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Invertebrates of the H.J. Andrews Experimental Forest, Western Cascades, Oregon II. An Annotated Checklist of Caddisflies (Trichoptera)

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Abstract

At least 99 species, representing 14 families of Trichoptera, are recorded from the H.J. Andrews Experimental Forest, near Blue River, Oregon. The collecting sites include a wide diversity of environmental conditions in a 6 000-hectare watershed of the western Cascade Range (from 400 to 1 630 meters in altitude and from 1st- to 7th-order streams).

Keywords: Checklists (invertebrata), invertebrata, caddisflies, Trichoptera, Oregon (H.J. Andrews Exp. For.).

Introduction

The Trichoptera is one of the largest orders of aquatic insects with about 10,000 known species (Wiggins 1977). In Oregon there are more than 280 species representing 80 genera in 16 families (Anderson 1976). Larval caddisflies are an important component of the biota in both standing and running waters. As the aquatic habitats in the H.J. Andrews Experimental Forest are primarily streams, the lentic species are poorly represented in the area.

The purpose of this note is to bring together the published and unpublished records of caddisflies as a contribution to an inventory of the invertebrates of the study area. Though stream biologists are primarily interested in the immature stages because they occur in the water, identification of species in most genera is possible only for adults. A local checklist will help to associate the larvae with the adults. Adult records are important for documenting occurrence and flight periods but, because of the ability of adults to disperse, microhabitat requirements of the larvae cannot be inferred from such records.

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Compilation of records was started from material collected by Oregon State University stream biologists in the International Biological Program (IBP) stream project in the early 1970's. C.D. Kerst made a preliminary survey of stream insects in 1970 and established collecting sites on Mack Creek and Lookout Creek. E. Grafius conducted an emergence trap program from 1971 to 1973 on Mack Creek, Lookout Creek, and watersheds 2 and 10 which provided a substantial number of the records.

Material was also obtained from the River Continuum project which focused on streams in the H.J. Andrews Experimental Forest but also included a site on the McKenzie River at Rainbow (Naiman and Sedell 1979). Thus, some records from outside the H.J. Andrews boundary are given to include the large river fauna.

A systematic collecting program with the specific purpose of obtaining an inventory of the insect fauna was supervised by J.D. Lattin, Entomology Department, Oregon State University, shortly after the site was designated an Experimental Ecological Reserve (see Lauff and Reichle 1979). Trichoptera adults were collected weekly from late May to mid-September 1978, by B.B. Frost at 9 sites using a beating sheet to collect from streamside vegetation. The collecting was continued at 3-week intervals from October 1978 through May 1979 by G.M. Cooper. His collecting was by both beating and sweeping the streamside vegetation.

Records listed as "canopy collections" are from the IBP project of G. Carroll and collaborators, Biology Department, University of Oregon, who studied the community in the overstory Douglas-fir (*Pseudotsuga menziesii* (Mirb.) Franco) canopy. As part of this project, D. Voegtlin trapped insects in the canopy using a black light shielded from below. Therefore, these records indicate the species were flying at this level rather than being attracted up to the light.

Extensive black-light collecting for Trichoptera has not been done in the H.J. Andrews Forest. This approach is needed to provide a more complete list of the fauna. Microcaddisflies (Hydroptilidae) and species from temporary ponds and Lookout Reservoir are currently underrepresented.

The arrangement of families, genera, and species in the list of collection records for Trichoptera of the H.J. Andrews Experimental Forest (p. 6) is that used by Anderson (1976), except that the Goeridae is given family rank following Schmid (1980). Unless otherwise indicated, determinations are based on adults identified by D.G. Denning. Immature stages are abbreviated as la. (larva), pp. (prepupae), p. (pupa), and ad. (adult); most of these were identified by G.B. Wiggins, Royal Ontario Museum, Toronto (indicated by det. ROM).

Collection Sites

The H.J. Andrews Experimental Forest occupies the 6 000-hectare drainage of Lookout Creek, a stream that flows into Blue River Reservoir which drains into the McKenzie River about 64 kilometers east of Eugene. Most of the watershed is in Lane County, but the northern portion (sites 4, 6, and 7) is in Linn County (fig. 1).

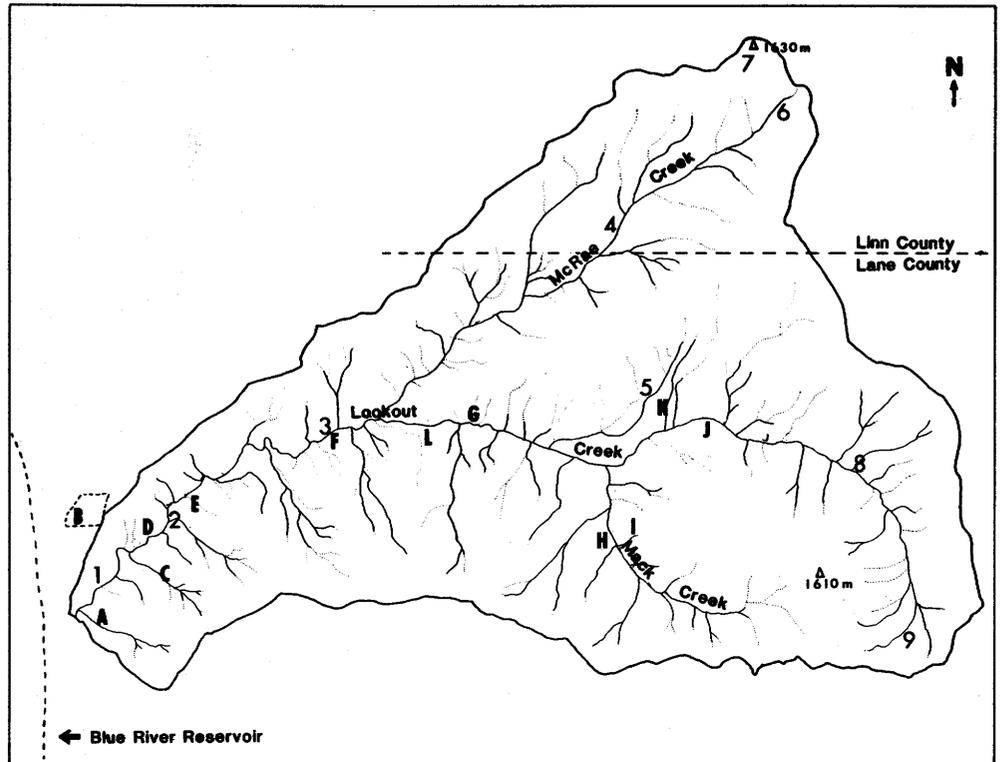


Figure 1. — Map of the Lookout Creek drainage indicating collection sites for Trichoptera. Numbers 1 to 9 are terrestrial inventory sites for adult aquatic insects. Letters A to K are named sites where aquatic studies were undertaken. Canopy collections were made at site L.

The elevation extends from 400 meters at the reservoir to 1 630 meters at Carpenter Mountain. According to Franklin and Dyrness (1971), this area has climate, soils, topography, and bedrock geology typical of the western Cascades, which are the older Oligocene-Miocene segment of the Oregon Cascade Range. All rock formations are volcanic in origin with tuffs, breccias, and basalts common at lower elevations and andesite on the ridges. The stream drainages are well defined with sharp ridges and steep slopes, except at higher elevations where there are some areas of gentle, undulating topography. The climate is maritime with a dry summer; 90 percent of the precipitation occurs from October to April. Annual precipitation ranges from 2 300 millimeters at lower elevations to 2 800 millimeters or more on the ridges. Winter snowpacks accumulate to 1 meter or more above 900 meters. Air temperatures are moderate; the mean July maximum is about 29°C and the January minimum about -3°C (at the weather station at 450 m).

The site designations in the list denote material obtained from three types of collecting programs. Numbered sites (1 to 9) are collections of adult caddisflies from riparian areas where the objective was to inventory all aquatic insects. The purpose of the "canopy collections" was to study the fauna in the overstory old-growth Douglas-fir; caddisflies are a very minor component of this fauna. Sites listed by names (Mack Cr., Old Growth; Ws10; McKenzie Riv., etc.) are locations where ecological studies of the stream fauna were conducted. Records are based mainly on emergence trap collections or larval or pupal rearing, but some adults were collected on the wing adjacent to the water. Thus, most records from the named sites provide a finer level of resolution for habitat requirements of the aquatic stages than do the riparian or canopy collections.

No site designation (---) indicates that specimens were pooled for one date, so the collection site could not be determined.

Site locations (except McKenzie River and watershed 9) are shown on figure 1 and described below. The arrangement generally goes upstream from the McKenzie River to the highest collection points, site 7 at 1 460 meters and site 9 at 1 220 meters.

McKenzie River at Rainbow covered bridge: Elevation, 410 meters; 7th-order stream, 30 to 40 meters wide, mostly riffle-runs over a substrate of cemented cobble and boulders; zone of fontinalis moss along both banks; water temperature range, 3°-12°C (further description in Naiman and Sedell 1979).

Watershed 9: Elevation, 500 meters; a 1st-order stream in a 8.5-hectare watershed draining into Blue River Reservoir from the east; shaded by old-growth Douglas-fir (uncut control for watershed 10); steep gradient. Collections are from emergence traps in 1978, set over moss on bedrock or over a small pool.

Watershed 1: (Fig. 1, A) elevation, 460 meters; a 2d-order stream draining into Lookout Creek near the entrance to the H.J. Andrews Forest; the watershed was burned after it was cleared in 1966 (Rothacher et al. 1967); riparian regrowth is primarily alder (*Alnus Mill.*). Collections were made in 1978 from emergence traps in shaded area with substrate of gravel and small cobble upstream of the settling basin.

Site 1: Elevation, 425 meters, along Lookout Creek, 5th-order stream at gaging station; 6 to 8 meters wide with a pool 9 to 12 meters wide; east side is shaded by old-growth Douglas-fir and understory trees and shrubs; west side has young stand of Douglas-fir; substrate is cobble and boulder.

Watershed 10: (Fig. 1, B) elevation, 430 meters; a 1st-order stream in a 10-hectare watershed draining into Blue River; densely shaded by old-growth Douglas-fir until clearcut in June-July 1975 (Grier and Logan 1977); steep gradient, with stairstep channel formed by wood debris and rubble.

Watershed 2: (Fig. 1, C) elevation, 500 meters; a 2d-order stream draining into Lookout Creek near site 1; watershed is an uncut control for two adjacent experimental watersheds (Rothacher et al. 1967). Most aquatic collections were made from the settling basin, but some were from emergence traps set over rubble and bedrock substrate. Canopy collections, listed as Ws. 2, were taken downstream of this site by D. Voegtlin with black light or sticky traps at 42 meters above ground in old-growth Douglas-fir.

Show & Tell: (Fig. 1, D) elevation, 425 meters; Lookout Creek, 5th-order stream; shallow riffle and small pools; water temperature ranges from 1° to 18° C; gradient, 3 percent; open canopy; substrate of large cobble and bedrock. Site is described and illustrated by Naiman and Sedell (1979).

Site 2: Elevation, 455 meters; watershed 3 (Rothacher et al. 1967); 2d-order feeder stream to Lookout Creek; 1 to 2 meters wide, with settling basin about 2 meters deep and 4 meters wide at collecting site; steep-sided banks; stream slightly shaded with young Douglas-fir and shrubs; substrate is cobble to boulder.

Swimming Hole: (Fig. 1, E) elevation, 500 meters; Lookout Creek, 5th-order stream; canopy open; a shallow riffle on bedrock and cobble, dropping over bedrock ledge into plunge pool.

Site 3: Elevation, 535 meters; Lookout Creek, 5th-order stream; 10 to 20 meters wide; canopy open; two channels around gravel bar with stand of young alder and willows (*Salix* L.); substrate is cobble to boulder.

Lookout Cr., Concrete Bridge: Same as site 3, except collections were from emergence traps or rock-surface collections (Grafius 1974). Emergence traps were set over rubble in midstream and slower cobble riffles near the shore.

Site 4: Elevation, 840 meters; McRae Creek, 2d-order stream, 2 to 3 meters wide; shaded on north side of road by old-growth Douglas-fir on steep banks; gradual slope on south side of road with cover of willow and alder; cobble to boulder substrate.

Quarry: (Fig. 1, G) elevation, 610 meters; Lookout Creek, 4th-order stream; open canopy; substrate is bedrock, gravel, cobble, boulders and wood in a debris jam.

Canopy Collection: (Fig. 1, L) elevation, 625 meters; collections by D. Voegtlin with black light in old-growth Douglas-fir at 42 meters in the tree, or at ground level with black light. Records of specimens collected at ground level are indicated as "grd. level."

Mack Creek: (Fig. 1, H) elevation, about 800 meters; 3d-order stream, 5 to 10 meters wide; gradient, 13 percent. Old-growth area above road has slightly open canopy; substrate ranges from fine organic debris in pools formed by log jams, to rubble and boulders, but mostly loose cobble; water temperature ranges from 1° to 17° C; site is illustrated and described by Naiman and Sedell (1979). Emergence traps were set in a pool over organic debris and on cobble riffle. Clearcut area, logged in 1965, is downstream from old growth; substrates are generally unshaded but with steep side slopes; substrate is eroded to bedrock and boulders with less cobble and organic debris than in old growth. Emergence traps are set over cobble riffle and in slack water behind boulders.

Devilsclub Creek: (Fig. 1, I) elevation, 810 meters; 1st-order tributary to Mack Creek; heavily shaded and choked with large and small organic debris (also see Naiman and Sedell 1979).

Lookout Creek, Upper Site: (Fig. 1, J) elevation, 760 meters; 3d-order stream; collections from area with relatively low gradient and both old-growth and clearcut sections, with stairsteps of riffles and pools; substrate is gravel, cobble, and wood debris.

Shorter Creek: (Fig. 1, K) elevation, 760 meters; 2d-order tributary to Lookout Creek; heavily shaded and choked with logs and debris. Collections limited to larvae on wood substrates taken during a debris removal experiment.

Site 5: Elevation, 825 meters; along 2d-order tributary to Lookout Creek, 1 meter wide; heavily shaded with alder, willow, and young Douglas-fir; cobble to boulder substrate.

Site 6: Elevation, 1 220 meters; headwaters of McRae Creek; 1 to 2 meters wide; open site with regrowth of conifers, large Sitka alder (*Alnus sinuata* (Regel.) Rydb.), and willow mostly 1 to 2 meters tall; low gradient; gravel to cobble substrate.

Site 7: Elevation, 1 460 meters; intermittent stream on Carpenter Mountain; 1 meter wide; shaded with small Sitka alder and vine maple (*Acer circinatum* Pursh); low gradient; gravel to rubble substrate.

Site 8: Elevation, 990 meters; feeder stream to Lookout Creek; 1 to 2 meters wide; heavily shaded; gravel and cobble substrate.

Site 9: Elevation, 1 220 meters; feeder stream to Lookout Creek; 1 to 2 meters wide; stream shaded; substrate is bedrock and moss-covered boulders.

Collection Records for Trichoptera¹

FAMILY RHYACOPHILIDAE

<i>Himalopsyche phryganea</i> Mack Cr. (Ross)		21-Aug-75 (det. ROM); 15-Nov-74 (la., det. Anderson)
	Canopy coll. (grd. level)	16-July-77

Rhyacophila

Oreta group:

<i>R. oreta</i> Ross	Site 8	10-Aug-73
	Ws. 9	5-Oct-78 (det. Harper)

Alberta group:

<i>R. tucula</i> Ross	Site 9	17-Aug-78
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Hyalinata group:

<i>R. vocala</i> Milne	Mack Cr., Clearcut	10-June-78
	Site 2	3-June-73
	Site 6	3-June-78
	Site 8	13-July-78

¹ la. = larva; pp. = prepupae; p. = pupa; ad. = adult.

Coloradensis group:		
<i>R. jenniferae</i>	Site 2	10-Aug-78
Peck & Smith		
Angelita group:		
<i>R. angelita</i> Banks	Lookout Cr., Concrete Br.	11-July-72
	Site 3	2,10-Aug-78
	Site 3 (blk. light)	26-June-80
<i>R. vuzana</i> Milne	Mack Cr., Clearcut	2-Sept-72
Sibirica group:		
<i>R. blarina</i> Ross	Devilsclub Cr.	9-June-76 (p. det. ROM)
	Site 7	3-June-78
<i>R. narvae</i> Navás	Mack Cr., Clearcut	15,22-June-78 (det. Harper)
	Mack Cr., Old Growth	27-June-72; 28-June-78 (det. Harper)
	Site 3	3-June-78
	Site 8	27-July-78
	---	6,13-19-July-78
<i>R. pellisa</i> Ross	Site 3	13-July-78
<i>R. valuma</i> Milne	Lookout Cr., Swimming Hole	23-June-77 (det. ROM)
Vofixa group:		
<i>R. iranda</i> Ross	Site 8	6-July-78
	Site 9	13,19-July-78
<i>R. vobara</i> Milne	---	13-July-78
Betteni group:		
<i>R. fenderi</i> Ross	Site 2	19-July-78
	Site 5	27-July-78
	Site 6	29-Aug-78
	Site 9	27-July-78
	---	10-Aug-78
<i>R. perda</i> Ross	Mack Cr., Clearcut	18-25-Aug-72
	Mack Cr., Old Growth	18-Aug-72
	Site 6	6-July-78
<i>R. vaccua</i> Milne	Mack Cr., Clearcut	18,25-Aug-72, 11-Sept-72
	Mack Cr., Old Growth	11-Sept-72
	Site 2	17-Aug-78
	Site 3	30-Oct-79
	Site 4	29-Aug-78
<i>R. vedra</i> Milne	Lookout Cr., Concrete Br.	13-Aug-71, 28-Aug-72
	Site 3	9,16,30-Oct-79
	---	11,27,29-Aug-78
<i>R. willametta</i> Ross	Ws. 10	31-Aug-72
	---	19-July-78
	---	10-Aug-78

Verrula group:		
<i>R. verrula</i> Milne	Mack Cr., Clearcut Mack Cr., Old Growth Site 6	14-Sept-71 to 6-Oct-71 12-Sept-72, 13-Oct-71 13-July-78, 16-Oct-78
<i>Ecosa</i> group:		
<i>R. ecosa</i> Ross	Ws. 10 Site 2 Site 5	22-June-72 26-May-78 3,13-June-78
Acropedes group:		
<i>R. acropedes</i> Banks	McKenzie Riv., Rainbow Lookout Cr., Concrete Br. Site 4	22-June-77 (det. ROM) 28-June-76 (det. ROM); 10-July-76, 27-July-72 17-Aug-78
<i>R. grandis</i> Banks	Mack Cr., Old Growth Site 2 Site 5 Site 6 Site 7 Site 8 Site 9	7-July-72 13-June-78 19-July-78 6-July-78 13-July-78 13,19-July-78 19-July-78
<i>R. vao</i> Milne	Site 2 Site 4 Site 8 Site 9 ---	2-Aug-78 2-Aug-78 27-July-78, 10,17-Aug-78 29-Aug-78 26-May-78, 6,19-July-78, 2-Aug-78
Lieftincki group:		
<i>R. arnaudi</i> Denning	Site 3	27-May-78
Nevadensis group:		
<i>R. jewetti</i> Denning	Mack Cr., Old Growth Mack Cr., Clearcut Site 8 ---	17-June-72, 25-Aug-71 18,25-Aug-72 19,27-July-78, 2-Aug-78 10-Aug-78
<i>R. vaefes</i> Milne	Lookout Cr., Swimming Hole Mack Cr., Old Growth ---	23-June-78 (det. ROM) 5-July-78 (det. Harper) 29-Aug-78

FAMILY GLOSSOSOMATIDAE

<i>Agapetus occidentis</i> Denning	Lookout Cr., Concrete Br. Site 3 Canopy coll. Canopy coll. (grd. level)	Late July to mid-Sept 1972 & 73 (p. det. Anderson) 17-Aug-78 15-Aug-77 6-Sept-77
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<i>Anagapetus bernea</i> Ross	Mack Cr., Clearcut	8,15,22,29-June-78 (det. Harper); 10,14,28- June-73; 5,12-July-78 (det. Harper)
	Mack Cr., Old Growth	3-Mar-72, 8,15,22,29-June & 18-July-78 (det. Harper); 22-June-77 (pp., p., ad. det. ROM); 3-July-72
	Devilsclub Cr.	9-June-76 (la., p. det. ROM)
	Lookout Cr., Upper site	23-June-77 (p. det. ROM)
	Site 4	13-July-78
	Site 5	2-Aug-78
	Site 6	3-June-78
	Site 8	19-July-78
<i>Glossosoma califica</i> Denning	McKenzie Riv., Rainbow	22-June-77 (la., p. det. ROM)
	Canopy coll.	15-Aug-77
<i>G. oregonense</i> Ling	Canopy coll. (grd. level)	1-Aug-77
<i>G. penitum</i> Banks	Lookout Cr., Site 1	22-June-77 (p. det. ROM)
	Lookout Cr., Show & Tell	22-June-77 (p. det. ROM)
	Lookout Cr., Swimming Hole	22-June-77 (p. det. ROM)
	Lookout Cr., Concrete Br.	22-June-72, 19-Sept-73
	Lookout Cr., Quarry	22-June-77 (p. det. ROM)
	Mack Cr., Old Growth Ws. 1	23-June-77 (p. det. ROM) 26-July-78 (det. Harper)
<i>G. pyroxum</i> Ross	Lookout Cr., Concrete Br.	4-Apr-72, 11-May-73, 27-June-73 (p.), 9-July-71, 13-Aug-73 (p.)
	Canopy coll.	29-July-76
<i>G. velona</i> Ross	Lookout Cr., Quarry Site 3	23-June-77 (p. det. ROM) 14-Mar-79

FAMILY HYDROPTILIDAE

<i>Agraylea multipunctata</i> Curtis	Site 3	29-Aug-78
	Site 4	13-July-78
	---	7-Aug-78
<i>A. saltesea</i> Ross	Site 3	No date
	Canopy coll.	11-Apr-77
<i>Hydroptila</i> sp.	Lookout Cr., Concrete Br.	14-Sept-71
	Canopy coll.	19-Aug-76
	Site 3	10-Aug-78
<i>Ochrotrichia</i> (subgenus <i>Ochrotrichia</i>)	Lookout Cr., Concrete Br.	24-July-72 (la., det. Flint)
<i>Palaeagapetus</i> sp.	Shorter Cr. (in moss on wood)	10-June-78 (la., det. ROM)

FAMILY PHILOPOTAMIDAE

<i>Dolophilodes dorcus</i> (Ross)	Lookout Cr., Show & Tell	23-June-77 (det. ROM)	
	Lookout Cr., Concrete Br.	22-June to 9-July-71; 7-Aug-72	
	Mack Cr., Clearcut	22,29-June-78 (det. Harper); 25-June-73, 12-July-78	
	Mack Cr., Old Growth	15,22,29-June-78 (det. Harper); 30-June-72; 5,12, 18,27-July-78 (det. Harper); 17-July-72, 1-Aug-74	
	Canopy coll.	No date	
	Ws. 1	25-May-78, 15,22-June-78 (det. Harper)	
	Site 2	26-May-78, 3-June-78, 19-July-78	
	Site 3	4-June-80, 13-June-78, 19-July-78, 26-June-80, 9-July-80	
	Site 3 (blk. light)	26-June-80	
	Site 4	13-July-78, 2-Aug-78	
<i>D. novusamericanus</i> (Ling)	Mack Cr., Old Growth	23-Feb-73, 4-Apr-72, 14-Sept-71	
	Ws. 9	12-Oct-78 (det. Harper)	
	Ws. 10	21-Apr-72, 3,17-July-72	
	Canopy coll. (grd. level)	25-July-77, 3-Sept-77	
	Site 3	5-June-79	
	Site 5	10,17-Aug-79	
	Site 7	27-July-78	
	Site 9	6-July-78, 2-Aug-78	
	<i>D. pallidipes</i> (Banks)	Mack Cr., Clearcut	2-Sept-72, 14-Sept-71
		Mack Cr., Old Growth	5,19-Oct-78, 9-Nov-78 (det. Harper)
Site 5		29-Aug-78	
Site 6		17,29-Aug-78	
Site 9		10-Aug-78	
<i>D. sisko</i> (Ross)	Lookout Cr., Concrete Br.	7-Aug-72	
	Ws. 1	22-June-78, 18-July-78 (det. Harper)	
	Ws. 9	18-May-78 (det. Harper)	
	Ws. 10	7-July-73, 17-July-72	
	Site 2	19-July-78	
<i>Wormaldia anilla</i> (Ross)	Site 7	19-July-78	
	Ws. 1	22-June-78 (det. Harper)	
	Ws. 9	12-July-78 (det. Harper)	
	Ws. 10	7-July-72, 6-Oct-71	
	Site 2	13-June-78, 2,17-Aug-78	
	Site 7	6-July-78	

<i>W. gabriella</i> (Banks)	Lookout Cr., Concrete Br.	18-28-Aug-72
	Site 1	29-Aug-78
	Site 2	17-Aug-78
	Site 3	17,29-Aug-78, 2-Sept-79

FAMILY PSYCHOMYIIDAE

<i>Psychomyia lumina</i> (Ross)	Lookout Cr., Show & Tell	22-June-77 (det. ROM)
<i>Tinodes cascadia</i> Denning	Ws. 9	12-July-78 (det. Harper)

FAMILY POLYCENTROPODIDAE

<i>Polycentropus halidus</i> Milne	Mack Cr., Clearcut Ws. 1 Site 3 (blk. light) Canopy coll. Canopy coll. (grd. level)	14-Aug-72 15-June-78 (det. Harper) 26-June-80 25-July-77 15-Aug-77, 6-Sept-77
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FAMILY HYDROPSYCHIDAE

<i>Arctopsyche grandis</i> (Banks)	McKenzie Riv., Rainbow Lookout Cr., Concrete Br.	22-June-77 (det. ROM) 21-Sept-73 (la.)
	Mack Cr., Clearcut	25-June-73
	Mack Cr., Old Growth	18-June-73
<i>Parapsyche elsis</i> Milne	Mack Cr., Clearcut	15-June-73 (p.), 25-June-73
<i>Homoplectra luchia</i> Denning	Site 4	13-June-78
<i>Homoplectra</i> sp.	Ws. 9	20-Apr-78, 25-May-78 (det. Harper)
<i>Hydropsyche andersoni</i> Denning	Canopy coll.	25-June-77, 25-July-77
<i>H. oslari</i> Banks	Canopy coll. (grd. level)	12-June-76, 12-Aug-76, 4- July to 3-Sept-77

FAMILY LIMNEPHILIDAE

Subfamily Dicosmoecinae

<i>Dicosmoecus gilvipes</i> (Hagen)	Canopy coll. (grd. level)	19-Sept-76, 4-Oct-77
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<i>Allocosmoecus partitus</i>	Site 3	6-Nov-78
Banks	Mack Cr., Clearcut	11,14,20-Sept-72
	Mack Cr., Old Growth	11-Sept-72
	Canopy coll.	4-Oct-76
	Canopy coll. (grd. level)	19-Sept-76
<i>Onocosmoecus unicolor</i>	Canopy coll.	20-Sept-76
(Banks)	Canopy coll. (grd. level)	3,6-Sept-77
<i>Cryptochia pilosa</i>	---	3-June-78
(Banks)		
<i>Cryptochia</i> sp.	Mack Cr., Old Growth	11-May-77 (la. det. Anderson)
<i>Pedomoecus sierra</i>	McKenzie Riv., Rainbow	June-76 (la. det. Anderson)
Ross	Lookout Cr., Concrete Br.	Summer-76 (la. det. Hawkins)
	Canopy coll.	22-Aug-77
<i>Ecclisocosmoecus scylla</i>	Lookout Cr., Concrete Br.	13-June-72 (det. ROM)
(Milne)		
	Site 8	29-Aug-78
	Site 9	10,29-Aug-78
<i>Ecclisomyia maculosa</i>	Mack Cr., Old Growth	8-June-73
Banks	Site 4	13-June-78
Subfamily Apataniinae		
<i>Apatania sorex</i> (Ross)	Lookout Cr., Concrete Br.	4-June-73
	Mack Cr., Clearcut	23-Feb-73, 12,26-June-73
	Mack Cr., Old Growth	19-June-73
	Canopy coll.	No date
	Site 3	29-Mar-80
Subfamily Neophylacinae		
<i>Neophylax occidentis</i>	Mack Cr., Clearcut	6 to 28-June-73,
Banks		30-June-72
	Mack Cr., Old Growth	30-June-72
	Canopy coll.	No date
<i>N. rickeri</i> Milne	Mack Cr., Clearcut	13-Oct-71
	Mack Cr., Old Growth	2-Oct-71
	Canopy coll. (Ws. 2)	July-76 (det. ROM)
	Canopy coll.	4,18-Oct-76
	Canopy coll. (grd. level)	1-Nov-76
	Site 3	2-Oct-79
	Site 8	13-Nov-79
<i>N. splendens</i> Denning	Mack Cr., Clearcut	6-Oct-71, 20-Nov-72
<i>Oligophlebodes minuta</i>	Mack Cr., Clearcut	6 to 10-June-73
(Banks)		11-June-78 (p. det. ROM)

<i>O. sierra</i> Ross	Mack Cr., Clearcut Mack Cr., Old Growth	8,15-June-78 (det. Harper) 15-June-78 (det. Harper); 30-June-72
	Canopy coll.	19-June-77
	Canopy coll. (grd. level)	13,27-June-77
<i>Neothremma didactyla</i> Ross	Mack Cr., Clearcut Mack Cr., Old Growth Site 8	31-July-72 27-July-78 (det. Harper) 6-July-78
<i>Neothremma</i> sp.	Devilsclub Cr.	27-July-76 (la. det. ROM)

Subfamily Pseudostenophylacinae

<i>Pseudostenophylax edwardsi</i> (Banks)	Ws. 2	8-Nov-76 (la. det. Anderson)
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Subfamily Limnephilinae

<i>Limnephilus externus</i> Hagen	Canopy coll. (grd. level)	19-Nov-76
<i>L. nogus</i> Ross	Mack Cr., Old Growth Canopy coll. (Ws. 2)	31-July-72 July-76 (det. ROM)
<i>L. occidentalis</i> Banks	Mack Cr., Clearcut Mack Cr., Old Growth	10-Aug-72 31-Aug-72
<i>L. sitchensis</i> (Kolenati)	Canopy coll. (grd. level)	19-Sept-76
<i>Halesochila taylori</i> (Banks)	Lookout Cr., Concrete Br. Mack Cr. Site 3	2-Oct-71 (reared, det. ROM) 8-Nov-76 (det. Anderson) 13-Nov-79
<i>Lenarchus vastus</i> (Hagen)	Mack Cr., Old Growth	14-Aug-72
<i>Hydatophylax hesperus</i> (Banks)	Canopy coll. Canopy coll. (grd. level)	12-Aug-76, 3,20-Sept-76 19-Aug-77
	Site 7	10-July-78
	---	29-Aug-78
<i>Philocasca rivularis</i> Wiggins	Canopy coll. (grd. level)	22-Aug-77, 19-Sept-76
	Site 5	17-Aug-78
<i>Philocasca</i> sp.	Shorter Cr.	19-June-78 (la., det. ROM)
<i>Psychoglypha avigo</i> (Ross)	Mack Cr. (seep above road)	26-Oct-76 (reared, det. ROM)
<i>P. bella</i> (Banks)	Lookout Cr., Concrete Br.	6-Oct-71 (reared, det. ROM)
<i>P. browni</i> Denning	Mack Cr.	Oct-71 (reared, det. ROM)
<i>P. subborealis</i> (Banks)	Canopy coll. (Ws. 2)	Dec-75 to Jan-76 (det. ROM)
	Canopy coll.	21-Feb-77

FAMILY GOERIDAE

Goeracea genota (Ross) Shorter Cr. (on wood) 19-June-78 (la. det. Anderson)

FAMILY LEPIDOSTOMATIDAE

Lepidostoma cascadense (Milne) Mack Cr., Clearcut 22-June-78, 5-July-78 (det. Harper)
 Mack Cr., Old Growth 20-June-73; 17-July to 6-Sept-74, and 24-June to 23-Aug-75 (Grafius 1977); 5-July-78 (det. Harper)
 Canopy coll. (grd. level) 10,16-July-77
 Lookout Cr., Show & Tell Site 8 23-June-77 (det. ROM)
L. hoodi Ross --- 19-July-78
 --- 10-Aug-78
L. mira Denning Mack Cr., Clearcut 13-July-73
 Canopy coll. 8-Aug-77
L. podager (McLachlan) Lookout Cr., Site 1 7-Nov-76 (reared, det. ROM)
L. recina Denning Canopy coll. 12-Aug-76
L. roafi (Milne) Lookout Cr., Concrete Br. 17-July-72
 Mack Cr., Clearcut 21-Aug-72
 Mack Cr., Old Growth 3-July-76, 19-Aug-76, 15-Sept-77 (det. ROM); 2-Sept-71
 Canopy coll. 22-Aug-77
 Canopy coll. (grd. level) 6-Sept-77
 Site 3 17-Aug-78
L. unicolor (Banks) Mack Cr., Old Growth 17-July to 6-Sept-74, and 24-June to 23-Aug-75 (Grafius 1977)
L. veroda Ross Mack Cr., Old Growth 27-July-78 (det. Harper)
 Ws. 9 15-June-78, 5-July-78 (det. Harper)

FAMILY BRACHYCENTRIDAE

Amiocentrus aspilus (Ross) Canopy coll. 19-June-77
Brachycentrus americanus (Banks) Canopy coll. 29-July-76, 6-Sept-77
 Canopy coll. (grd. level) 19,22-Aug-77, 6-Sept-77
Micrasema bacro Ross Ws. 9 18-May-78, 29-June-78 (det. Harper)
M. onisca Ross McKenzie Riv., Rainbow Ws. 1 22-June-77 (det. ROM)
 22-June-78 (det. Harper)
M. oregona Denning Canopy coll. 16-June-77

FAMILY ODONTOCERIDAE

<i>Namamyia plutonis</i> Banks	Ws. 10	24-Sept-72 (la. det. ROM)
<i>Parthina linea</i> Denning	Devilsclub Cr.	27-July-76 (la. det. ROM)

FAMILY CALAMOCERATIDAE

<i>Heteroplectron cali- fornicum</i> McLachlan	Mack Cr., Clearcut	6-July-73
	Mack Cr., Old Growth	(la., det. Anderson, many dates)
	Devilsclub Creek	27-July-76 (la., det. Anderson)
	Ws. 2, settling basin	(la., det. Anderson, many dates)

FAMILY LEPTOCERIDAE

<i>Mystacides alafimbriata</i> Hill-Griffin	Lookout Cr., nr. Reservoir	3-Oct-70 (la., det. ROM)
	Site 1	2-Aug-78
<i>Oecetis inconspicua</i> (Walker)	Canopy coll.	29-July-76
<i>Triaenodes tarda</i> Milne	Canopy coll.	12-Aug-76
<i>Triaenodes</i> sp.	Canopy coll. (Ws. 2)	July-76 (det. ROM)
	Canopy coll. (grd. level)	27-Aug-77

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English Equivalents

1 millimeter	= 0.04 inch
1 meter	= 3.28 feet
1 kilometer	= 0.62 mile
1 hectare	= 2.47 acres

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