SAWFLIES AND WOODWASPS (HYMENOPTERA: SYMPHYTA) OF GREAT SMOKY MOUNTAINS NATIONAL PARK

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Abstract.—As a contribution to the All Taxa Biodiversity Inventory of Great Smoky Mountains National Park, a list of the 234 species of sawflies in 10 families collected in the park are presented. Localities in the park, numbers of specimens, inclusive dates of collection, inclusive altitudes, and host plants for each species are given.

Key Words: survey, species list, Argidae, Cephidae, Cimbicidae, Diprionidae, Pamphiliidae, Pergidae, Siricidae, Tenthredinidae, Xiphydriidae, Xyelidae

In conjunction with the All Taxa Biodiversity Inventory (ATBI) of Great Smoky Mountains National Park (Sharkey 2001, Parker and Bernard 2006), adequate samples of sawflies have been collected at different sites in the park to now give a good idea of the fauna. The following list presents 10 families and 234 species. A list of the sawflies of the park never has been compiled, so there are no comparative data and it is sometimes difficult to determine whether or not any of the species are new records for the park. This list will serve as a basis with which future collections can be compared. The only other recent list of Symphyta for a geographical area in the eastern United States is one for Virginia (Smith 2007) in which 345 species are listed.

MATERIALS AND METHODS

A large part of this study is based on collections made during a sampling study using Townes-style Malaise traps in 2001 and 2002. Eleven sites (ATBI plots, see Sharkey 2001, Parker and Bernard 2006) representing a range of habitat types from low to high elevation were selected, with two traps at each site. The sites, floral community types, location, and elevations of the plots are as follows, with the Malaise trap (= MT) number in parentheses:

Albright Grove, southern Appalachian acid cove forest, *Tsuga, Liriodendron*, 1,033 m, Cocke Co., TN, 35°43'60"N, 83°16'50"W (MT 17, 18).

Andrews Bald, grassy bald, 1,757 m, Swain Co., NC, 35°32'20"N, 83°29'39"W (MT 11, 12).

Brushy Mountain, southern Appalachian mountain laurel bald, *Rhododendron*, 1,468 m, Sevier Co., TN, 35°40'36"N, 83°25'51"W (MT 13, 14).

Cades Cove, pasture, 522 m, Blount Co., TN, 35°35'31"N, 83°50'17"W (MT 3, 4).

Cataloochee, high elevation red oak forest (formerly American chestnut...
These sites are given for the species recorded below. Data for each species from these collections are arranged as follows: ATBI plot(s); number of specimens collected; years of collection; range of dates of collection (months in roman numerals); range of altitude of collection, in meters; recorded host(s). More than 10,700 specimens were obtained and examined from this study. Full data are given for some hand-collected specimens or specimens that do not appear to be associated with the above study. Specimens are deposited in the collection of Great Smoky Mountains National Park, Gatlinburg, TN, with duplicates, pending mutual resolution and agreement with the National Park Service regarding specimen deposition, in the National Museum of Natural History, Smithsonian Institution, Washington, DC.

A second large collection was the result of a study by Skillen et al. (2000). Though I kept a list of identifications, I have not been able to obtain exact locations in the park from which collections were made. This collection is housed at the University of Georgia, Athens. Approximately 8,000 specimens were examined and identified from this study. Many of the species also were taken in the ATBI study, but there are about 30 that were not. Those only recorded from this collection are indicated only as “GSMNP.”

The list is by family and subfamilies in the Tenthredinidae, as given in Smith (1979), then alphabetically by genus and species. Most recorded host plants are from Smith (1979).

RESULTS

SYMPHYTA

XYELIDAE

Larvae of *Xyela* live and feed in staminate cones of pines with the exception of *X. gallicaulis*, which is a bud galler. They are the earliest sawflies to fly in the spring. *Macroxyela* Say (on elm), *Megaxyela* Konow (on hickory), and *Pleroneura* Konow (bud miners of fir) are possible in the park.

*Xyela alpigena* (Strobl). Cades Cove, Indian Gap, Andrews Bald; 5; 2001, 2002; V-8-9; 522-1,757; *Pinus*.

*Xyela bakeri* Konow. Andrews Bald, Brushy Mountain, Cades Cove, Twin Creeks; 6; 2001; III-12-V-24; 522-1,757; *Pinus*.

*Xyela gallicaulis* Smith. GSMNP; *Pinus*.

*Xyela minor* Norton. Andrews Bald, Brushy Mountain, Cades Cove; 24; 2001; II-14-IV-24; 522-1,757; *Pinus*.

*Xyela obscura* (Strobl). Andrews Bald, Brushy Mountain, Cades Cove, Clingmans Dome; 26; 2001, 2002; III-13-V-10; 522-1,956; *Pinus*.

PAMPHILIIDAE

Larvae of *Acantholyda* and *Cephalcia* live and feed communally in webs of
their own making on conifers; those of *Pamphillus* and *Onycholyda* live solitarily in leaf rolls.

*Acantholyda apicalis* (Westwood). GSMNP; *Pinus*.


*Acantholyda maculiventris* (Norton). Clingmans Dome; 1; 2001; VI-25; 1,956; *Abies, Picea*.

*Acantholyda pini* Rohwer. GSMNP; *Pinus*.

*Cephalcia distincta* (MacGillivray). Clingmans Dome, Snake Den Ridge; 2; 2001, 2002, VI-25-VIII-1; 993–1,956; *Abies, Tsuga*. Previously recorded from only as far south as New York.

*Cephalcia marginata* Middlekauff. Clingmans Dome; 1; 2001; VI-25; 1,956; *Pinus*.

*Cephalcia provancheri* (Huard). GSMNP; *Picea*.


*Pamphillus pallimaculus* (Norton). GSMNP.

*Pamphillus persicum* MacGillivray. Andrews Bald; 1; 2001, VI-22, 1,757; *Prunus*.

*Pamphillus phyllisae* Middlekauff. Andrews Bald, Indiana Gap; 2; 2001; VI-6-VII-17; 1,672–1,757; *Quercus*.

**CIMBICIDAE**

Larvae are external leaf feeders. One or two other species may be found in the park.


*Trichiosoma triangulum* Kirby. TN: Servier Co., Little River Trail—X Goshen Prong Trail, 27 Apr. 2001, IC Stocks (1); *Alnus*.

**PERGIDAE**

Larvae are external leaf feeders. The genus needs study. All four species listed by Smith (1979) occur in the park, but there are some unidentified species and *A. dorsalis* may be a complex of species. A complete list is not possible until taxonomic problems are resolved.


**DIPRIONIDAE**

Larvae of species of this family feed on conifers, mostly pines. Adults are seldom collected in traps and are more commonly obtained by finding and rearing larvae. About ten species eventually may be found in the park.
**Monoctenus melliceps** (Cresson). One specimen collected at Park Headquarters, 1,529’, Servier Co., TN; *Juniperus*.

**Neodiprion abbotii** (Leach). GSMNP; *Pinus*.

**ARGIDAE**

Larvae are external leaf feeders; only one, *Schizocerella pilicornis*, is a leaf miner in purslane.

**Argo abdominalis** (Leach). Andrews Bald; 3; 2002; VI-10-19; 1,757; *Rhododendron*.


**Argo cyra** (Kirby). Indian Gap; 1; 1999; V-28-30; 1,634; TN: Blount Co., ATBI plot: Cades Cove, Forge Creek Road, 1 km S of cc Loop Rd., 6 m Malaise trap near creek, 28-30 May 1999, coll. Sutton & Steck; *Betula, Salix*.

**Argo humeralis** (Beauvois). Cades Cove, Indian Gap; 4; 2001; V-8-VIII-16; 522-1,634; TN: Blount Co., ATBI plot: Cades Cove, Forge Creek Road, 1 km S of cc Loop Rd., 6 m Malaise trap near creek, 2-16 July 2001, J. Burbank, R. Hightower (1); same data, Mal. trap 04, 23 April-3 May 2001, R. Hightower et al. (1); *Toxicodendron*.

**Argo macleayi** (Leach). Andrews Bald; 4; 2001, 2002; VI-19-VI-22; 1,757; *Amelanchier, Prunus, Sorbus*. Specimen collected 3 August 2001 was “on Angelica.”

**Argo quid/a** Smith. Brushy Mountain; 1; 2002; V-10-VI-8; 1,402-1,757.

**Sterictiphora cruenta** Smith. Brushy Mountain; 1; 2002; VI-30; 1,467; *Prunus*.

**Sterictiphora prunivora** (Dyar). Brushy Mountain, Cataloochee; 3; 2001, 2002; V-8-15; 1,382-1,467; *Prunus*.


**Sterictiphora serotina** Smith. Andrews Bald, Indian Gap, Purchase Knob; 3; 2001; IV-24-V-24; 1,672-1,757; *Prunus*.

**Sterictiphora transversa** Smith. Andrews Bald, Brushy Mountain, Purchase Knob; 6; 2001, 2002; V-10-VI-8; 1,402-1,757.

**TENTHREDINIDAE**

**SELANDRIINAE**

Larvae of most species of this subfamily feed on fern fronds.

**Adelesta nova** (Norton). Purchase Knob; 1; 2001; IV-10; 1,402. A rare species in collections. This is the southernmost record.


**Hemitaxonus multicinctus** Hall. Twin Creeks; 2; 2001; IV-11; 594; *Athyrium*.


**Strongylogaster multicincta** Norton. Twin Creeks; 1; 2001; V-15; 594; *Pteridium*.

**Strongylogaster polita** Cresson. Andrews Bald, Indian Gap, Snake Den Ridge,
Twin Creeks; 5; 2001, 2002; IV-26-V-10; 594–1,757.

*Strongylogaster remotas* Rohwer. Twin Creeks; 1; 2001; V-15; 594.


*Strongylogaster tacita* (Norton). GSMNP; adults have been collected from *Os-munda*.

**DOLERINAE**

Larvae of this subfamily feed on various grasses and *Equisetum*. They are among the earliest sawflies to fly in the spring.


*Dolerus sp. nr. asper* Zaddach. Goshen Prong; 2; 2001; IV-27; 895.

*Dolerus hebes* Goulet. GSMNP.

*Dolerus neoagecistus* MacGillivray. Cades Cove; 1; 2001; IV-9; 522.

*Dolerus nitens* Zaddach. GSMNP; grasses.


**NEMATINAE**

Larvae of most species collected in the park are external leaf feeders, though *Caulocampus* are petiole miners and *Hoplocampa* feed in the fruits of their hosts. The gall-forming and leaf-folding genera mostly associated with willows, *Euura*, *Pontania*, and *Phyllocolpa*, have not been taken during the surveys. Some genera are in need of study, and listings will have to wait until taxonomic problems are resolved.


*Amauronematus* sp. 1. Andrews Bald, Clingmans Dome; 3; 2002; IV-14-V-24; 1,757–1,956.

*Amauronematus* sp. 2. Purchase Knob 1; 2001; IV-23-V-15; 1,234.

*Caulocampus acericaulis* (MacGillivray). Goshen Prong; 1; 2001; IV-27; 895; *Acer* (petiole borer).

*Crates latitarsus* Norton. Brushy Mountain, Purchase Knob; 2; 2001; V-15-VII-5; 1,402–1,467; *Betula*.

*Craterocercus fraternalis* (Norton). Andrews Bald, Brushy Mountain, Cataloochee, Indian Gap; 23; 2001, 2002; V-10-VI-19; 1,382–1,757; *Quercus*.


*Hemicrhoa crocea* (Geoffroy). Clingmans Dome, Indian Gap; 6; 2001, 2002; V-28-VIII-30; 1,672–1,956; *Alnus*.


*Hoplocampa halecyon* (Norton). Andrews Bald; 69; 2001, 2002; V-24-VI-19; 1,757; *Amelanchier*.

*Hoplocampa marlatti* Rohwer. Andrews Bald, Brushy Mountain, Cades Cove, Cataloochee, Clingmans Dome, Goshen Prong, Purchase Knob; 33; 2001, 2002; IV-23-VI-19; 522–1,956; *Prunus*.


*Nematus abbottii* (Kirby). Cataloochee, Twin Creeks; 2; 2000, 2001; V-8-VI-8; 594–1,382; *Robinia*.

*Nematus appalachia* Smith. Albright Grove, Andrews Bald, Indian Gap; 4;
2002; VII-1-VIII-30; 1,033–1,757. Specimens from GSMNP are part of the type series.

*Ctenatus carpini* (Marlatt). Cades Cove, Twin Creeks; 2; 2001; VII-30; 522–594; *Carpinus.*

*Nematus corylus* Cresson. Twin Creeks; 1; 2000; VII-3; 594; *Corylus.*

*Nematus erythraster* Norton. Cades Cove; 5; 2001, 2002; V-21-VIII-26; 522; *Alnus.*


*Nematus lipovskyi* Smith. Andrews Bald; 1; 2001; VI-8; 1,382.

*Nematus laticulus* (Norton). Cataloochee; 1; 2001; VI-8; 1,382.


*Nematus parsebenus* Smith. Andrews Bald; 1; 2001; VII-17; 1,757.


*Nematus tibialis* Newman. Twin Creeks, Purchase Knob; 3; 2001, 2002; VIII-20-IX-4; 594–1,402; *Robinia.*

*Nematus sp.* 1. Andrews Bald; 4; 2001; V-10-VI-24; 1,757.

*Neopareophora litura* (Klug). Andrews Bald, Brushy Mountain, Cataloochee, Clingmans Dome, Goshen Prong, Purchase Knob; 308; 2001, 2002; IV-10-30; 895–1,956; *Vaccinium.*

*Nepionema appalachian* Smith. Andrews Bald, Cataloochee; 7; 2001; III-26-IV-24; 1,382–1,757.


*Pikonema alaskensis* (Rohwer). Andrews Bald; 4; 2001, 2002; VI-19-22; 1,757; *Picea.* GSMNP is the southern limit in the eastern United States for species of *Pikonema.*

*Pikonema dimockii* (Cresson). Andrews Bald, Clingmans Dome; 2; 2001, 2002; VI-19-VII-3; 1,757–1,956; *Picea.*


*Priophora appendiculata* (Hartig). Clingmans Dome; 5; 2001, 2002; V-24-VIII-30; 1,956; *Ribes.*


*Priophora bivittata* (Norton). Clingmans Dome; 1; 2002; VIII-30; 1,944; *Spiraea.*


*Priophora mollis* (Hartig). Andrews Bald, Cataloochee; 5; 2001, 2002; IV-30-V-14; 1,382–1,467; *Vaccinium.*

*Priophora syscophanta* Walsh. Cades Cove; 1; 2001; V-8; 522; *Salix.*

Pristiphora sp. 1. Clingmans Dome; 2; 2001; V-10-VII-18; 1,956.

Pristiphora sp. 2. Andrews Bald; 3; 2001; II-16-V-24; 1,757.

Pristiphora sp. 3. Andrews Bald; 2; 2001; V-10-24; 1,757.


HETERARTHINAE

Larvae of Caliropia are external leaf feeders; those of the other genera are leaf miners.

Caliroa fasciata (Norton). GSMNP; Quercus.

Caliroa liturala MacGillivray. GSMNP; Prunus.

Caliroa lobata MacGillivray. GSMNP; Quercus.


Caliroa obsoleta (Norton). GSMNP; Quercus.

Caliroa petiolata Smith. Andrews Bald, Brushy Mountain; 2; 2002; VIII-3-IX-11; 1,467–1,757; Quercus.

Caliroa quercusococinæae (Dyar). Andrews Bald, Purchase Knob; 3; 2001, 2002; VII-3-VIII-20; 1,402–1,757; Quercus.


Profenusa alumna (MacGillivray). Clingmans Dome; 1; 2001; V-24; 1,956; Quercus.

BLENNOCAMPINAE

Larvae of most species are external leaf feeders; those of Ardis are stem borers.

Ardis brunniventrís (Hartig). Cades Cove; 3; 2001, 2002; V-21-VI-17; 522; Rosa.

Eupareophora parca (Cresson). Twin Creeks; 17; 2001; IV-11-V-15; 594; Fraxinus.

Eutomostethus lateiventris (Klug). Clingmans Dome; 1; 2002; V-10; 1,956; Juncus.


Monophadnoides rubi (Harris). Cades Cove; 14; 2001, 2002; V-21-VI-3; 522; Rubus.


Monophadnus bakeri Smith. Goshen Prong; 22; 2002; IV-1-11; 895.

Monophadnus lattini Smith. GSMNP.

Paracharactus niger (Harrington). Albright Grove, Andrews Bald, Cataloochee, Clingmans Dome, Goshen
Prong, Indian Gap, Snake Den Ridge, Twin Creeks; 48; 2001, 2002; IV-24-V-10; 594–1,956; probably sedges.


*Periclista bipartita* (Cresson). Twin Creeks; 1; 2002; IV-8; 594; Quercus.

*Periclista diluta* (Cresson). Andrews Bald, Cataloochee; 2; 2001; V-15-24; 1,382–1,757; *Quercus*.


*Periclista media* (Norton). Andrews Bald, Cataloochee, Purchase Knob, Twin Creeks; 73; 2001, 2002; IV-10-26; 594–1,757; *Quercus*.

*Periclista stamnari* Smith. Brushy Mountain; 1; 2001; V-23; 1,467.

*Periclista subrubruncata* Dyar. Andrews Bald; 3; 2001, 2002; VI-19-VII-3; 1,757; *Quercus*.

*Periclista sp*. 1. Cataloochee; 1; 2002; IV-14-24; 1,385.


*Phymatoceara smilacinae* Smith. Andrews Bald, Cataloochee, Purchase Knob; 38; 2001, 2002; IV-23-VI-4; 1,382–1,757; adults collected from *Similacina* and *Polygonatum*.

*Rhadinoceraea nubilipennis* (Norton). Andrews Bald; 2; 2001; VI-22; 1,757; *Veratrum*.

*Rhadinoceraea zigadenusae* Smith. Purchase Knob; 2; 2001; VII-19-VIII-2; 1,402; *Zigadenus*.

*Tethida barba* (Say). Twin Creeks; 1; 2001; V-15; 594; *Fraxinus*.

**ALLANTINAE**

Larvae of all species are external leaf miners.


*Ametastegia articulata* (Klug). Cades Cove; 8; 2001, 2002; V-8-IX-23; 522; *Rumex, Polygonum*.

*Ametastegia becra* Smith. Cades Cove; 1; 2002; VII-1; 522.

*Ametastegia equiseti* (Fallén). Cades Cove; 3; 2002; V-9-VIII-26; 522; *Rumex*.

*Ametastegia pallipes* (Spinola). Clingmans Dome; 1; 2001; IX-26; 1,956; *Viola*.


*Ametastegia recens* (Say). Cataloochee, Clingmans Dome; 6; 2001, 2002; VIII-20-30; 1,382–1,956.


*Ametastegia xenia* Smith. Clingmans Dome; 1; 2002; VIII-30; 1,956.

*Dimorphopteryx melanognathus* Rohwer. Andrews Bald; 1; 2001; VII-17; 1,757; *Alnus, Betula*.

*Dimorphopteryx pinguis* (Norton). GSMNP; *Alnus, Betula*.

*Empria maculata* (Norton). Andrews Bald, Brushy Mountain, Cades Cove,


Haymatus blassus Smith. Twin Creeks; 2; 2002; IV-25; 594.

Macrephymus tarsatus (Say). Twin Creeks; 1; 2002; VI-21; 594; Cornus.


Monostega abdominalis (Fabricius). Cades Cove; 1; 2002; IX-23; 522; Lysimachia.

Phrontosoma brocca Smith. Purchase Knob; 2; 2001; V-15; 1,402. Previously known from only as far south as New York.


Taxonus pallipes (Say). Cades Cove, Cataloochee, Purchase Knob, Twin Creeks; 54; 2001, 2002; V-8-IX-23; 522–1,402; Fragaria.


Taxonus rufocinctus (Norton). Cades Cove, Indian Gap, Twin Creeks; 469; V-21-IX-23; 522–1,672; Rubus.


**TENTHREDININAE**

Larvae of all species are external leaf feeders.


*Macrophya albomaculata* (Norton). GSMNP; Sambucus.

Macrophya bifasciata (Say). Indian Gap; 1; 1999; V-8-30; 1,634.


Macrophya formosa (Klug). Cades Cove; 6; 2001, 2002; VI-3-4; 522.

Macrophya goniphora (Say). Indian Gap; 1; 2002; VII-3; 1,672.

Macrophya intermedia (Norton). Andrews Bald; 1; 2001; VI-22; 1,757.

Macrophya lineatana Rohwer. Brushy Mountain, Cades Cove; 44; 2001, 2002; V-14-VI-3; 522–1,467.


Macrophya maculilabris Konow. GSMNP; Sambucus.

Macrophya masoni Gibson. GSMNP.

Macrophya mensa Gibson. Cades Cove; 2; 2001; V-21-VI-4; 522.

Macrophya mixta MacGillivray. Andrews Bald, Brushy Mountain; 14; 2002; V-24-VII-18; 1,467–1,757; Viburnum.

Macrophya nigra (Norton). GSMNP; Chelone.

Macrophya nigristigma Rohwer. GSMNP; Carya.

Macrophya pannosa (Say). Cades Cove, Snake Den Ridge; 3; 2001, 2002; IV-23-V-9; 522–993; Sambucus.

Macrophya propinqua Harrington. Clingmans Dome; 1; 2001; VI-25; 1,956; possibly Sambucus.

Macrophya pulchella (Klug). Cades Cove; 7; 2001, 2002; V-9-21; 522.

Macrophya senaca Gibson. Cades Cove; 3; 2001, 2002; V-8-VI-3; 522.

Macrophya smithi Gibson. GSMNP.

Macrophya tibiator Norton. Twin Creeks; 1; 2001; V-23; 594.


Tenthredo angulifera (Norton). Indian Gap; 7; 2001, 2002; VIII-16-20; 1,634.

Tenthredo appalachia Goulet and Smith. GSMNP.

Tenthredo basilaris Say. Indian Gap; 7; 2001, 2002; VIII-16-20; 1,634.


Tenthredo lobata (Norton). GSMNP.


Tenthredo mellicoxa Provancher. GSMNP.


Tenthredo rubata MacGillivray. GSMNP.


Tenthredo verticalis Say. Andrews Bald; 2; 2002; VII-18; 1,757.

Tenthredo yuasi MacGillivray. GSMNP.

Tenthredo sp. 1. Andrews Bald; 5; 2001, 2002; VI-6-VIII-7; 1,757.


Tenthredo sp. 3. Andrews Bald; 1; 2001; VI-6-22; 1,757.

SIRICIDAE

Larvae are wood borers in conifers and deciduous trees. They are seldom collected in Malaise traps, and more species are expected in the park.

Sirex cyaneus (Fabricius). NC: Swain Co., Clingmans Dome, ovipositing on Abies, elev. 6,400 ft., 21 Sept. 1990, PC Durr (1); Abies, Larix, Picea, Pinus.


Urocerus albicornis (Fabricius). NC: Haywood Co., Purchase Knob, on trail below old cabin, 6 m Malaise, 5–16 August 2002, B. Sutton & G. Steck (2); NC: Swain Co., Mt. Collins, on large, living Picea, elev. 6,030 ft., 10 Sept. 1990, PC Durr (1); Abies, Larix, Picea, Pinus, Thuja, Tsuga.

Urocerus cressoni Norton. Indian Gap; 2; 2002; VIII-5-16; 1,634; Abies, Picea, Pinus.

XIPHYDRIIDAE

Larvae are wood borers in small dead or weakened limbs. They are seldom collected in Malaise traps and more species are expected in the park.

Xiphydria abdominalis Say. GSMNP; Tilia.

Xiphydria maculata Say. Albright Grove Purchase Knob; 4; 2001, 2002; VII-3-VIII-1; 1,034–1,402; Acer, possibly Malus, Tilia.

Xiphydria tibialis Say. Brushy Mountain, Goshen Prong, Twin Creeks; 3; 2001, 2002; VI-21-VII-16; 594–1,467; Prunus, Ulmus, possibly also Acer, Betula, Fagus, Fraxinus.

CEPHIDAE

Larvae are stem or twig borers; species of Cephus and Trachelus, the grass stem borers, have not been collected in the park.

Hartigia trimaculata (Say). Cades Cove; 15; 2001, 2002; V-21-VII-1; 522; Rosa, Rubus.

Janus integer (Norton). Goshen Prong; 1; 2001; IV-27; 895; Ribes.

Janus quercusae Smith. Goshen Prong; 1; 2002; VI-7; 895; Quercus.
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