</i> Enslin, 1914</b>																			
<i>M. pulla</i> D.R. Smith, 1969	CAN	-	-	-	-	BC	AB	SK	-	-	-	-	-	-	-	-	-	-	-
<b>Genus <i>Monophadnoides</i> Ashmead, 1898</b>																			
<i>M. atrata</i> (MacGillivray, 1893)	CAN	AK	-	NT	-	BC	-	-	-	-	-	-	-	-	-	-	-	-	AK-USNM
<i>M. rubi</i> (T.W. Harris, 1845)	CAN	AK	-	NT	-	BC	AB	SK	MB	ON	QC	NB	-	NS	LB	NF	-	-	AK-USNM; Goulet 1987
<b>Genus <i>Monophadnus</i> Hartig, 1837</b>																			
<i>M. aequalis</i> MacGillivray, 1908	CAN	-	-	-	-	AB	SK	MB	ON	QC	-	-	-	-	-	-	-	-	-
<i>M. contortus</i> (MacGillivray, 1923)	CAN	-	YT	-	-	BC	-	-	-	-	-	-	-	-	-	-	-	-	Smith 1969c
<i>M. lattini</i> D.R. Smith, 1969	CAN	-	-	-	-	-	-	MB	-	-	-	-	-	-	-	-	-	-	-
<i>M. pallascens</i> (Gmelin, 1790) <sup>§</sup>	CAN	AK	-	-	-	BC	-	-	ON	QC	NB	-	NS	-	NF	-	-	-	AK-USNM
<b>Genus <i>Paracharactus</i> MacGillivray, 1908</b>																			
<i>P. niger</i> (Harrington, 1889)	CAN	-	-	-	-	-	-	-	ON	QC	-	-	NS	-	-	-	-	-	Goulet 1987

<i>P. rudis</i> (Norton, 1861)	CAN	-	-	-	-	-	-	-	SK	MB	ON	QC	-	-	NS	-	-	-	Goulet 1987
<b>Genus <i>Periclista</i> Konow, 1886</b>																			
<i>P. albicollis</i> (Norton, 1872)	CAN	-	-	-	-	-	-	-	-	-	ON	-	-	-	-	-	-	-	Smith 1969c
<i>P. dituta</i> (Cresson, 1880)	CAN	-	-	-	-	-	-	-	-	-	ON	-	-	-	-	-	-	-	Smith 1969c
<i>P. marginicollis</i> (Norton, 1861)	CAN	-	-	-	-	-	-	-	-	-	ON	-	-	-	-	-	-	-	Smith 1979a
<i>P. media</i> (Norton, 1864)	CAN	-	-	-	-	-	-	-	-	MB	-	-	-	-	-	-	-	-	Smith 1979a

**Genus *Phymatocera* Dahlbom, 1835**

Key to species – Goulet 1981

<i>P. fumipennis</i> (Norton, 1861)	CAN	-	-	-	-	-	-	-	-	-	ON	QC	-	-	-	-	-	-	-
<i>P. racemosae</i> D.R. Smith, 1969	CAN	-	-	-	-	BC	AB	SK	MB	ON	QC	-	-	NS	-	-	-	-	Goulet 1987
<i>P. rusculla</i> (MacGillivray, 1923)	CAN	-	-	-	-	BC	AB	SK	MB	ON	QC	-	-	-	-	-	-	-	-
<i>P. simulata</i> (MacGillivray, 1908)	CAN	-	-	-	-	BC	AB	SK	MB	ON	QC	-	-	-	-	-	-	-	SK-INHS
<i>P. smilacinae</i> D.R. Smith, 1969	CAN	-	-	-	-	-	-	-	-	ON	QC	-	-	NS	-	-	-	-	ON-DEBU; QC-Smith 1969c; NS- Goulet 1987

**Genus *Rhadinoceraea* Konow, 1886**

<i>R. aldrichi</i> (MacGillivray, 1923)	CAN	-	-	-	-	BC	AB	-	-	-	-	-	-	-	-	-	-	-	-
<i>R. insularis</i> (Kincaid, 1900)	CAN	AK	-	-	-	BC	-	-	-	-	-	QC	-	-	-	-	-	-	Smith 1969c
<i>R. nubilipennis</i> (Norton, 1867)	CAN	-	-	-	-	-	-	-	-	-	-	QC	NB	-	-	-	-	-	-

**Genus *Stethomostus* Benson, 1939**

<i>S. fuliginosus</i> (Shrank, 1781) <sup>§</sup>	CAN	-	-	-	-	-	-	-	-	-	-	QC	NB	NS	-	-	-	-	-
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**Genus *Tethida* Ross, 1937**

<i>T. barda</i> (Say, 1836)	CAN	-	-	-	-	-	-	-	SK	MB	ON	QC	NB	-	NS	-	-	-	Goulet 1987
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**Genus *Tomostethus* Konow, 1886**

<i>T. multicoloratus</i> (Rohwer, 1909)	CAN	-	-	-	-	-	-	-	-	ON	-	-	-	-	-	-	-	-	-
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**Genus *Waldbeimia* Brullé, 1846**

<i>W. carbonaria</i> (Cresson, 1880)	CAN	-	-	-	-	-	-	SK	-	ON	QC	-	-	NS	-	-	-	-	Goulet 1987
<i>W. vitis</i> (T.W. Harris, 1832)	CAN	-	-	-	-	-	-	-	-	ON	-	-	-	-	-	-	-	-	-

**SUBFAMILY HETERARTHRIINAE**

Nearctic Revision – Smith 1971b

**Genus *Caliroa* Costa, 1859**

<i>C. annulipes</i> (Klug, 1816) <sup>§</sup>	CAN	-	-	-	-	BC	-	-	-	-	ON	-	-	-	-	-	-	-	Smith 1979a
<i>C. cerasi</i> (Linnaeus, 1758) <sup>§</sup>	CAN	-	-	-	-	BC	-	-	-	-	ON	QC	-	-	-	-	-	-	-
<i>C. dionae</i> Smith & Moisan-De Serres, 2017	CAN	-	-	-	-	-	-	-	-	-	-	QC	-	-	-	-	-	-	Smith and Moisan-De Serres 2017

<i>C. distincta</i> D.R. Smith, 1971	CAN	-	-	-	-	BC	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>C. fasciata</i> (Norton, 1864)	CAN	-	-	-	-	-	-	-	-	ON	QC	-	-	-	-	-	-	-	-
<i>C. hyalina</i> D.R. Smith, 1971	CAN	-	-	-	-	-	-	-	-	-	-	-	NB	-	-	-	-	-	-
<i>C. labrata</i> MacGillivray, 1909	CAN	-	-	-	-	BC	AB	-	-	-	-	-	-	-	-	-	-	-	-
<i>C. liturata</i> MacGillivray, 1909	CAN	-	-	-	-	-	-	-	-	-	-	-	NB	-	-	-	-	-	-
<i>C. lobata</i> MacGillivray, 1909	CAN	-	-	-	-	BC	-	-	-	ON	QC	-	-	NS	-	-	-	-	Goulet 1987
<i>C. lorata</i> MacGillivray, 1909	CAN	-	-	-	-	-	-	-	-	ON	-	-	-	-	-	-	-	-	-
<i>C. lunata</i> MacGillivray, 1909	CAN	-	-	-	-	-	-	-	-	ON	-	-	-	NS	-	NF*	-	-	Goulet 1987; Smith 1979a Raizenne 1957

<i>C. obsoleta</i> (Norton, 1867)	CAN	-	-	-	-	AB	-	-	ON	QC	NB	-	-	-	-	-	-	-	-
<i>C. petiolata</i> D.R. Smith, 1971	CAN	-	-	-	-	-	-	-	-	ON	-	-	-	-	-	-	-	-	-
<i>C. quercuscoccinea</i> (Dyar, 1894)	CAN	-	-	-	-	-	-	-	-	ON	QC	-	-	-	-	-	-	-	-

**Genus *Endelomyia* Ashmead, 1898**

<i>E. aethiops</i> (Gmelin, 1790) <sup>§</sup>	CAN	-	-	-	-	BC	-	-	-	ON	QC	NB	-	NS	-	NF	-	-	-
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**Genus *Fenella* Westwood, 1839**

<i>F. nigrita</i> Westwood, 1839	CAN	-	-	-	-	BC	-	-	-	ON	-	-	-	NS	-	-	-	-	-
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**Genus *Fenusa* Leach, 1817**

**Subgenus *Fenusa* Leach, 1817**

<i>F. dohrnii</i> (Tischbein, 1846) <sup>§</sup>	CAN	-	-	-	-	BC	AB	SK	-	ON	-	NB	-	NS	-	NF	-	-	Smith 1971b
<i>F. pumila</i> Leach, 1817 <sup>§</sup>	CAN	AK	-	NT	-	BC	AB	SK	-	ON	QC	NB	PE	NS	-	NF	-	-	-

Note: not seen in many urban areas in last 30 years.

**Subgenus *Kaliofenusa* Viereck, 1910**

<i>F. ulmi</i> Sundevall, 1847 <sup>§</sup>	CAN	-	-	-	-	BC	-	-	-	ON	QC	-	PE	NS	-	-	-	-	Looney et al. 2016
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<i>E. gregaria</i> (Marlatt, 1896), <b>comb. nov.</b> = <i>Pachynematus gregarius</i> Marlatt, 1896	CAN - - - - - - - - - <b>ON QC</b> - - - NS - - - -	
<i>E. groenlandica</i> (Malaise, 1933) = <i>Anaurenematus groenlandicus</i> Malaise, 1933	<i>CAN AK</i> - <i>NT NU</i> - - - - - - - - - - - - - <i>GL</i>	Benson 1962
<i>E. hebes</i> (Konow, 1907) = <i>Anaurenematus hebes</i> Konow, 1907	CAN - <b>YT</b> NT NU - - - - - - - - - - - - -	
<i>E. helleni</i> (Lindqvist, 1941) = <i>Anaurenematus helleni</i> Lindqvist, 1941	CAN - - NT NU <b>BC</b> - - MB - <i>QC</i> - - - - - - -	Benson 1962
<i>E. histrio</i> (Serville, 1823) = <i>Anaurenematus histrio</i> (Serville, 1823)	<i>CAN AK</i> - - - - - - - <i>MB ON</i> - - - - - - -	AK-Smith 1979a; MB, ON-Benson 1962
<i>E. hoppingi</i> Ross, 1937 = <i>Pontania hoppingi</i> (Ross, 1937)	<i>CAN</i> - - - - - <i>BC</i> - - - - - - - - - - - - -	Smith 1979a
<i>E. hudsoniimagnus</i> (Dyar, 1895), <b>comb. nov.</b> = <i>Nematus hudsoniimagnus</i> Dyar, 1895	CAN <i>AK</i> - - - - <b>BC</b> - - - <i>MB ON</i> - <b>NB</b> - - - - - - -	Smith 1979a
<i>E. hulteni</i> (Malaise, 1931) = <i>Anaurenematus hulteni</i> Malaise, 1931	CAN - YT <i>NT</i> NU - - - - <i>MB</i> - - - - - - -	Benson 1962
<i>E. indicata</i> (MacGillivray, 1919), <b>comb. nov.</b> = <i>Anaurenematus indicatus</i> MacGillivray, 1919	- AK - - - - - - - - - - - - - - - - -	
<i>E. iridescens</i> (Cresson, 1880), <b>comb. nov.</b> = <i>Nematus iridescens</i> Cresson, 1880	<i>CAN</i> - - - - - <i>BC</i> - - - - - - - - - - - - -	Smith 1979a
<i>E. isolata</i> (Kincaid, 1900), <b>comb. nov.</b> = <i>Anaurenematus isolatus</i> Kincaid, 1900	CAN <i>AK</i> - - - <i>NU</i> - - - - - - - - - - - <b>LB</b> - - -	Kincaid 1900; MacGillivray 1919
<i>E. itelmena</i> (Malaise, 1931) = <i>Anaurenematus itelmena</i> (Malaise, 1931)	<i>CAN</i> - - <i>NT*</i> - - - - - <i>MB</i> - - - - - - - - -	Smith 1979a; Benson 1962
<i>E. jugicola</i> (Thomson, 1871) = <i>Nematus jugicola</i> Thomson, 1871	<i>CAN</i> - - - - - - - <i>MB</i> - - - - - - - - -	Smith 1979a
<i>E. kukakiana</i> (Kincaid, 1900), <b>comb. nov.</b> = <i>Pontania kukakiana</i> Kincaid, 1900	- <i>AK</i> - - - - - - - - - - - - - - - - -	Kincaid 1900
<i>E. lanatae</i> Malaise, 1921	CAN - - - - - <i>AB</i> - MB - - - - - - - - -	Smith 1979a
<i>E. leavitti</i> (Rohwer, 1910), <b>comb. nov.</b> = <i>Phyllocolpa leavitti</i> (Rohwer, 1910)	<i>CAN</i> - - - - - - - - - - <i>QC NB</i> - - - - - - -	Smith and Fritz 1996
<i>E. leptocephalus</i> (Thomson, 1863), <b>comb. nov.</b> = <i>Nematus leptocephalus</i> Thomson, 1863	CAN - - - - - - - - - MB - - - - - - - - -	
<i>E. leucapsis</i> (Tischbein, 1846) = <i>Phyllocolpa leucapsis</i> (Tischbein, 1846)	<i>CAN</i> - - - - - - - <i>AB</i> - - - - - - - - -	Smith 1979a
<i>E. leucolena</i> (Brischke, 1883) = <i>Anaurenematus leucolenus</i> (Brischke, 1883)	CAN <i>AK</i> YT NT - - - <i>AB SK</i> MB ON - - - - - - -	Benson 1962
<i>E. limbata</i> (Cresson, 1880), <b>comb. nov.</b> = <i>Nematus limbatus</i> Cresson, 1880	CAN - - - - - - - SK - ON <i>QC NB</i> - - - - - - -	Smith 1979a
<i>E. lineata</i> (Harrington, 1893), <b>comb. nov.</b> = <i>Anaurenematus lineatus</i> (Harrington, 1893)	CAN <b>AK</b> - - - - - - - ON <b>QC</b> - - - - - - -	AK-USNM
<i>E. longicauda</i> (Hellén, 1948) = <i>Anaurenematus longicauda</i> (Hellén, 1948)	CAN - - - - - BC - - MB - - - - - - - - -	
<i>E. lucidae</i> (Rohwer, 1912), <b>comb. nov.</b> = <i>Pontania lucidae</i> Rohwer, 1912	<i>CAN</i> - - - - - - - - - - <i>ON</i> - - - - - - -	Rohwer 1912
<i>E. magus</i> (Marlatt, 1896), <b>comb. nov.</b> = <i>Nematus magus</i> (Marlatt, 1896)	CAN - - <i>NT NU BC</i> - - - - <b>ON</b> <i>QC NB</i> - - - - - - -	NT, BC-Smith 2004; NU-MacGillivray 1919
<i>E. mariana</i> (Ross, 1929), <b>comb. nov.</b> = <i>Phyllocolpa mariana</i> (Ross, 1929)	CAN - - - - - BC - - - <b>ON</b> - - - - - - -	
<i>E. marlatti</i> (Dyar, 1895), <b>comb. nov.</b> = <i>Nematus marlatti</i> Dyar, 1895	<b>CAN</b> - - - - - - - - - - - <b>NF</b> - - -	







<i>H. bioculata</i> Rohwer, 1908	CAN	-	-	-	-	BC	AB	-	-	-	-	-	-	-	-	-	-	-	-
<i>H. brevis</i> (Klug, 1816) <sup>§</sup>	CAN	-	-	-	-	-	-	-	-	ON	-	-	-	-	-	-	-	-	-
<i>H. cookei</i> (Clarke, 1906)	CAN	-	-	-	-	BC	-	-	-	-	-	-	-	-	-	-	-	-	INHS
<i>H. halcyon</i> (Norton, 1861)	CAN	-	-	-	-	BC	AB	SK	MB	ON	QC	NB	-	NS	-	-	-	-	Smith 1979a; Goulet 1987
<i>H. lacteipennis</i> Rohwer, 1910	CAN	-	-	-	-	-	AB	SK	MB	ON	QC	-	-	-	-	-	-	-	Ross 1943c
<i>H. marlati</i> Rohwer, 1911	CAN	-	-	-	-	-	AB	-	MB	-	-	NB	-	NS	-	-	-	-	Smith 1979a
<i>H. montanicola</i> Rohwer, 1911	CAN	-	-	-	-	BC	AB	SK	MB	ON	QC	-	-	-	-	-	-	-	Ross 1943c
<i>H. neneti</i> Ross, 1943	CAN	-	-	-	-	-	-	-	-	ON	-	-	-	-	-	-	-	-	-
<i>H. pallipes</i> MacGillivray, 1893	CAN	-	-	-	-	BC	AB	-	-	-	-	-	-	-	-	-	-	-	Ross 1943c
<i>H. spala</i> Ross, 1943	CAN	-	-	-	-	BC	-	-	-	-	-	-	-	-	-	-	-	-	Ross 1943c
<i>H. stricklandi</i> Ross, 1943	CAN	-	-	-	-	-	AB	-	-	-	-	-	-	-	-	-	-	-	-
<i>H. testudinea</i> (Klug, 1816) <sup>§</sup>	CAN	-	-	-	-	BC	-	-	-	ON	QC	-	-	NS	-	-	-	-	Vincent et al. 2013; Burgart et al. 2016
Note: apparently eradicated in BC (Vincent et al. 2019)																			
<b>Genus Kerita Ross, 1937</b>																			
Nearctic revision of Pseudodineurini – Smith 1976c																			
<i>K. atria</i> D.R. Smith, 1976	CAN	-	-	-	-	-	AB	-	-	-	-	-	-	-	-	-	-	-	-
<b>Genus Nematinus Rohwer, 1911</b>																			
Nearctic revision – Smith 1986b																			
<i>N. acuminatus</i> (Thomson, 1871)	CAN	AK	-	-	-	BC	-	-	-	-	-	-	-	-	-	-	-	-	-
= <i>N. pontanioides</i> (Marlatt, 1896)																			
<i>N. ochreateus</i> (Rohwer, 1910)	CAN	-	-	-	-	BC	AB	-	-	ON	-	NB	-	-	-	-	-	-	-
<i>N. parsebenus</i> D.R. Smith, 1986	CAN	-	-	-	-	-	-	-	-	QC	-	-	-	NS	-	-	-	-	-
<i>N. unicolor</i> (Dyar, 1895)	CAN	-	-	-	-	BC	-	SK	MB	ON	QC	-	-	NS	-	-	NF	-	SK, MB-Wong 1954; NF- Smith 1979a
<b>Genus Nematus Panzer, 1801</b>																			
Note: Prous et al. 2014 synonymized several genera with <i>Nematus</i> , did not recognize subgenera, and moved some species to <i>Euura</i> .																			
Nearctic revision of former genus <i>Craesus</i> (= <i>Croesus</i> ) – Smith 1972; Nearctic revision of former subgenus <i>N.</i> ( <i>Nematus</i> ) (most species) – Smith 2008																			
<i>N. abbotii</i> (W.F. Kirby, 1882)	CAN	-	-	-	-	-	-	-	-	ON	-	-	-	-	-	-	-	-	-
<i>N. alniastri</i> (Scharfenberg, 1805)	CAN	-	-	-	-	-	-	-	-	QC	-	-	NS	-	-	-	-	-	Smith 1972; Buckle 1930
<b>comb. nov.<sup>§</sup></b>																			
= <i>Craesus alniastri</i> (Scharfenberg, 1805)																			
<i>N. castaneae</i> (Rohwer, 1915), <b>comb. nov.</b>	CAN	-	-	-	-	-	-	-	-	ON	-	-	-	-	-	-	-	-	-
= <i>Craesus castaneae</i> Rohwer, 1915																			
<i>N. erythrogaster</i> Norton, 1864	CAN	-	-	-	-	-	-	-	MB	ON	QC	NB	-	-	-	-	-	-	-
<i>N. laticulus</i> (Norton, 1869)	CAN	-	-	-	-	-	-	-	-	ON	-	-	-	-	-	-	-	-	Smith 2008
<i>N. latifasciatus</i> Cresson, 1880	CAN	-	-	-	-	BC	-	-	-	ON	QC	NB	-	-	-	-	-	-	Smith 2008
<i>N. latitarsus</i> (Norton, 1862), <b>comb. nov.</b>	CAN	AK	-	-	-	BC	AB	SK	MB	ON	QC	NB	-	NS	-	-	NF	-	Smith 1972
= <i>Craesus latitarsus</i> Norton, 1862																			
<i>N. nigristigma</i> (Provancher, 1885)	CAN	-	-	-	-	-	-	-	-	QC	-	-	-	-	-	-	-	-	Smith 1975b
Note: type mostly destroyed, therefore generic identity relative to Prous et al. 2014 unclear (D. Smith, pers. comm.)																			
<i>N. tertius</i> D.R. Smith, 2008	CAN	-	-	-	-	-	AB	-	-	ON	QC	NB	-	-	-	-	-	-	Smith 2008
<i>N. umbratus</i> Thomson, 1871	CAN	-	-	-	-	-	-	-	-	ON	QC	-	-	-	-	-	-	-	Smith 1979a
<i>N. wahlbergi</i> Thomson, 1871 <sup>§</sup>	CAN	-	-	-	-	-	-	-	-	ON	-	-	-	-	-	-	-	-	BIOUG
<b>Genus Pristiphora Latreille, 1810</b>																			
Note: Prous et al. 2014 synonymized several genera with <i>Pristiphora</i> and did not recognize subgenera.																			
Descriptions of some Nearctic species – Wong and Ross 1960; Distributions and new combinations of species previously in <i>Pristolini</i> – Smith and Dolan 2016;																			
European revision including synonymies and newly recorded Holarctic species – Prous et al. 2017.																			
<i>P. abbreviata</i> (Hartig, 1837)	CAN	-	-	-	-	BC	-	-	-	ON	-	-	-	-	-	-	-	-	-
<i>P. acidovalva</i> Wong, 1969	CAN	-	-	-	-	BC	-	SK	MB	ON	QC	NB	-	-	-	-	-	-	-
<i>P. aphanta</i> Wong & Ross, 1960	CAN	-	-	-	-	-	-	-	-	ON	QC	-	-	-	-	-	-	-	-
<i>P. appendiculata</i> (Hartig, 1837)	CAN	-	-	-	-	BC	AB	SK	MB	ON	QC	-	-	NS	-	-	NF	-	-
<i>P. banksi</i> Marlatt, 1896	CAN	-	-	-	-	-	-	-	-	-	QC	-	-	-	-	-	-	-	-
<i>P. bivittata</i> (Norton, 1861)	CAN	-	-	-	-	BC	-	SK	MB	ON	QC	NB	PE	NS	-	-	-	-	-
<i>P. borea</i> (Konow, 1904)	CAN	AK	YT	NT	NU	BC	AB	SK	MB	ON	QC	-	-	-	-	LB	-	-	-
<i>P. breadalbanensis</i> (Cameron, 1882)	CAN	AK	YT	NT	NU	BC	AB	SK	MB	-	QC	-	-	-	-	-	-	-	-
<i>P. cadma</i> Wong & Ross, 1960	CAN	AK	-	-	-	BC	-	SK	-	ON	QC	-	-	-	-	-	-	-	Smith 1979a
<i>P. chlorea</i> (Norton, 1867)	CAN	-	-	-	-	-	-	SK	MB	ON	QC	NB	-	-	-	-	-	-	-
<i>P. cincta</i> Newman, 1837	CAN	AK	YT	NT	NU	BC	AB	-	MB	ON	QC	NB	-	NS	LB	NF	-	-	-
<i>P. coactula</i> (Ruthe, 1859)	CAN	AK	YT	NT	NU	BC	AB	SK	MB	-	QC	-	-	-	LB	NF	-	-	-





<i>D. rufifolius</i> Ross, 1931	CAN	-	-	-	-	-	-	-	-	SK	MB	ON	-	-	-	-	-	-	-	Goulet 1986
<i>D. unicolor</i> (Palisot de Beauvois, 1809)	CAN	-	-	-	-	-	-	-	-	-	MB	ON	QC	NB	-	NS	-	-	-	Goulet 1986
<b>Genus <i>Heptamelus</i> Haliday, 1855</b>																				
Taxonomy and biology of <i>H. dahlbomi</i> (Thomson, 1870) versus <i>H. ochroleucus</i> (Stephens, 1835) – Vikberg and Liston 2009																				
<i>H. dahlbomi</i> (Thomson, 1870) §	CAN	-	-	-	-	BC	-	-	-	-	-	-	-	-	-	QC	-	-	-	-
<b>Genus <i>Nesoselandria</i> Rohwer, 1910</b>																				
<i>N. morio</i> (Fabricius, 1781) §	CAN	-	-	-	-	BC	-	-	-	-	-	ON	QC	-	-	-	-	-	-	-
<b>Genus <i>Strongylogaster</i> Dahlbom, 1835</b>																				
Nearctic revision – Smith 1969b																				
<i>S. distans</i> Norton, 1868	CAN	-	-	-	-	BC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>S. impressata</i> Provancher, 1878	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	NB	-	NS	LB	-	-	-
<i>S. lata</i> D.R. Smith & Naito, 1995	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	-	-	-	-	-	-	-
<i>S. macula</i> (Klug, 1817) §	CAN	-	-	-	-	BC	-	-	-	-	-	ON	QC	-	-	NS	-	-	-	Goulet 1987
<i>S. multicornis</i> Norton, 1862	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	NB	-	NS	-	-	-	-
<i>S. polita</i> Cresson, 1880	CAN	-	-	-	-	-	-	-	-	-	-	ON	-	-	-	NS	-	-	-	-
<i>S. remota</i> Rohwer, 1912	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	-	-	NS	-	-	-	Goulet 1987
<i>S. rufogastra</i> (Kincaid, 1900)	CAN	AK	-	-	-	BC	-	-	-	-	-	-	-	-	-	NS	-	-	NF	Smith 1969b
<i>S. soriculatipes</i> Cresson, 1880	CAN	-	-	-	-	-	-	-	-	-	-	MB	ON	QC	NB	-	NS	-	-	Goulet 1987
<i>S. tacita</i> (Norton, 1860)	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	NB	-	NS	-	-	-	Goulet 1987
<i>S. tibialis</i> Cresson, 1880	CAN	-	-	-	-	BC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Genus <i>Thrinax</i> Konow, 1885</b>																				
Nearctic revision – Smith 1966 as <i>Hemitaxos</i>																				
<i>T. albidopicta</i> (Norton, 1868)	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	NB	-	NS	-	-	NF	-
<i>T. dubitata</i> (Norton, 1862)	CAN	-	-	-	-	-	-	-	-	-	-	MB	ON	QC	NB	-	NS	-	-	-
<i>T. multicornis</i> (Hall, 1918)	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	-	-	-	-	-	-	-
<i>T. primaria</i> (D.R. Smith, 1966)	CAN	-	-	-	-	BC	-	-	-	-	-	-	-	-	-	-	-	-	-	Smith 1966
<b>SUBFAMILY TENTHREDININAE</b>																				
Note: Smith and Gibson (1984) stated that <i>Filacus doanei</i> (Rohwer) has CNC specimens labelled “Victoria, B.C.”. They doubted they were labeled correctly since all other specimens are from Mexico to California. Genus and species omitted pending additional specimens from Canada.																				
<b>Genus <i>Aglaostigma</i> Kirby, 1882</b>																				
Nearctic revision – Ross 1943a																				
<i>A. jocosum</i> (Provancher, 1882)	CAN	-	-	-	-	-	-	-	-	-	MB	ON	QC	-	-	NS	-	-	-	-
<i>A. quatuordecimpunctatum</i> (Norton, 1862)	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	NB	-	NS	-	-	-	-
<i>A. rubens</i> (Cresson, 1880)	CAN	-	-	-	-	BC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>A. semiluteum</i> (Norton, 1862)	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	NB	PE	NS	-	-	-	Smith 1979a
<b>Genus <i>Lagium</i> Konow, 1904</b>																				
Review – Smith 1986a																				
<i>L. atroviolaceum</i> (Norton, 1860)	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	NB	-	-	-	-	-	-
<b>Genus <i>Leucopelmonus</i> MacGillivray, 1916</b>																				
<i>L. annulicornis</i> (Harrington, 1893)	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	NB	-	NS	-	-	NF	-
<b>Genus <i>Macrophya</i> Dahlbom, 1835</b>																				
Nearctic revision – Gibson 1980																				
<i>M. alba</i> MacGillivray, 1895	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	-	-	-	-	-	-	-
<i>M. albomaculata</i> (Norton, 1860)	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	NB	-	-	-	-	-	-
<i>M. amediata</i> Gibson, 1980	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	-	-	NS	-	-	-	NS-INHS
<i>M. bifasciata</i> (Say, 1823)	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	-	-	NS	-	-	-	-
<i>M. cassandra</i> Kirby, 1882	CAN	-	-	-	-	-	-	-	-	-	-	MB	ON	QC	-	NS	-	-	-	-
<i>M. epinota</i> (Say, 1836)	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	NB	-	NS	-	-	-	Gibson 1980
<i>M. festana</i> Ross, 1931	CAN	-	-	-	-	-	-	-	-	-	-	MB	ON	QC	-	-	-	-	-	-
<i>M. flavicoxae</i> (Norton, 1860)	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	NB	-	NS	-	-	-	Gibson 1980
<i>M. flavolineata</i> (Norton, 1860)	CAN	-	-	-	-	-	-	-	-	-	-	MB	ON	QC	NB	-	NS	-	-	Gibson 1980
<i>M. ficta</i> MacGillivray, 1920	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	NB	-	NS	-	-	-	-
<i>M. formosa</i> (Klug, 1817)	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	-	-	NS	-	-	-	Gibson 1980
<i>M. fuliginea</i> Norton, 1867	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	-	-	-	-	-	-	-
<i>M. fumator</i> Norton, 1867	CAN	-	-	-	-	BC	AB	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>M. goniphora</i> (Say, 1836)	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	-	-	-	-	-	-	Gibson 1980
<i>M. intermedia</i> (Norton, 1860)	CAN	-	-	-	-	-	-	-	-	-	-	ON	-	-	-	-	-	-	-	-
<i>M. lineatana</i> Rohwer, 1912	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	-	-	NS	-	-	-	Gibson 1980
<i>M. macgillivrayi</i> Gibson, 1980	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	-	-	-	-	-	-	-
<i>M. maculilabris</i> Konow, 1899	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	-	-	-	-	-	-	-
<i>M. mensa</i> Gibson, 1980	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	-	-	-	-	-	-	-
<i>M. mixta</i> MacGillivray, 1895	CAN	-	-	-	-	-	-	-	-	-	-	MB	ON	QC	NB	PE	NS	-	-	Gibson 1980
<i>M. nigra</i> (Norton, 1860)	CAN	-	-	-	-	-	-	-	-	-	-	ON	QC	NB	PE	NS	-	-	-	-





<i>P. brunneicornis</i> Rohwer, 1910	CAN	-	-	-	-	-	-	-	-	ON	QC	NB	-	NS	-	-	-	-	
<i>P. californica</i> (Ashmead, 1898)	CAN	-	-	-	-	BC	AB	-	-	-	-	-	-	-	-	-	-	-	Smith 1979a
<b>Genus <i>Xyela</i> Dalman, 1819</b>																			
Nearctic revision – Burdick 1961																			
<i>X. alberta</i> (Curran, 1923)	CAN	-	YT	-	-	BC	AB	-	-	-	-	-	-	-	-	-	-	-	-
<i>X. alpigena</i> (Strobl, 1895)	CAN	-	-	-	-	-	-	-	-	ON	QC	-	-	-	-	-	-	-	-
<i>X. bakeri</i> Konow, 1898	CAN	AK	YT	NT	-	BC	AB	SK	-	ON	QC	-	-	-	-	-	-	-	-
<i>X. cheloma</i> Burdick, 1961	CAN	-	-	-	-	BC	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>X. julii</i> Brébisson, 1818	CAN	-	-	-	-	-	AB	-	-	ON	-	-	-	-	-	-	-	-	BIOUG-AB, ON
Status relative to <i>X. obscura</i> (Strobl) currently under investigation																			
<i>X. linsleyi</i> Burdick, 1961	CAN	-	-	-	-	BC	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>X. middlekauffi</i> Burdick, 1961	CAN	-	-	-	-	-	-	-	-	ON	QC	-	-	-	-	-	-	-	Burdick 1961
<i>X. minor</i> Norton, 1869	CAN	-	YT	NT	-	BC	AB	-	-	ON	QC	-	-	-	-	-	-	-	Smith 1979a
<i>X. pini</i> Rohwer, 1913	CAN	-	YT	NT	-	BC	AB	-	-	ON	QC	-	-	NS	-	NF	-	-	Smith 1979a

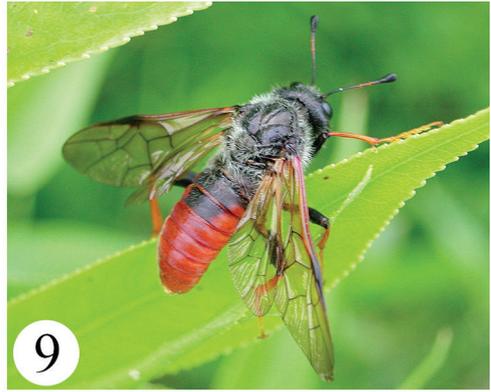
Hemisphere sawfly surveys include Liston et al. (2014) for Britain and Ireland (539 species in 313,100 km<sup>2</sup> = one species per 580.9 km<sup>2</sup>), Naito et al. (2020) for Japan (875 species in 377,915 km<sup>2</sup> = one species per 431.9 km<sup>2</sup>) and Macek et al. (2020) for the Czech and Slovak Republics (750 species in 127,901 = one species per 170.5 km<sup>2</sup>). Because of the great differences in the geographic size of these three surveys compared to northern Northern America, it is difficult to make comparisons. A more appropriate comparison of sawfly species diversity between northern North America and a Palaearctic country is provided by Sundukov (2017) who recorded 1546 species in Russia (surface area 17.1 million km<sup>2</sup>), which equals an average of one sawfly species per 11,060 km<sup>2</sup>. In summary, surveys of smaller areas generally have greater density of sawfly species recorded (except for northern North America compared to Russia), and there is a higher density of sawfly species recorded in all of the Palaearctic surveys compared to the northern Nearctic. The lower species richness of sawflies recorded from the northern Nearctic compared to the Palaearctic is likely an effect of lower sampling in the Nearctic. The western Palaearctic is certainly the best sampled region of the world for most groups of organisms, including sawflies. In conjunction with greater sampling, there has been more study of sawflies in Europe compared to northern North America, especially the hyperdiverse Nematinae. For example, *Pristiphora* Latreille has 221 described species (Taeger et al. 2018) of which about 120 are known from Europe (Prous et al. 2017). Haris (2006) treated the European species relatively recently and provided a key for 155 Palaearctic species, and Prous et al. (2017) revised 90 species from Scandinavia and neighbouring regions. In contrast, *Pristiphora* has only 55 described species in the entire Nearctic region (24.7 million km<sup>2</sup>) (Taeger et al. 2018) and has never been completely revised for the region, although unpublished work by H.R. Wong indicates that many undescribed Nearctic species exist and a revision of the genus for the region is currently in progress (S. Monckton, pers. comm.).

In contrast to Canada, the number of species of sawflies in Alaska and Greenland is far lower, with 183 species in 48 genera in 8 families from Alaska and 7 described species in 1 genus (*Euura*) from Greenland (Tables 1, 2). Smith (1979a) recorded 136 species of sawflies from Alaska, meaning that the current survey has increased the number by 34.6%. The number of described species recorded from Alaska has some degree of uncer-



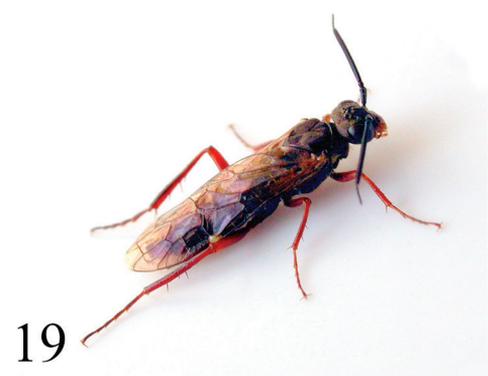
**Figures 2–7.** Sawfly adults **2** *Syntexis libocedrii* (Anaxyelidae), Oregon, USA (photo by N. Schiff) **3** *Phylloecus trimaculatus* (Cephidae), Joliette, QC, Canada **4** *Orussus occidentalis* (Orussidae), Ottawa, ON, Canada **5** *Acantholyda erythrocephala* (Pamphiliidae), Ottawa, ON, Canada **6** *Tremex columba* (Siricidae), Lake Manitou, ON, Canada **7** *Xiphydria abdominalis* (Xiphydriidae), Ottawa, ON, Canada.

tainty for several reasons. First, there are four species of *Tenthredo* Linnaeus that have been omitted because of unpublished research by the senior author that indicates that they are junior synonyms. The species are: *Tenthredo bivittata* Kincaid, *T. harrimani* Kincaid, *T. retroversa* MacGillivray and *T. rusticula* MacGillivray. It is noted here that several other



**Figures 8–13.** Sawfly adults **8** *Arge* sp. (Argidae), Ottawa, ON, Canada **9** *Trichiosoma triangulum* (Cimbicidae), Matagami, QC, Canada **10** *Diprion similis* (Diprionidae), Lake Manitou, ON, Canada **11** *Acordulecera dorsalis* (Pergidae), Antrim, New Jersey, USA (photo by T. Murray) **12** *Ametastegia pallipes* (Tenthredinidae: Allantinae), Manitoulin Island, ON, Canada **13** *Eutomostethus ephippium* (Tenthredinidae: Blennocampinae), Ottawa, ON, Canada.

species of *Tenthredo* recorded from Canada are also of questionable validity or uncertain status and so are omitted from the checklist as well, pending further study. These are: *T. mutans* Norton, *T. nigricostata* Provancher, *T. pallicola* MacGillivray, *T. pectoralis* Norton, *T. redimacula* MacGillivray, *T. tricolor* (Norton) and *T. varians* Norton. Second, it is likely



**Figures 14–19.** Sawfly adults **14** *Metallus capitalis* (Tenthredinidae: Heterarthrinae), Driftwood Prov. Park, ON, Canada **15** *Cladius pallipes*, Manitoulin Island, ON, Canada **16** *Dolerus (Achaetoprion)* sp. (Tenthredinidae: Selandriinae), Manitoulin Island, ON, Canada **17** *Lagium atroviolaceum* (Tenthredinidae: Tenthredininae) feeding on aphids (Hemiptera: Aphididae), Gore Bay, ON, Canada **18** *Tenthredo pleuralis* (Tenthredinidae: Tenthredininae), St. Anthony, NF, Canada **19** *Macroxyela ferruginea* (Xyelidae), Maryland, USA (photo by S. Schulmeister).

that some of the 20 species of *Euura* listed only from Alaska are invalid; however, these species are included in the checklist since we currently have no evidence of their invalid status. Third, the number of species of *Neodiprion* Rohwer in Alaska is likely higher than



**Figures 20–26.** Sawfly larvae **20** *Cimbex americanus* (Cimbicidae) Lake Manitou, ON, Canada **21** *Nematus* (= *Craesus*) *latitarsus* (Tenthredinidae: Nematinae), Vancouver, BC, Canada **22** *Dimorphopteryx* sp. (Tenthredinidae: Allantinae) Driftwood Prov. Park, ON, Canada **23** *Eriocampa ovata* (Tenthredinidae: Allantinae) St. Andrew’s, NF, Canada **24** *Neodiprion nanulus* (Diprionidae) Ottawa, ON, Canada **25** *Eupareophora parca* (Tenthredinidae: Blennocampinae) Ottawa, ON, Canada **26** *Macremphytus testaceus* (Tenthredinidae: Allantinae) Ottawa, ON, Canada.

the two listed in Table 2: *N. abietis* (Harris) and *N. tsugae* Middleton, but confirmation of the identity of other species was not possible prior to submission of the manuscript.

The summary of the entomofauna of Greenland (Vilhelmsen 2015) included records from three genera of Tenthredinidae; however, one of these (*Ametastegia* Costa) was only recorded at genus level and therefore is not included in the current list, and the other two (*Amauronematus* Konow and *Pachynematus* Konow) are now both synonyms of *Euura*. Vilhelmsen (2015) recorded five species (not including *Ametastegia* sp.) and noted three more recorded by Henriksen (1939) that could not be substantiated by specimens. Of these three, we include *Euura* (= *Amauronematus*) *borealis* (Marlatt) in our list based on the male holotype at the Academy of Natural Sciences, Philadelphia (Fox 1892). We omit the other two – *Cladius grandis* (Serville) and *Euura* (= *Amaurone-matus*) *viduata* (Zetterstedt) pending discovery of supporting specimens. We do include one additional species, not included in Vilhelmsen (2015): *Euura* (= *Pachynematus*) *parvilabris* (Thomson) based on the record in Smith (1979a). Apart from being recorded from Greenland, the latter species is the northernmost sawfly collected in the world (from Ward Hunt Island, Nunavut, Canada: 83°05'N) (Benson 1962).

Fourteen species have been reported from Saint Pierre and Miquelon (Gargominy et al. 2020) as follows: Pamphiliidae: *Onycholyda luteicornis* (Norton); Siricidae: *Urocerus albicornis* (Fabricius), *U. flavicornis* (Fabricius); Cimbicidae: *Abia fasciata* (Linnaeus); Diprionidae: *Neodiprion abietis*; Tenthredinidae: *Allantus cinctus* (Linnaeus), *Caliroa cerasi* (Linnaeus), *Cladius simplicicornis* Norton, *Dolerus nitens* Zaddach, *Euura ribesii* (Scopoli), *Pachyprotasis rapae* (Linnaeus), *Pristiphora erichsonii* (Hartig), *P. geniculata* (Hartig) and *Tenthredo piceocincta* (Norton). It is noted that the record of *Urocerus flavicornis* was listed in the TAXREF online database as *U. gigas* (Linnaeus), without noting subspecies. North American specimens previously identified as *U. gigas flavicornis* are now considered a distinct species (Schiff et al. 2012). It is possible that specimens from Saint Pierre and Miquelon belong to *U. gigas gigas* but this is currently considered to occur in the Palaearctic region only. Despite not being able to examine specimens from Saint Pierre and Miquelon, all records are credible. All of these species are known from the island of Newfoundland except *Caliroa cerasi* (recorded from QC) and *Euura ribesii* and *Cladius simplicicornis* (both recorded from NS). Considering that 94 species of sawflies are known from the island of Newfoundland (Table 1), more species are expected to occur in the collectivity.

In terms of species richness of sawflies by distributional area, the political region in our checklist with the highest recorded number of species of sawflies is Ontario (471: 62.1% of 758 species), followed by Quebec (411: 54.2%) and British Columbia (308, 40.6%) (Fig. 1 and Table 1). The greater relative species richness in these areas is certainly strongly influenced by higher sampling effort compared to more northern or central regions. Despite this southern bias, sawflies are well-represented in northern regions, at least in the northwest (Alaska, Yukon Territory and the Northwest Territories) with 183, 92 and 111 species, respectively. These numbers represent 24.1%, 12.1% and 14.6% of the total sawfly species recorded in northern North America (Fig. 1). As a comparison, Chalcidoidea is a more southern group with 9.1%, 5.5% and 6.3% of the total species recorded in the same three regions (Huber et al. 2021).

In total, 69 new species records of sawflies are reported for Canada, which represents 9.5% of the total number of described species recorded in the country. The number of new Canadian species records by family is summarized in Table 1 (in parentheses following the Canada totals). The checklist includes five new generic records for Canada: *Calameuta* Konow and *Trachelus* Jurine (Cephididae), *Pseudosiobla* Ashmead and *Setabara* Ross (Tenthredinidae) and *Xyelecia* Ross (Xyelidae). There are 29 new species records for Alaska (15.8% of the 183 species recorded) and seven new generic records: *Xiphydria* Latreille (Xiphydriidae) and six genera of Tenthredinidae (*Ardis* Konow, *Eutomostethus* Enslin, *Eriocampa* Hartig, *Lagonis* Ross, *Monophadnoides* Ashmead and *Monophadnus* Hartig). All families in our checklist were previously recorded from Canada. Xiphydriidae is newly recorded from Alaska. There were no new records for Greenland.

Some species of sawflies recorded in northern North America are known to have been accidentally introduced to the Nearctic since European colonization. These are indicated in Table 2 by a <sup>§</sup> following the author and year of publication. In some cases, it is unclear whether species have been introduced in recent times (the last 500 years) or whether they have a historical Holarctic distribution. Only species for which there is good evidence of recent, accidental introduction are considered introduced. Of the 758 total species in northern North America, 64 (8.4%) are considered as introduced. This figure may be slightly lower than the actual number of introduced species because of difficulty assessing whether species are historically Holarctic or recently introduced, especially in some of the large, relatively poorly known genera such as *Euura*, *Nematus* and *Pristiphora*. Overall, introduced species are known from 8 of the 12 families: Argidae (2 species), Cephididae (2), Cimbicidae (2), Diprionidae (4), Pamphiliidae (1), Siricidae (2), Tenthredinidae (50) and Xiphydriidae (1). Of note, within Tenthredinidae, the subfamily Heterarthrinae has a relatively high percentage of introduced species: 13 of 37 (35.1%), presumably because this group has leaf-mining larvae (Smith 1971b) that often occur unnoticed in plant material transported by humans.

It is certain that additional sampling in northern North America will increase the number of recorded sawfly species by discovery of new species, as well as detection of southern Nearctic and Palaearctic species that have previously gone unnoticed. Almost all of the undiscovered diversity will be in Tenthredinidae. Based on DNA barcode data, and using the Barcode Index Number (BIN) criterion of Ratnasingham and Hebert (2013) that 2% sequence divergence was indicative of species differences, Bennett et al. (2019) found that the number of BINs of sawflies in Canada in the BOLD database was lower than the number of recorded species in all families except Siricidae (25 BINs compared to 20 species) and Cimbicidae (15 BINs versus 8 species). The number of BINs of Tenthredinidae in Canada (528) was nearly equal to the number of species they recorded (532); however, they predicted that more than 200 additional species of Tenthredinidae were present in Canada. This prediction has been supported by a recent Nearctic review of two species groups of *Tenthredo* (30 species) which included description of 13 new species of which 9 are present in northern North America (Goulet 2020). It has been noted in other studies that the

use of DNA barcodes in sawflies works well in many groups, but can be a poor estimate of species diversity in others (Schmidt et al. 2017 for sawflies in general, Prous et al. 2017, 2020 for *Pristiphora* and *Empria* Lepeletier and Serville, respectively). Therefore, a great deal more collecting and taxonomic research is required before we are able to make a more informed estimate of the total number of sawflies in northern North America. It is hoped that this checklist will provide baseline distributional data that will facilitate these much-needed studies.

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