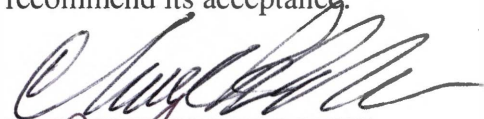
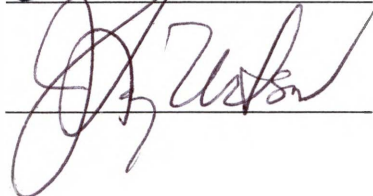


To the Graduate Council:

I am submitting herewith a thesis written by Craig Anderson Walker entitled "Effects of Antimycin Treatment on Benthic Macroinvertebrates in Sams Creek and Starkey Creek, Great Smoky Mountains National Park, Blount/Sevier counties, Tennessee. I have examined the final paper copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Ecology and Evolutionary Biology.

  
David A. Etnier, Major Professor

We have read this thesis and  
recommend its acceptance:

Acceptance for the Council:

  
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Effects of Antimycin Treatment on Benthic Macroinvertebrates in Sams Creek and  
Starkey Creek, Great Smoky Mountains National Park, Blount/Sevier counties,  
Tennessee

A Thesis Presented for the Master of Science Degree  
The University of Tennessee, Knoxville

Craig Anderson Walker

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## Abstract

The fish toxicant antimycin was applied to Sams Creek and Starkey Creek in Great Smoky Mountains National Park, Blount/Sevier counties, Tennessee to eradicate non-native rainbow trout (*Oncorhynchus mykiss*). Potassium permanganate was applied downstream to detoxify the antimycin. Benthic macroinvertebrate samples were taken at 9 sites inside and outside the treatment zone before and after treatment.

Numbers of taxa and individuals declined at all treatment sites in samples taken soon after treatment. Mayflies were almost completely eliminated at the station below the potassium permanganate application. Mayfly taxa and specimens at the potassium permanganate treatment site returned to pre-treatment conditions 5 months after treatment. Numbers of taxa and individuals at antimycin treatment sites returned to pre-treatment conditions and treatment sites resembled control sites 9 months after treatment. Community composition also returned to pre-treatment conditions and resembled control sites 9 months after treatment.

Antimycin does not appear to have had long-term detrimental effects on benthic macroinvertebrates in this system.

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## **List of Abbreviations**

|      |                                     |
|------|-------------------------------------|
| AT   | Appalachian Trail                   |
| GRSM | Great Smoky Mountains National Park |
| m    | meters                              |
| TN   | Tennessee                           |
| ca   | circa                               |

## I. Introduction

Acid deposition and competition from non-native rainbow trout (*Onchorhynchus mykiss*) have combined to reduce the range of native brook trout (*Salvelinus fontinalis*) in Great Smoky Mountains National Park (GRSM) by 75% (Moore et al., 2002). In 1976, in pursuit of its mission to restore native species, GRSM embarked on a program to restore brook trout to portions of its native range. Backpack electroshocking was used to eliminate rainbow trout above barriers to upstream migration in many streams. However, this method does not work in streams with pools greater than 1 m in depth, however. The fish toxicant antimycin (Fintrol), used successfully in the western United States to eradicate non-native salmonids (Rinne et al., 1981), was chosen for use in brook trout restoration in Sams and Starkey creeks in GRSM, where pool depths often exceed 1 m.

The Organic Act of 1916 mandates the National Park Service to protect all native species. Since there were no good data on the effects of antimycin on benthic macroinvertebrates in eastern streams, this project was designed to collect such data to evaluate the effects of antimycin on the benthos in Sams and Starkey creeks and to serve as a guide to future projects.

## II. Objective

The objective of this study was to determine the short and long-term effects of antimycin on benthic macroinvertebrates in Sams and Starkey Creeks in GRSM. This is the first study to look at antimycin's effects on benthic macroinvertebrates in the east.

There have been only a few studies that have looked at this subject and these were conducted in the west and mid-west. Minckley and Mihalick (1981) evaluated the effect of antimycin on benthic macroinvertebrates in Ord Creek, Arizona. They found that benthic macroinvertebrates were "decimated" by treatment of the stream to remove brown trout (*Salmo trutta*) and brook trout. After three years, invertebrate numbers and diversity had returned to pre-treatment conditions. There were, however, indications that some taxa might have been eliminated. Degan (1973) studied the effects of antimycin on benthic macroinvertebrates in a Wisconsin creek. Dominant taxa had not returned to pre-treatment levels 7 months after treatment. In a follow-up study, Jacobi and Degan (1977) found that although all dominant taxa had returned, *Antocha* (Diptera:Tipulidae) and *Brachycentrus americanus* (Trichoptera:Brachycentridae) had not fully recovered. Total biomass was greater than or equal to pre-treatment levels 2 years after treatment. Houf and Campbell (1977), in a study conducted in 0.03 ha experimental ponds, found no effects on macrobenthos diversity or abundance from antimycin or rotenone.



### III. Description of study area

The study was conducted in GRSM, in Blount and Sevier counties, Tennessee. Benthic sampling took place at 7 sites located on Sams Creek, Starkey Creek, and Thunderhead Prong, and at 2 sites located on unnamed tributaries to Sams Creek (Figure 1). Each of the 9 sites was sampled in a reach of approximately 100 m. Sites 2, 4, and 7 were treated with antimycin and sites 1, 3, 5, 6, and 8 were control sites. Site 9 was a short distance downstream of the site where potassium permanganate was administered as a detoxicant. Results seen at site 9 caused it to be considered a treatment site for the purpose of evaluating the effects on the benthos of the overall treatment regime.

Sams Creek is a third order tributary to Thunderhead Prong. Starkey Creek is a second order tributary to Sams Creek. Sams Creek, Starkey Creek, Thunderhead Prong, and their tributaries are typical southern Appalachian montane streams, with high gradient, low pH, high dissolved oxygen, and cold temperatures. The substrate is predominantly boulder/cobble, with a small amount of coarse sand. Predominant habitats are deep pools and fast riffles. Streamside vegetation is largely rhododendron (*Rhododendron maximum*) and mountain laurel (*Kalmia latifolia*). The surrounding cove hardwood forest was heavily logged prior to establishment of the Park.

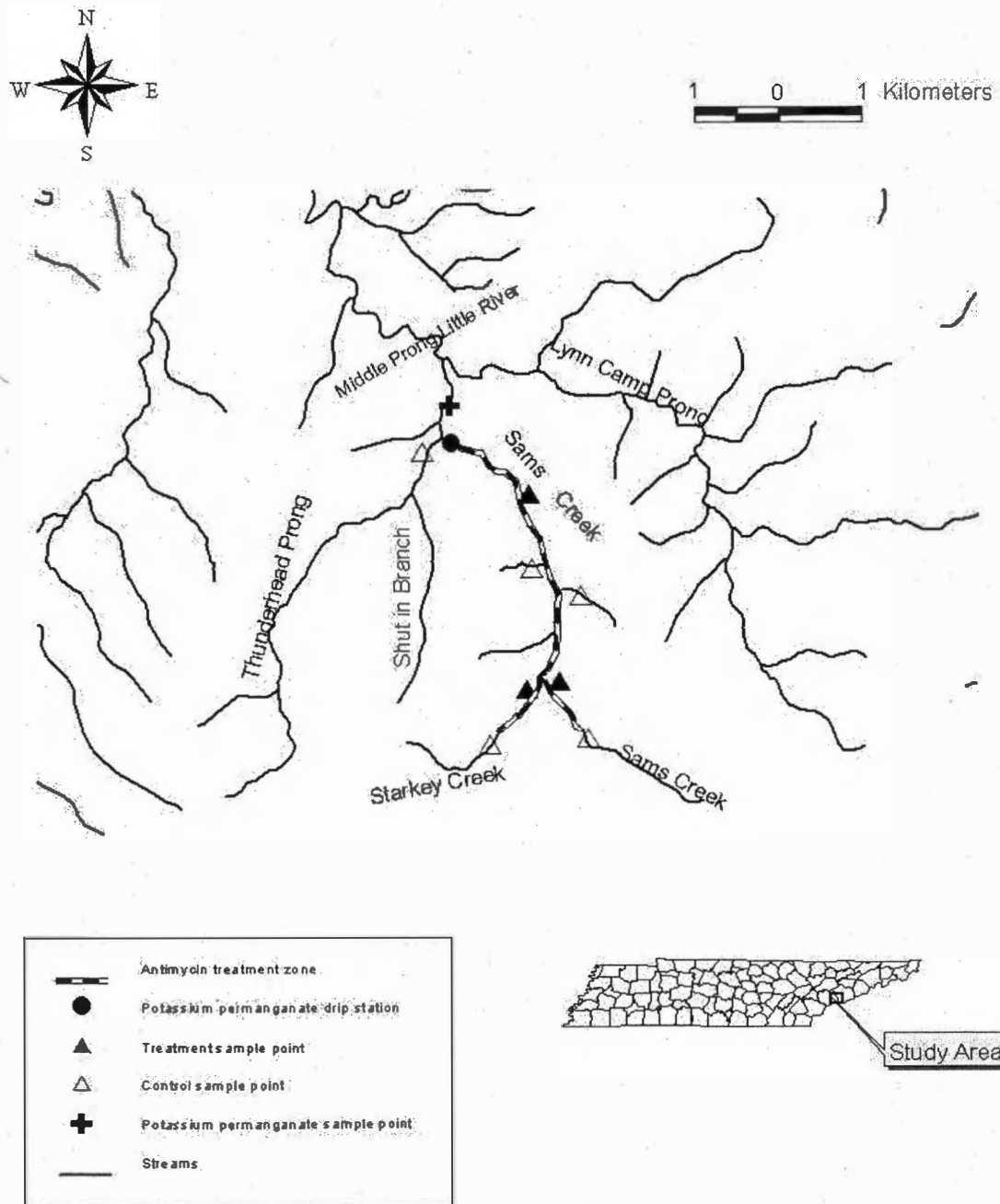


Figure 1. Sample sites in Sams Creek, Starkey Creek, and Thunderhead Prong, GRSM, Blount/Sevier counties, TN.

#### IV. Methods

In June 1996, baseline benthic macroinvertebrate collections were made at 9 sites in Sams Creek and surrounding streams. Light trapping was conducted during the baseline benthic collections in 1996. The purpose was two-fold: (1) to obtain adult specimens in order to aid in the identification of difficult immature stages of insects collected in the benthic samples, and (2) to compare taxa taken from light traps to those taken in benthic collecting. This was done to affirm the effectiveness of the benthic collecting.

Additional baseline collections were made in fall 1996 and winter 1997. Additional pre-treatment surveys were conducted in fall 2000, prior to the initial treatment of the creeks in October 2000. This initial treatment was suspended shortly after it began. Post-treatment collections were made in fall 2000 and winter 2001 at one control site and 2 treatment sites within the abbreviated treatment zone.

The restoration attempt was re-started in fall 2001. Pre-treatment benthic macroinvertebrate collections were made at all 9 study sites in September 2001. Application of antimycin began 31 September 2001 and continued until the entire treatment reach had been treated. Potassium permanganate was applied downstream of the treatment area, at a site 180 m above the mouth of Sams Creek (Moore et al., 2002), to neutralize the antimycin, beginning 30 September and continuing until the end of the toxicant application. Rates of application of antimycin and potassium permanganate and their effects on fish can be found in Moore et al. (2002). Post-treatment collections at all 9 sites were conducted on 5, 7, and 11 October 2001. Follow-up collections were conducted at all 9 sites in February, June, and September/October 2002.

Teams of collectors were used to conduct benthic macroinvertebrate sampling. A total of 29 collectors participated in this study. Of these, 8 were professional benthic biologists and 17 had at least a graduate level course in aquatic insects and/or experience in benthic collecting. Four of the collectors had little experience with benthic collecting and were given instruction in the field. Of these 4, 3 participated in only one collecting trip and the other participated in only 2 trips.

A multi-habitat approach to sampling was used. However, instead of a fixed amount of area sampled, the strategy was designed to have all collectors sample as many habitats (preferably all) as possible in a predetermined amount of time. Collecting methods were kick-screening of small riffles, dip-netting of larger riffles, rock picking, dip-netting of undercut banks and root wads, picking leaf packs, and searching specialized habitats, such as coarse sand and submerged woody debris for taxa such as *Fattigia*, *Psilotreta*, and *Lype*. Equipment consisted of kick screens approximately 0.12 m<sup>2</sup> in area constructed from nylon window screen with a mesh size of 1.25 mm, standard rectangular nylon dip nets, and nylon D-nets with a mesh size of 0.5 mm.

Collected material was emptied into a metal pan with a white ceramic surface or white plastic pans. Macroinvertebrates were picked using watchmakers' forceps and put in

glass or plastic jars containing 70% isopropanol. Field collection numbers were written in pencil on high rag content paper and placed inside the jars. Only a few specimens of certain common taxa field identifiable to the same level recorded on the data sheets, such as Simuliidae, Oligochaeta, *Cambarus*, and *Lanthus vernalis*, were retained so the total number of these specimens collected may not reflect a species' actual abundance. If there was a possibility of more than one taxon being represented, all or nearly all specimens were retained. There was potential variation in number of specimens preserved, with some collectors keeping a relatively higher number of specimens, especially if they were uncertain of their field identification expertise for a particular taxon, or uncertain of how many potential taxa might be represented by what appeared to be a single taxon in the field, *Pteronarcys* sp. cf. *proteus*, for instance. Taxa considered abundant (not all specimens preserved) by the collectors were recorded as such in field notes.

Sites were sampled in 3 time periods – fall (September, October, November), winter (February), and late spring/early summer (early June). A single sampling period would not have been sufficient to see how the treatment was affecting the entire benthic macroinvertebrate community. These 3 periods were chosen to ensure that sampling occurred in enough seasons to get an accurate sample of the entire benthos. Some organisms, the so-called “winter stoneflies” for example, are available only in winter. Antimycin treatment was conducted in the fall, so fall sampling was conducted immediately prior to treatment and as soon after treatment as possible in order to determine the immediate effects of treatment on the benthos. Late spring/early summer samples were taken to collect those organisms that might be missed in the other 2 seasons. Some taxa have life cycles that resulted in their collection in all 3 sample periods.

In the laboratory, macroinvertebrates were identified to the lowest taxonomic level possible. Some taxa were denoted with “sp.” meaning they could not be or were not identified below a certain taxonomic level, usually genus, but sometimes family or order. Other taxa were given identifying descriptions, making them operational taxonomic units. These were given a species number, e.g., “sp. 1” followed by a narrative description. These are denoted in the tables listing taxa collected at each site. Specimens that conformed closely to a known taxon were given the notation “cf.” followed by a species epithet, or the species epithet was followed by a question mark. Taxa that were in an instar too early to be identified to species or genus are followed by “early” in parentheses.

Brigham et al. (1982) and Merritt and Cummins (1986) were the primary general references used to identify insects collected during this study. Other references used for specific groups were: Planaria – Pennak (1989); Ephemeroptera – Funk and Sweeney (1994), McCafferty and Provonsha (1975), McCafferty and Waltz (1990, 1996), Morihara and McCafferty (1987), Waltz and Munro (1996); Plecoptera – Stewart and Stark (1993); Odonata – Louton (1982); Trichoptera – Chapin (1978), Etnier (2000), Etnier et al. (1998), Flint (1960), Parker (2000), Parker and Wiggins (1987), Ross (1944), Schuster and Etnier (1978), Vineyard (1985), Wiggins (1973, 1995), Wojtowicz (1982); Coleoptera – Epler (1996).

After identification, specimens were transferred to 50% isopropanol and retained at the University of Tennessee. Specimens representing important records are deposited at the C.P. Gillette Collection of Arthropod Diversity at Colorado State University (Ephemeroptera and Plecoptera) and at the University of Tennessee Trichoptera collection (Trichoptera).

Taxa were classified as rare (1 or 2 specimens), uncommon (3-5 specimens), or common (6 or more specimens). When a number in parentheses follows a taxon, it indicates the number of specimens of that taxon that were preserved.

The primary methods of determining impact from the antimycin were to compare the taxa richness (total number of taxa) and Ephemeroptera, Plecoptera, and Trichoptera (EPT) taxa richness of a site before and after treatment and the number of taxa common in the pre-treatment sample that were not collected in the post-treatment sample. These results were compared to control sites to see if similar changes occurred there.

## V. Results

### Taxonomic resolution

Two hundred fifteen macroinvertebrate taxa in 64 families were identified (Tables A1-A10). Of these, 151 taxa (72.0%) were identified to species or operational taxonomic units (OTU); 45 taxa (21.3%) were identified to genus. Ten taxa were identified to species pairs or groups. Black flies (Diptera: Simuliidae) were identified only to family. In the 1996-1997 samples, midges (Diptera: Chironomidae) were not identified below family. In 2000 and later, they were taken to subfamily or tribe, which accounted for 4 taxa. Platyhelminthes (planarians), and Nematomorpha (horsehair worms) were identified to phylum. Oligochaeta were identified to class. Hydracarina were identified to suborder.

*Homoplectra doringa* (Trichoptera: Hydropsychidae) was collected at a seep near the junction of Sams Creek and Thunderhead Prong but did not appear at any of the 9 stations. One specimen of *Neoascia* sp. (Diptera: Syrphidae) was collected but its site location was not recorded.

The amount of time spent on the smaller sites (1-6) ranged from 2.0-8.5 person-hours (mean = 4.4). The average amount of time spent on the larger sites (7-9) ranged from 4.7-11.5 person-hours (mean = 7.3). A total of 437.3 person-hours was spent collecting a total of 86 samples. An attempt was made to expend the same amount of person-hours each time a particular site was sampled. For the smaller sites, person-hours expended were kept to 4.0-4.5. For larger sites, the amount of effort was kept to 7-8 person-hours. Occasionally more time was expended on a small site due to the number of collectors available. For example, if logistical considerations dictated that 4 people be assigned to a small site, it was felt preferable that they be given at least 1.5 hours each to collect, rather than one hour, which meant that 6 person hours were spent on that site rather than the target of 4.0-4.5.

### Comparison of pre- and post-treatment benthic communities – Fall 2001

#### *Site 1. (Control) – Upper Sams Creek above Starkey Creek*

Table 1 shows the number of EPT and non-EPT taxa and specimens collected at site 1 in September and October 2001 (pre- and post-treatment). Specific taxa are listed in Table A2.

Ephemeroptera – Seven taxa were shared between the samples. Unshared entries were rare taxa.

Plecoptera – Six taxa were shared between samples. Unshared entries were rare taxa.

Trichoptera – Seventeen taxa were shared between samples. Six *Neophylax mitchelli* specimens were collected in the September sample while none was collected in the

Table 1. EPT and non-EPT taxa and specimens, collected at site 1 in September and October 2001.

| Sampling date  | 22 Sep 2001 |           | 5 Oct 2001 |           |
|----------------|-------------|-----------|------------|-----------|
|                | Taxa        | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 9           | 89        | 7          | 90        |
| Plecoptera     | 9           | 71        | 8          | 43        |
| Trichoptera    | 21          | 232       | 20         | 157       |
| Total EPT      | 39          | 392       | 35         | 290       |
| Non-EPT        | 15          | 62        | 17         | 42        |
| Total          | 54          | 454       | 52         | 332       |
| EPT Percentage | 72.2        | 85.8      | 67.3       | 87.3      |
| No. per hour   | 13.5        | 114.2     | 13         | 83        |
| Hours effort   | 4           |           | 4          |           |
| Collectors     | 2           |           | 2          |           |

October sample. Other unshared entries were rare taxa.

Non-EPT – Eleven taxa were shared between samples. All unshared entries were rare taxa, with the exception of 25 specimens of the chironomid tribe Tanytarsini collected in the September sample.

Summary – The 2 samples were virtually identical. Only two taxa common in the September sample were not collected in October.

#### *Site 2. (Treatment) – Sams Creek ca. 50m above Starkey Creek*

Table 2 shows the number of EPT and non-EPT taxa and specimens collected at site 2 in September and October 2001. Specific taxa are listed in Table A3.

Ephemeroptera – Six taxa were shared between the samples. Six early instar specimens of *Paraleptophlebia* sp. were collected in the pre-treatment sample in September but none was found in the post-treatment sample in October. Other unshared entries were rare taxa.

Plecoptera – Four taxa were shared between the samples. *Leuctra* sp. (11 specimens preserved) was common in the pre-treatment sample but was not collected in the post-treatment sample. Other unshared entries were rare or uncommon taxa.

Trichoptera – Thirteen taxa were shared between the samples. All unshared entries were rare or uncommon taxa. Three specimens of *Dolophilodes distinctus* were taken in the pre-treatment sample but none was taken in the post-treatment sample.

Table 2. EPT and non-EPT taxa and specimens collected at site 2 in September and October 2001.

| Sampling date  | 22 Sep 2001 |           | 5 Oct 2001 |           |
|----------------|-------------|-----------|------------|-----------|
|                | Taxa        | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 8           | 68        | 8          | 25        |
| Plecoptera     | 9           | 42        | 6          | 51        |
| Trichoptera    | 16          | 61        | 18         | 84        |
| Total EPT      | 33          | 171       | 32         | 160       |
| Non-EPT        | 11          | 54        | 12         | 36        |
| Total          | 44          | 225       | 44         | 196       |
| EPT Percentage | 75          | 76        | 72.7       | 81.6      |
| No. per hour   | 7.3         | 37.5      | 7.3        | 32.7      |
| Hours effort   | 6           |           | 6          |           |
| Collectors     | 3           |           | 4          |           |

Non-EPT – Eight taxa were shared between the samples. Twenty-one chironomids were collected in the pre-treatment sample while 8 were collected in the post-treatment sample. Unshared entries were either rare or uncommon taxa.

Summary – Two taxa common in the September (pre-treatment) sample were not collected in the October (post-treatment) sample. The number of mayfly specimens declined and the stonefly *Leuctra* was not collected in the post-treatment sample. *Leuctra* was collected in the post-treatment sample at control sites 1 and 3. Mayfly numbers did not change at site 1 and they increased at site 3 in the post-treatment samples.

### ***Site 3. (Control) – Upper Starkey Creek***

Table 3 shows the number of EPT and non-EPT taxa and specimens collected at site 3 in September and October 2001. Specific taxa are shown in Table A4.

Ephemeroptera – Six taxa were shared between samples. All unshared entries were rare taxa.

Plecoptera – Five taxa were shared between samples. All unshared entries were rare taxa.

Trichoptera – Fourteen taxa were shared between samples. All unshared entries were rare or uncommon taxa.

Non-EPT – Five taxa were shared between samples. All unshared entries were rare taxa.



Table 3. EPT and non-EPT taxa and specimens collected at site 3 in September and October 2001.

| Sampling date  | 22 Sep 2001 |           | 5 Oct 2001 |           |
|----------------|-------------|-----------|------------|-----------|
|                | Taxa        | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 7           | 36        | 7          | 49        |
| Plecoptera     | 5           | 25        | 9          | 50        |
| Trichoptera    | 20          | 91        | 18         | 131       |
| Total EPT      | 32          | 153       | 34         | 230       |
| Non-EPT        | 9           | 26        | 10         | 39        |
| Total          | 41          | 179       | 44         | 269       |
| EPT Percentage | 78          | 85.5      | 77.3       | 85.5      |
| No. per hour   | 10.2        | 44.7      | 11         | 67.2      |
| Hours effort   | 4           |           | 4          |           |
| Collectors     | 2           |           | 2          |           |

Summary – The 2 samples at this site were virtually identical in terms of shared taxa. All unshared entries were rare or uncommon taxa.

#### *Site 4. (Treatment) – Lower Starkey*

Table 4 shows the number of EPT and non-EPT taxa collected at site 4 in September and October 2001. Specific taxa are listed in Table A5.

Ephemeroptera – Seven taxa were shared between the samples. All unshared entries were rare or uncommon taxa.

Plecoptera – Eight taxa were shared between the samples. All unshared entries were rare taxa.

Trichoptera – Twelve taxa were shared between samples. All unshared entries were rare or uncommon taxa.

Non-EPT – Three taxa were shared between samples. All unshared entries were rare or uncommon taxa. Chironomid specimens declined from 17 to 4 in the post-treatment sample.

Summary – All taxa common in the pre-treatment sample were collected in the post-treatment sample. Total taxa and specimens were much lower in the post-treatment sample. For the fauna as a whole, total taxa declined by 25% and specimens declined by 64%. An additional collector was present for the post-treatment sample.

Table 4. EPT and non-EPT taxa and specimens collected at site 4 in September and October 2001.

| Sample date    | 22 Sep 2001 |           | 5 Oct 2001 |           |
|----------------|-------------|-----------|------------|-----------|
|                | Taxa        | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 11          | 124       | 8          | 35        |
| Plecoptera     | 10          | 80        | 9          | 48        |
| Trichoptera    | 19          | 182       | 15         | 59        |
| Total EPT      | 40          | 386       | 32         | 142       |
| Non-EPT        | 12          | 47        | 7          | 13        |
| Total          | 52          | 433       | 39         | 155       |
| EPT Percentage | 77          | 89.1      | 82         | 91.6      |
| No. per hour   | 8.7         | 72.2      | 6.5        | 25.8      |
| Hours effort   | 6           |           | 6          |           |
| Collectors     | 3           |           | 4          |           |

**Site 5. (Control) – "Seep" between Devil's Bench Branch and Churn Hollow**

Table 5 shows the number of EPT and non-EPT taxa collected at site 5 in September and October 2001. Specific taxa are listed in Table A6.

Ephemeroptera – Five taxa were shared between the samples. All unshared entries were rare or uncommon taxa.

Plecoptera – Seven taxa were shared between samples. *Amphinemura* sp. (6) was common in the post-treatment sample but was not collected in the pre-treatment sample. Other unshared entries were rare taxa.

Trichoptera – Ten taxa were shared between samples. All unshared entries were rare or uncommon taxa.

Non-EPT – Eight taxa were shared between samples. *Rhagovelia obesa* (8) was common in the post-treatment sample but was not collected in the pre-treatment sample. All other unshared entries were rare or uncommon taxa.

Summary – All taxa that were common in the pre-treatment sample were collected in the post-treatment sample. The 2 samples were virtually identical.

**Site 6. (Control) - Churn Hollow**

Table 6 shows the number of EPT and non-EPT taxa collected at site 6 in September and October 2001. Specific taxa are listed in Table A7.

Table 5. EPT and non-EPT taxa and specimens collected at site 5 in September and October 2001.

| Sampling date  | 22 Sep 2001 |           | 5 Oct 2001 |           |
|----------------|-------------|-----------|------------|-----------|
|                | Taxa        | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 6           | 35        | 8          | 53        |
| Plecoptera     | 8           | 26        | 9          | 49        |
| Trichoptera    | 12          | 59        | 17         | 165       |
| Total EPT      | 26          | 120       | 34         | 267       |
| Non-EPT        | 15          | 39        | 15         | 36        |
| Total          | 41          | 159       | 49         | 303       |
| EPT Percentage | 63.4        | 75.5      | 69.4       | 88        |
| No. per hour   | 9.1         | 35.3      | 9.8        | 60.6      |
| Hours effort   | 4.5         |           | 5          |           |
| Collectors     | 3           |           | 4          |           |

Table 6. EPT and non-EPT taxa and specimens collected at site 6 in September and October 2001.

| Sampling date  | 22 Sep 2001 |           | 5 Oct 2001 |           |
|----------------|-------------|-----------|------------|-----------|
|                | Taxa        | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 2           | 8         | 2          | 6         |
| Plecoptera     | 6           | 15        | 7          | 25        |
| Trichoptera    | 10          | 76        | 11         | 38        |
| Total EPT      | 18          | 99        | 20         | 69        |
| Non-EPT        | 8           | 21        | 7          | 21        |
| Total          | 26          | 120       | 27         | 90        |
| EPT Percentage | 69.2        | 82.5      | 74.1       | 76.7      |
| No. per hour   | 7.4         | 34.3      | 12.3       | 40.9      |
| Hours effort   | 3.5         |           | 2.2        |           |
| Collectors     | 3           |           | 2          |           |

Ephemeroptera – One taxon was shared between the samples. Unshared entries were rare taxa.

Plecoptera – Five taxa were shared between the samples. Unshared entries were rare or uncommon taxa.

Trichoptera – Five taxa were shared between the samples. Unshared entries were rare or uncommon taxa.

Non-EPT – Two taxa were shared between the samples. Unshared entries were rare or uncommon taxa.

Summary – All taxa common in the pre-treatment sample were collected in the post-treatment sample. The 2 samples were virtually identical.

***Site 7. (Treatment) – Third trail crossing of Sams Creek going upstream***

Table 7 shows the number of EPT and non-EPT taxa collected at site 7 in September and October 2001. Specific taxa are listed in Table A8.

Ephemeroptera – Eight taxa were shared between samples. *Paraleptophlebia* sp. cf. *guttata* (12) was common in the pre-treatment sample but was not collected from the post-treatment sample. Other unshared entries were rare taxa.

Plecoptera – Seven taxa were shared between samples. *Leuctra* sp. (11) was common in the pre-treatment sample but not collected in the post-treatment sample. Other unshared entries were rare taxa.

Trichoptera – Fourteen taxa were shared between samples. *Diplectrone modesta* (14), *Molanna blenda* (6) and *Dolophilodes distinctus* (9) were common in the pre-treatment sample but were not collected in the post-treatment sample. Other unshared entries were rare or uncommon taxa.

Non-EPT – Twelve taxa were shared between samples. *Promoresia tardella* (6) and Simuliidae (9) were common in the pre-treatment sample but not collected in the post-treatment sample.

Summary – Seven taxa common in the pre-treatment sample were not collected in the post-treatment sample. The number of Ephemeroptera specimens declined by almost 63%. The number of Plecoptera specimens declined by almost 66%. *Leuctra* sp. was not collected in the post-treatment sample at this site as well as at site 2. It was collected in the post-treatment sample at site 4. The number of Trichoptera specimens declined by almost 63%. *Dolophilodes distinctus* was not collected in the post-treatment sample at this site as well as the other 2 treatment sites. The number of chironomids went from 47 to 29 while total non-EPT specimens declined by 34%. Total taxa declined by 18% while

Table 7. EPT and non-EPT taxa and specimens collected at site 7 in September and October 2001.

| Sample date    | 22 Sep 2001 |           | 7 Oct 2001 |           |
|----------------|-------------|-----------|------------|-----------|
|                | Taxa        | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 11          | 134       | 9          | 50        |
| Plecoptera     | 10          | 120       | 7          | 41        |
| Trichoptera    | 24          | 273       | 16         | 102       |
| Total EPT      | 45          | 527       | 32         | 193       |
| Non-EPT        | 15          | 110       | 17         | 72        |
| Total          | 60          | 637       | 49         | 265       |
| EPT Percentage | 75          | 82.7      | 65.3       | 72.8      |
| No. per hour   | 7.5         | 79.6      | 6.4        | 34.4      |
| Hours effort   | 8           |           | 7.7        |           |
| Collectors     | 4           |           | 3          |           |

total specimens declined by 58%.

***Site 8. (Control) - Thunderhead Prong 100 m above mouth of Sams Creek***

Table 8 shows the number of EPT and non-EPT taxa collected at site 8 in September and October of 2001. Specific taxa are listed in Table A9.

Ephemeroptera – Nine taxa were shared between samples. Unshared entries were rare or uncommon taxa.

Plecoptera – Seven taxa were shared between samples. The only unshared entry was an uncommon taxon.

Trichoptera – Seventeen taxa were shared between samples. All unshared entries were rare or uncommon taxa.

Non-EPT – Nine taxa were shared between samples. The chironomid subfamily Orthocladinae (6) was common in the pre-treatment sample but was not collected in the post-treatment sample. Other unshared entries were rare or uncommon taxa.

***Site 9. (potassium permanganate) - ca. 100 m below mouth of Sams Creek***

Table 9 shows the number of EPT and non- EPT taxa collected at site 9 in September and October 2001. Specific taxa are listed in Table A10.

Site 9 was essentially “treated” with potassium permanganate because of its location a short distance downstream of the detoxification station.

Table 8. EPT and non-EPT taxa and specimens collected at site 8 in September and October 2001.

| Sampling date  | 22 Sep 2001 |           | Oct 2001 |           |
|----------------|-------------|-----------|----------|-----------|
|                | Taxa        | Specimens | Taxa     | Specimens |
| Ephemeroptera  | 13          | 129       | 10       | 98        |
| Plecoptera     | 8           | 72        | 7        | 40        |
| Trichoptera    | 21          | 182       | 21       | 114       |
| Total EPT      | 42          | 383       | 38       | 252       |
| Non-EPT        | 13          | 68        | 14       | 65        |
| Total          | 55          | 451       | 52       | 317       |
| EPT Percentage | 76.4        | 84.9      | 73.1     | 79.5      |
| No. per hour   | 9.2         | 75.2      | 6.9      | 42.3      |
| Hours effort   | 6           |           | 7.5      |           |
| Collectors     | 3           |           | 3        |           |

Table 9. EPT and non-EPT taxa and specimens collected at site 9 in September and October 2001.

| Sampling date  | 22 Sep 2001 |           | 11 Oct 2001 |           |
|----------------|-------------|-----------|-------------|-----------|
|                | Taxa        | Specimens | Taxa        | Specimens |
| Ephemeroptera  | 14          | 100       | 1           | 1         |
| Plecoptera     | 9           | 66        | 7           | 46        |
| Trichoptera    | 18          | 136       | 21          | 202       |
| Total EPT      | 41          | 302       | 29          | 249       |
| Non-EPT        | 17          | 91        | 17          | 83        |
| Total          | 58          | 393       | 46          | 332       |
| EPT Percentage | 70.1        | 76.8      | 63          | 75        |
| No. per hour   | 7.1         | 47.9      | 6.4         | 46.1      |
| Hours effort   | 8.2         |           | 7.2         |           |
| Collectors     | 7           |           | 3           |           |

Ephemeroptera – There were 14 taxa and 100 specimens in the pre-treatment sample while only one specimen was collected in the post-treatment sample.

Plecoptera – Five taxa were shared between samples. Unshared entries were all rare taxa. There were 17 *Tallaperla* sp. specimens in the pre-treatment sample compared to one in the post-treatment sample.

Trichoptera – Fourteen taxa were shared between samples. *Molanna blenda* (11) was common in the post-treatment sample but not collected in the pre-treatment sample. Other unshared entries were rare or uncommon taxa.

Non-EPT – Ten taxa were shared between samples. Simuliidae (14) was common in the pre-treatment sample but was not collected in the post-treatment sample. *Atherix lantha* (15) was common in the post-treatment sample but was not collected in the pre-treatment sample. Other unshared entries were rare or uncommon taxa. There were 37 chironomid specimens in the pre-treatment sample and 18 in the post-treatment sample. The number of taxa was the same in both samples while the number of specimens decreased slightly.

Summary – Mayflies were essentially eliminated at site 9 by potassium permanganate. Thirteen mayfly taxa collected in the pre-treatment sample were not collected in the post-treatment sample. The number of Plecoptera specimens declined by 30%. Total Trichoptera taxa and total specimens increased by 16.7% and 48.5%, respectively. The total number of taxa declined by almost 21% while the number of specimens declined by 15%. The slight increase in the number of Trichoptera taxa and specimens, while not indicative of a change in the composition of the fauna, indicates they were not affected by the potassium permanganate.

### **Comparisons of pre- and post-treatment benthic communities – February 1997, 2001, and 2002**

Figures 2-5 show total taxa, total specimens, EPT taxa, and EPT specimens, respectively, collected at sites 1-9 in February 1997, 2001 and 2002. Taxa shared between the 1997 and 2002 samples are compared first, followed by the 1997 and 2001 comparison, and then the 2001/2002 comparison. This format will be used in all of the seasonal comparisons that follow.

#### ***Site 1. (Control)***

Table 10 shows the number of EPT and non-EPT taxa taken at site 1 in February 1997, 2001, and 2002. Specific taxa are listed in Table A2. Only sites 1, 2, and 7 were sampled in February 2001, so only those 3 sites can be compared for that time period. The reason for sampling only these sites was that the abbreviated treatment in the fall of 2000 made it unnecessary to conduct full-scale sampling in February 2001. Site 1 is a control site upstream of site 2, which is in the zone of the abbreviated treatment, and site 7 was

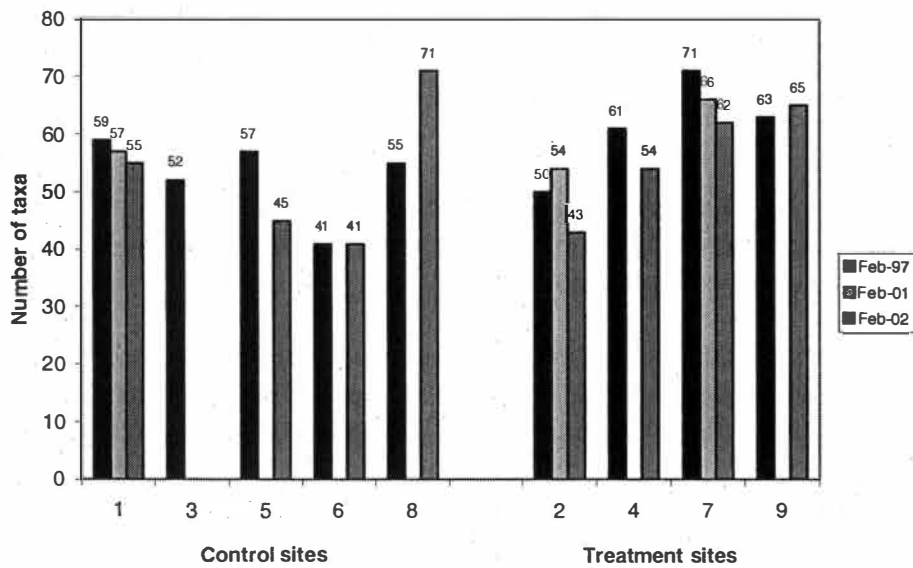


Figure 2. Total taxa collected at control sites (1, 3, 5, 6, 8) and treatment sites (2, 4, 7, 9) in February 1997 (pre-treatment) and February 2001 and 2002 (post-treatment). Only sites 1, 2, and 7 were sampled in 2001. Site 3 2002 data are missing.

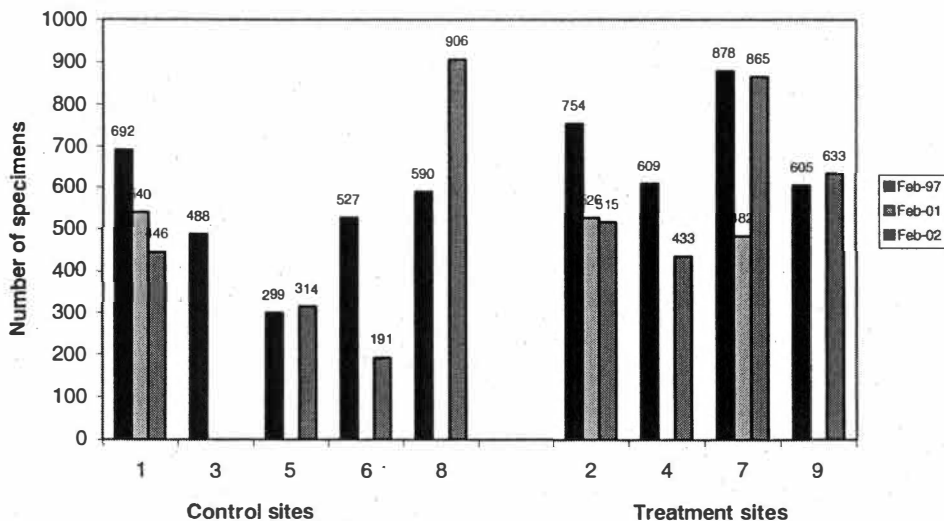


Figure 3. Total specimens collected at control sites (1, 3, 5, 6, 8) and treatment sites (2, 4, 7, 9) in February 1997 (pre-treatment) and February 2001 and 2002 (post-treatment). Only sites 1, 2, and 7 were sampled in 2001. Site 3 2002 data are missing.



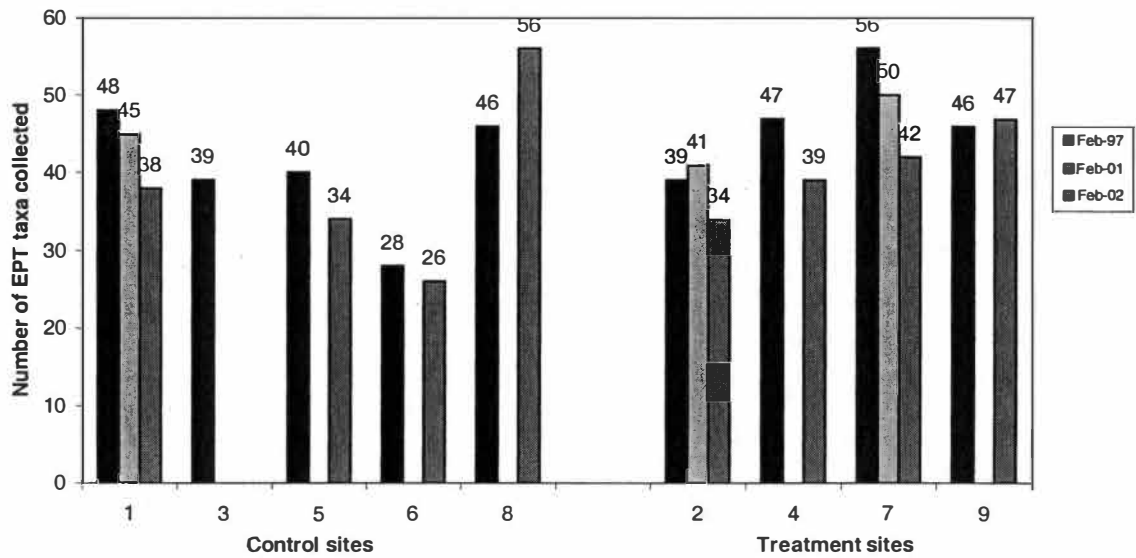


Figure 4. EPT taxa collected at control sites (1, 3, 5, 6, 8) and treatment sites (2, 4, 7, 9) in February 1997 (pre-treatment) and February 2001 and 2002 (post-treatment). Only sites 1, 2, and 7 were sampled in 2001. Site 3 2002 data are missing.

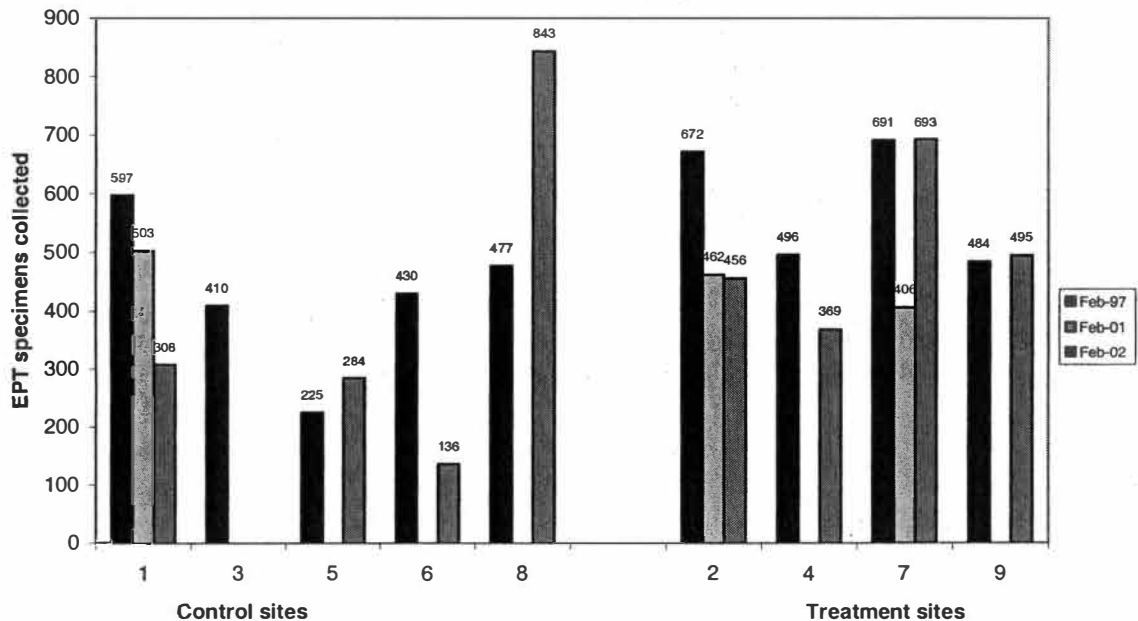


Figure 5. EPT specimens collected at control sites (1, 3, 5, 6, 8) and treatment sites (2, 4, 7, 9) in February 1997 (pre-treatment) and February 2001 and 2002 (post-treatment). Only sites 1, 2, and 7 were sampled in 2001. Site 3 2002 data are missing.

Table 10. EPT and non-EPT taxa and specimens collected at site 1 in February 1997, 2001, and 2002.

| Sampling date  | 2 Feb 1997 |           | 24 Feb 2001 |           | 9 Feb 2002 |           |
|----------------|------------|-----------|-------------|-----------|------------|-----------|
|                | Taxa       | Specimens | Taxa        | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 11         | 257       | 10          | 219       | 8          | 105       |
| Plecoptera     | 12         | 146       | 15          | 135       | 13         | 90        |
| Trichoptera    | 25         | 194       | 20          | 149       | 17         | 113       |
| Total EPT      | 48         | 597       | 45          | 503       | 38         | 308       |
| Non-EPT        | 11         | 95        | 12          | 37        | 17         | 138       |
| Total          | 59         | 692       | 57          | 540       | 55         | 446       |
| EPT Percentage | 82.7       | 86.3      | 78.9        | 93.1      | 69.1       | 68.4      |
| No. per hour   | 11.8       | 138.4     | ?           | ?         | 7.7        | 62.8      |
| Hours effort   | 5.0        |           | ?           |           | 7.1        |           |
| Collectors     | 4          |           | ?           |           | 3          |           |

? - missing data

*Site 1. 1997 (pre-treatment) and 2002 (post-treatment) shared taxa*

Ephemeroptera – Six taxa were shared between the samples. Common taxa taken in 1997 that were not collected in 2002 were *Cinygmula subaequalis* (7) and *Epeorus* sp. cf. *dispar* (21). *Paraleptophlebia* sp. cf. *guttata* (6) was common in 2002 but not collected in 1997. Other unshared entries were rare taxa; of these, one was collected in 1997 only and 2 were collected in 2002 only.

Plecoptera – Nine taxa were shared between the samples. *Isoperla* sp. cf. *dicala* (12) and *Bolotoperla rossi* (21) were common in 1997 but were not collected in 2002. Common taxa taken in 2002 that were not collected in 1997 were *Oemopteryx contorta* (10) and *Strophopteryx* sp. (7). Generic identification of larval Taeniopterygidae (*Bolotoperla*, *Oemopteryx*, and *Strophopteryx*) is difficult, and some of these apparent differences may reflect evolving taxonomic opinions. Other unshared entries were rare taxa; of these, one was collected in 1997 only and 2 were collected in 2002 only.

Trichoptera – Fifteen taxa were shared between the samples. All taxa that were common in 1997 were collected in 2002. Of common taxa taken in 2002, only *Rhyacophila appalachia/nigrita* (8) was not collected in 1997. Other unshared entries were rare taxa; of these, 8 were collected in 1997 only and 4 were collected in 2002 only.

Non-EPT – Five taxa were shared between the samples. All unshared entries were rare or uncommon taxa.

Summary – Four taxa common in 1997 were not collected in 2002. The absence of

certain Ephemeroptera taxa in 2002 is puzzling. At least one species of *Epeorus* would have been expected. Otherwise, the mayfly composition appears quite similar, as do the Plecoptera, Trichoptera, and non-EPT faunas.

*Site 1. 1997 (pre-treatment) and 2001 (post-treatment) shared taxa*

Ephemeroptera – Six taxa were shared between the 2 samples. *Baetis tricaudatus* (6), *Ephemerella hispida* (13) and *Stenonema meririvulatum* (8) were common in 1997 but were not collected in 2001. Other unshared entries were rare or uncommon taxa; of these, one was collected in 1997 only and 2 were collected in 2001 only.

Plecoptera - Eight taxa were shared between the samples. *Isoperla holochlora* (16), *I. dicala* (12), and *Bolitoperla rossi* (21) were common in 1997 but were not collected in 2001. Other unshared entries were rare taxa; of these, one was collected in 1997 only and 4 were collected in 2001 only.

Trichoptera – Sixteen taxa were shared between the samples. *Rhyacophila* sp. cf. *nigrita* (7) was common in 1997 but not collected in 2001. *Neophylax mitchelli* (14) was common in 2001 but not collected in 1997. Other unshared entries were rare or uncommon taxa; of these, 8 were collected in 1997 only and none was collected in 2001 only.

Non-EPT – Seven taxa were shared between the samples. All unshared entries were rare taxa; of these, 4 were collected in 1997 only and 5 were collected in 2001 only.

Summary – Six taxa common in 1997 were not collected in 2001.

*Site 1. 2001 and 2002 shared taxa (post-treatment)*

Ephemeroptera – Three taxa were shared between the 2 samples. *Cinygmula subaequalis* (11) and *Epeorus dispar* (42) were common in 2001 but were not collected in 2002. *Ephemerella hispida* (12), *Stenonema meririvulatum* (6) and *Paraleptophlebia* sp. cf. *guttata* (6) were common in 2002 but were not collected in 2001. Other unshared entries were rare taxa; of these, 3 were collected in 2001 only and 2 were collected in 2002 only.

Plecoptera – Nine taxa were shared between the 2 samples. All taxa common in 2001 were collected in 2002. *Isoperla holochlora* (10) was common in 2002 but not collected in 2001. Other unshared entries were rare taxa; of these, 3 were collected in 2001 only and 2 were collected in 2002 only.

Trichoptera – Thirteen taxa were shared between the 2 samples. All unshared entries were rare or uncommon taxa; of these, 4 were collected in 2001 only and 8 were collected in 2002 only.

Non-EPT – Eleven taxa were shared between the samples. All unshared entries were rare taxa; of these, 4 were collected in 2001 only and one was collected in 2002 only.

Summary – The number of Ephemeroptera and Plecoptera taxa (10 vs. 8 and 15 vs. 13, respectively) were similar in 2001 and 2002, but the species composition, even of common species, was quite different between the years. None of these differences appear to reflect taxonomic uncertainty and most likely reflect the annual variation possible in small creeks.

### **Site 2. (Treatment)**

Table 11 shows the number of EPT and non-EPT taxa collected at site 2 in February 1997, 2001, and 2002. Specific taxa are listed in Table A3.

#### *Site 2. 1997 (pre-treatment) and 2002 (post-treatment) shared taxa*

Ephemeroptera – Five taxa were shared between the samples. *Ameletus cryptostimulus* (15) and *Paraleptophlebia* sp. cf. *adoptiva/mollis* (15) were common in 1997 but were not collected in 2002. *Baetis* sp. cf. *flavistriga* (13) was common in 2002 but was not collected in 1997. Other unshared entries were rare taxa; of these, none was collected in 1997 only and 2 were collected in 2002 only.

Plecoptera - Nine taxa were shared between the samples. *Helopicus subvarians* (9) and *Bolotoperla rossi* (19) were common in 1997 but were not collected in 2002. All taxa common in 2002 were collected in 1997. Other unshared entries were rare taxa; of these, 3 were collected in 1997 only and 2 were collected in 2002 only.

Trichoptera - Twelve taxa were shared between the samples. *Fattigia pele* (10) was common in 1997 but was not collected in 2002. *Neophylax mitchelli* (9) was common in 2002 but was not collected in 1997. Other unshared entries were rare taxa; of these, 2 were collected in 1997 only and one was collected in 2002 only.

Non-EPT – Four taxa were shared between the samples. Unshared entries were rare or uncommon taxa.

Summary – The Ephemeroptera fauna is puzzling at this site as at site 1. The absence of *Ameletus* in 2002 and *Baetis* sp. cf. *flavistriga* in 1997 is a noticeable difference. Among plecopterans, there were 52 *Leuctra* sp., 14 *Isoperla similis*, and 23 *Malirekus hastatus* specimens taken in 1997 vs. 3, 2 and one respectively in 2002. The Trichoptera fauna at this site was quite similar between the 2 samples with one major exception. No representatives of the family Philopotamidae were taken in the winter 2002 sample or any other sample after the antimycin treatment. Philopotamids also disappeared after treatment at site 4 and 7, but site 2 is the only place they have not been taken since treatment. They persist at site 1, the control site upstream of this site, but as yet have not repopulated site 2.

Table 11. EPT and non-EPT taxa and specimens collected at site 2 in February 1997 (pre-treatment), and 2001 and 2002 (post-treatment).

| Sampling date  | 2 Feb 1997 |           | 24 Feb 2001 |           | 9 Feb 2002 |           |
|----------------|------------|-----------|-------------|-----------|------------|-----------|
|                | Taxa       | Specimens | Taxa        | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 7          | 271       | 11          | 263       | 8          | 274       |
| Plecoptera     | 15         | 213       | 12          | 84        | 11         | 66        |
| Trichoptera    | 17         | 188       | 18          | 115       | 15         | 116       |
| Total EPT      | 39         | 672       | 41          | 462       | 34         | 456       |
| Non-EPT        | 11         | 82        | 13          | 64        | 9          | 59        |
| Total          | 50         | 754       | 54          | 526       | 43         | 515       |
| EPT Percentage | 78.0       | 89.1      | 76.0        | 87.8      | 79.1       | 88.5      |
| No. per hour   | 10.0       | 150.8     | 7.6         | 74.1      | ?          |           |
| Hours effort   | 5.0        |           | 7.1         |           | ?          |           |
| Collectors     | 4          |           | ?           |           | ?          |           |

? – missing data

*Site 2. 1997 (pre-treatment) and 2001 (post-treatment) shared taxa*

Ephemeroptera – Eight taxa were shared between the samples. All taxa common in 1997 were collected in 2001. *Ephemerella hispida* (12), *Cinygmula subaequalis* (14), and *Epeorus pleuralis* (14) were common in 2001 but were not collected in 1997. The only other unshared taxon was collected in 2001 only.

Plecoptera - Ten taxa were shared between the samples. *Helopicus subvarians* (9), *Isoperla holochlora* (9), and *Bolotoperla rossi* (19) were common in 1997 but were not collected in 2001. Other unshared entries were rare taxa; of these, 3 were collected in 1997 only and 2 were collected in 2001 only.

Trichoptera – Fourteen taxa were shared between the samples. All taxa common in 1997 were collected in 2001. *Rhyacophila appalachia/nigrita* (9) and *Neophylax mitchelli* (7) were common in 2001 but not collected in 1997. Other unshared entries were rare taxa; of these, 3 were collected in 1997 only and 2 were collected in 2001 only. Adults of *Dolophilodes distinctus* were collected at this site in 1997 but neither adults nor larvae were collected in 2001.

Non-EPT – Seven taxa were shared between the samples. All unshared entries were rare taxa; of these, 4 were collected in 1997 only and 3 were collected in 2001 only.

Summary – Three taxa common in 1997 were not collected in 2001. These were all stoneflies.

### *Site 2. 2001 (pre-treatment) and 2002 (post-treatment) shared taxa*

Ephemeroptera – Five taxa were shared between the 2 samples. *Ameletus cryptostimulus* (33), *Cinygmula subaequalis* (28), and *Epeorus pleuralis* (14) were common in 2001 but not collected in 2002. *Baetis* sp. cf. *flavistriga* (13) was common in 2002 but not collected in 2001. Other unshared entries were rare or uncommon taxa; of these, 2 were collected in 2001 only and one was collected in 2002 only.

Plecoptera – Ten taxa were shared between the 2 samples. All taxa common in 2001 were collected in 2002. *Isoperla holochlora* (6) was common in 2002 but not collected in 2001.

Trichoptera – Thirteen taxa were shared between the 2 samples. All unshared entries were rare or uncommon taxa; of these, 5 were collected in 2001 only and 2 were collected in 2002 only.

Non-EPT – Six taxa were shared between the samples. All unshared entries were rare or uncommon taxa; of these, 7 were collected in 2001 only and 3 were collected in 2002 only.

Summary – Three taxa common in 2001 were not collected in 2002, and 2 taxa, *B. flavistriga* and *I. holochlora*, common in 2002 were not collected in 2001.

### *Site 3. (Control)*

This site was not sampled in 2001 and part of the 2002 sample from this site was misplaced; therefore no comparison can be made.

### *Site 4. (Treatment)*

Table 12 shows the number of EPT and non-EPT taxa collected at site 4 in February 1997 and 2002. Specific taxa are listed in Table A5.

### *Site 4. February 1997 (pre-treatment) and 2002 (post-treatment) shared taxa*

Ephemeroptera – Five taxa were shared between the samples. *Ameletus cryptostimulus* (8), *Cinygmula subaequalis* (12), and *Paraleptophlebia* sp. cf. *adoptiva/mollis* (10) were common in 1997 but were not collected in 2002. *Baetis* sp. cf. *flavistriga* (22) was common in 2002 but not collected in 1997. Other unshared entries were rare taxa; of these, 3 were collected in 1997 only and one was collected in 2002 only.

Plecoptera – Ten taxa were shared between the samples. All taxa that were common in 1997 were collected in 2002, although 45 specimens of *Bolotoperla rossi* were taken in 1997 versus one specimen in 2002. *Strophopteryx* sp. (34) was common in 2002 but not collected in 1997. As mentioned earlier, this may reflect an identification change rather

Table 12. EPT and non-EPT taxa and specimens collected at site 4 in February 1997 and 2002.

| Sampling date  | 2 Feb 1997 |           | 9 Feb 2002 |           |
|----------------|------------|-----------|------------|-----------|
|                | Taxa       | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 11         | 184       | 8          | 149       |
| Plecoptera     | 13         | 166       | 13         | 127       |
| Trichoptera    | 23         | 146       | 18         | 93        |
| Total EPT      | 47         | 496       | 39         | 369       |
| Non-EPT        | 14         | 113       | 15         | 64        |
| Total          | 61         | 609       | 54         | 433       |
| EPT Percentage | 77         | 81.4      | 72.2       | 85.2      |
| No. per hour   | 12.2       | 121.8     | 12         | 96.2      |
| Hours effort   | 5          |           | 4.5        |           |
| Collectors     | 4          |           | 3          |           |

than an actual change. Other unshared entries were rare taxa; of these, one was collected in 1997 only and one was collected in 2002 only.

Trichoptera – Fourteen taxa were shared between the samples. *Wormaldia moesta* (6) and *Neophylax consimilis* (11) were common in 1997 but not collected in 2002. *Neophylax mitchelli* (7) was common in 2002 but not collected in 1997. Other unshared entries were rare taxa; of these, 5 were collected in 1997 only and 2 were collected in 2002 only.

Non-EPT – Seven taxa were shared between the samples. All unshared entries were rare or uncommon taxa.

Summary – The Ephemeroptera fauna at this site was similar to site 2, in that *Ameletus* was not collected in 2002. Also, *Baetis* sp. cf. *flavistriga* and *Paraleptophlebia* sp. cf. *catawba* were not collected in 1997 but were collected in 2002 at both sites. The Plecoptera fauna was quite similar between the 2 samples at site 2, with rare and uncommon taxa accounting for almost all the differences. The Trichoptera fauna was similar also. One specimen of *Dolophilodes distinctus* was taken in each sample and 6 *Wormaldia moesta* were taken in 1997 only, but they were the only *Wormaldia* taken in the 9 samples at this site.

#### Site 5. (Control)

Table 13 shows the number of EPT and non-EPT taxa collected at site 5 in February 1997 and 2002. Specific taxa are listed in Table A6.

Table 13. EPT and non-EPT taxa and specimens collected at site 5 in February 1997 and 2002.

| Sampling date  | 2 Feb 1997 |           | 9 Feb 2002 |           |
|----------------|------------|-----------|------------|-----------|
|                | Taxa       | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 11         | 128       | 12         | 112       |
| Plecoptera     | 10         | 92        | 13         | 92        |
| Trichoptera    | 19         | 105       | 9          | 80        |
| Total EPT      | 40         | 225       | 34         | 284       |
| Non-EPT        | 17         | 74        | 11         | 30        |
| Total          | 57         | 299       | 45         | 314       |
| EPT Percentage | 70.2       | 75.2      | 75.5       | 90.4      |
| No. per hour   | 13.2       | 66.4      | 12.8       | 89.7      |
| Hours effort   | 4.3        |           | 3.5        |           |
| Collectors     | 3          |           | 2          |           |

*Site 5. February 1997 (pre-treatment) and 2002 (post-treatment) shared taxa*

Ephemeroptera – Ten taxa were shared between the samples. Unshared entries were rare taxa; of these, one was collected in 1997 only and 2 were collected in 2002 only.

Plecoptera – Six taxa were shared between the samples. *Bolotoperla rossi* (23) and *Oemopteryx/Taenionema* sp. (7) were common in 1997 but not collected in 2002. All taxa that were common in 2002 were collected in 1997. Other unshared entries were rare taxa; of these, 2 were collected in 1997 only and 6 were collected in 2002 only.

Trichoptera – Six taxa were shared between the samples. *Lepidostoma* sp. (12), *Neophylax consimilis* (9), and *N. mitchelli* (7) were common in 1997 but not collected in 2002. *Ceratopsyche macleodi* (7) and *Pycnopsyche flavata* (6) were common in 2002 but not collected in 1997. Other unshared entries were rare taxa; of these, 8 were collected in 1997 only and one was collected in 2002 only.

Non-EPT – Ten taxa were shared between the samples. *Cordulegaster erronea* (6) was common in 1997 but was not collected in 2002. All other unshared entries were rare or uncommon taxa.

Summary – The Ephemeroptera fauna was quite similar in the 2 samples. The 10 specimens of *Ephemerella* sp. 1 from 2002 may well be a variant of *E. hispida*, which would make the fauna virtually identical, with rare taxa making up the rest of the difference. The difference in the Plecoptera fauna is largely accounted for by the presence



of *Bolotoperla rossi* in 1997 and its absence in 2002. *B. rossi* was also common in February 1997 but not collected in the February 2002 samples at sites 1, 2 and 7. Among trichopterans, *Lepidostoma* sp. was not collected in 2002; however, it was collected in only 3 out of 9 samples taken at this site over the course of the project (Table A6). The difference in the composition of *Neophylax* species is likely attributable to natural variation. *Neophylax* is often non-randomly distributed, with large numbers of specimens often occurring on a single rock. *N. ornatus* was collected in the 2002 sample and *N. mitchelli* was collected in 5 of 9 samples taken at this site (Table A6). *Ceratopsyche macleodi* is a habitat generalist that has been taken in 4 of 9 samples at this site, so its absence in 1997 is possibly collector bias. *Pycnopsyche gentilis*, which is morphologically similar to *P. flavata*, was collected in 1997.

#### Site 6. (Control)

Table 14 shows the number of EPT and non-EPT taxa collected at site 6 in February 1997 and 2002. Specific taxa are listed in Table A7.

#### Site 6. February 1997 (pre-treatment) and 2002 (post-treatment) shared taxa

Ephemeroptera – Two taxa were shared between the samples. Other unshared entries were rare taxa; of these, one was collected in 1997 only and 2 were collected in 2002 only.

Plecoptera – Eight taxa were shared between the samples. *Amphinemura* sp. (7) was common in 1997 but not collected in 2002. All taxa that were common in 2002 were collected in 1997. Other unshared entries were rare or uncommon taxa; of these, none was collected in 1997 only and 3 were collected in 2002 only.

Trichoptera – Seven taxa were shared between the samples. *Parapsyche apicalis* (9) and *Neophylax mitchelli* (16) were common in 1997 but not collected in 2002. All taxa that were common in 2002 were collected in 1997. Other unshared entries were rare taxa; of these, 4 were collected in 1997 only and 3 were collected in 2002 only.

Non-EPT – Seven taxa were shared between the samples. *Lirceus* sp. (26) was common in 1997 but not collected in 2002. Oligochaeta (8) and *Pedicia* sp. (6) were common in 2002 but not collected in 1997. Other unshared entries were rare taxa; of these, 4 were collected in 1997 only and 2 were collected in 2002 only.

Summary – Overall the samples are quite similar in their taxonomic composition. No *Neophylax* were taken in 2002. This a small site with limited habitat and a variable flow regime. The number of collectors and hours of effort were lower in 2002. These 2 factors may explain the lower numbers of specimens. When combined with the tendency of *Neophylax* to aggregate, they may explain the lack of that taxon in 2002 as well.

Table 14. EPT and non-EPT taxa and specimens collected at site 6 in February 1997 and 2002.

| Sampling date  | 2 Feb 1997 |           | 9 Feb 2002 |           |
|----------------|------------|-----------|------------|-----------|
|                | Taxa       | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 3          | 43        | 5          | 25        |
| Plecoptera     | 8          | 262       | 10         | 62        |
| Trichoptera    | 17         | 125       | 11         | 49        |
| Total EPT      | 28         | 430       | 26         | 136       |
| Non-EPT        | 13         | 97        | 15         | 55        |
| Total          | 41         | 527       | 41         | 191       |
| EPT Percentage | 68.3       | 81.6      | 63.4       | 71.2      |
| No. per hour   | 7.7        | 99.4      | 13.7       | 63.7      |
| Hours effort   | 5.3        |           | 3          |           |
| Collectors     | 3          |           | 2          |           |

#### Site 7. (Treatment)

Table 15 shows the number of EPT and non-EPT taxa collected at site 7 in February 1997 (pre-treatment) and 2001 and 2002 (post-treatment). Specific taxa are listed in Table A8.

#### Site 7. February 1997 (pre-treatment) and 2002 (post-treatment) shared taxa

Ephemeroptera – Eight taxa were shared between the samples. *Ameletus cryptostimulus* (14), *E. hispida* (25), *Rhithrogena* sp. cf. *amica* (15), and *Paraleptophlebia* sp. cf. *adoptiva/mollis* (13) were common in 1997 but not collected in 2002. *Baetis* sp. cf. *flavistriga* (28) and *Paraleptophlebia* sp. cf. *guttata* (12) were common in 2002 but not collected in 1997. There were no unshared rare taxa in the 2 samples.

Plecoptera – Eight taxa were shared between the samples. *Bolotoperla rossi* (22) was common in 1997 but not collected in 2002. *Strophopteryx* sp. (60) was common in 2002 but not collected in 1997. Other unshared entries were rare taxa; of these, 4 were collected in 1997 only and none was collected in 2002 only.

Trichoptera – Fifteen taxa were shared between the samples. *Wormaldia moesta* (8) was common in 1997 but not collected in 2002. *Parapsyche cardis* (6) and *Rhyacophila appalachia/nigrita* (12) were common in 2002 but not collected in 1997. Other unshared entries were rare taxa; of these, 5 were collected in 1997 only and 2 were collected in 2002 only.

Table 15. EPT and non-EPT taxa and specimens collected at site 7 in February 1997, 2001, and 2002.

| Sampling date  | 1 Feb 1997 |           | 24 Feb 2001 |           | 9 Feb 2002 |           |
|----------------|------------|-----------|-------------|-----------|------------|-----------|
|                | Taxa       | Specimens | Taxa        | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 12         | 287       | 13          | 196       | 11         | 271       |
| Plecoptera     | 17         | 191       | 14          | 83        | 10         | 161       |
| Trichoptera    | 27         | 213       | 23          | 129       | 21         | 261*      |
| Total EPT      | 56         | 691       | 50          | 406       | 42         | 693       |
| Non-EPT        | 15         | 187       | 16          | 76        | 20         | 172       |
| Total          | 71         | 878       | 66          | 482       | 62         | 865       |
| EPT Percentage | 78.9       | 78.7      | 75.7        | 84.2      | 67.7       | 80.1      |
| No. per hour   | 8.2        | 100.9     | 9.5         | 69.9      | 7.3        | 101.8     |
| Hours effort   | 8.7        |           | 6.9         |           | 8.5        |           |
| Collectors     | 5          |           | ?           |           | 8          |           |

\*One worker collected 72 specimens of *Pycnopsyche luculenta/sonso*; they accounted for 8.3% of total specimens and 27.6% of Trichoptera specimens.

? – missing data

Non-EPT – Nine taxa were shared between the samples. *Atherix lantha* (8) and *Tipula abdominalis* (6) were common in 2002 but were not collected in 1997.

Summary – The composition of the Ephemeroptera fauna in the 2 samples was different but the diversity was similar. The taxonomically difficult family Ephemerellidae accounts for some of the differences between samples, which indicates these may not be actual but rather differences in identification between the 1997 and 2002 samples.

Among Plecoptera, *Bolotoperla rossi* was abundant in 1997 but not collected in 2002, as was the case at sites 1, 2, and 5. It was also abundant in 1997 and represented by one specimen in 2002 at site 4. The abundance of *Strophopteryx* sp. in 2002 versus its absence in 1997 also occurred at site 4. There may be some replacement going on among taeniopterygids in the treatment zone, but the previously mentioned difficulty of larval taeniopterygid identification makes it more likely these are simply identification problems. The Trichoptera fauna was slightly more diverse in 2002 than in 1997.

*Wormaldia moesta* was collected at this site in February 1997 but not in 2002.

Philopotamids disappeared from the treatment sites immediately after treatment in the fall of 2001. *Dolophilodes distinctus* was collected at this site in February 2002. Neither philopotamid taxon was collected at this site in June 2002, but 1 specimen of *D. distinctus* was collected here in September 2002.

*Site 7. February 1997 (pre-treatment) and 2001 (post-treatment) shared taxa*

Ephemeroptera – Eleven taxa were shared between the samples. *Ephemerella hispida* (25) was common in 1997 but was not collected in 2001. Other unshared entries were rare taxa; of these, one was collected in 1997 only and one was collected in 2001 only.

Plecoptera - Eleven taxa were shared between the samples. *Bolotoperla rossi* (22) was common in 1997 but was not collected in 2001. *Isoperla holochlora* (9) was common in 2001 but was not collected in 2002. Other unshared entries were rare or uncommon taxa; of these, 3 were collected in 1997 only and 2 were collected in 2001 only.

Trichoptera – Seventeen taxa were shared between the samples. *Wormaldia moesta* (8) was common in 1997 but was not collected in 2001. Other unshared entries were rare or uncommon taxa; of these, 7 were collected in 1997 only and 2 were collected in 2001 only.

Non-EPT – Seven taxa were shared between the samples. *Blepharicera* sp. (13) was common in 1997 but was not collected in 2001. Other unshared entries were rare taxa; of these, 7 were collected in 1997 only and 7 were collected in 2001 only.

Summary- Four taxa common in 1997 were not collected in 2001, while one taxon common in 2001 was not collected in 1997.

*Site 7. February 2001 and 2002 (post-treatment) shared taxa*

Ephemeroptera – Eight taxa were shared between the 2 samples. *Ameletus cryptostimulus* (17), *Cinygmula subaequalis* (12), and *Paraleptophlebia adoptiva/mollis* (13) were common in 2001 but not collected in 2002. *Paraleptophlebia* sp. cf. *guttata* (12) was common in 2002 but not collected in 2001. The only other unshared entry was a rare taxon collected in 2001 only.

Plecoptera – Nine taxa were shared between the 2 samples. *Isoperla holochlora* (9) was common in 2001 but not collected in 2002. Other unshared entries were rare or uncommon taxa; of these, 4 were collected in 2001 only and one was collected in 2002 only.

Trichoptera – Sixteen taxa were shared between the 2 samples. All unshared entries were rare taxa; of these, 3 were collected in 2001 only and 4 were collected in 2002 only.

Non-EPT – Twelve taxa were shared between the samples. All taxa common in 2001 were collected in 2002. *Blepharicera* sp. (33) was common in 2002 but was not common in 2001. Other unshared entries were rare or uncommon taxa; of these, 4 were collected in 2001 only and 7 were collected in 2002 only.

Summary – Four taxa common in 2001 were not collected in 2002, while 2 taxa common in 2002 were not collected in 2001.

#### **Site 8. (Control)**

Table 16 shows the number of EPT and non-EPT taxa collected at site 8 in February 1997 and 2002. Specific taxa are listed in Table A9.

#### **Site 8. February 1997 (pre-treatment) and 2002 (post-treatment) shared taxa**

Ephemeroptera – Seven taxa were shared between the samples. All taxa common in 1997 were collected in 2002. *Ephemerella* sp. 1 (16), *Epeorus* sp. cf. *pleuralis* (86), and *Paraleptophlebia* sp. cf. *guttata* (9) were common in 2002 but not collected in 1997. Other unshared entries were rare taxa; of these, 4 were collected in 1997 only and 2 were collected in 2002 only.

Plecoptera – Eleven taxa were shared between the samples. All taxa common in 1997 were collected in 2002. *Isoperla holochlora* (11) and *Alloperla* sp. (10) were common in 2002 but not collected in 1997. Other unshared entries were rare or uncommon taxa; of these, 2 were collected in 1997 only and 7 were collected in 2002 only.

Trichoptera – Sixteen taxa were shared between the samples. All taxa common in 1997 were collected in 2002. *Arctopsyche irrorata* (8) was common in 2002 but not collected in 1997. Other unshared entries were rare or uncommon taxa; of these, 6 were collected in 1997 only and 5 were collected in 2002 only.

Non-EPT – Seven taxa were shared between the samples. Simuliidae sp. (11) was common in 1997 but was not collected in 2002. Other unshared entries were rare taxa; of these, 2 were collected in 1997 only and 5 were collected in 2002 only.

Summary – One taxon common in 1997, the tolerant dipteran family Simuliidae, was not collected in 2002. More EPT taxa were common in 2002 than in 1997.

#### **Site 9. (potassium permanganate) ca. 100 m below Sams Creek**

Table 17 shows the number of EPT and non-EPT taxa collected at site 9 in February 1997 and 2002. Specific taxa are listed in Table A10.

#### **Site 9. February 1997 (pre-treatment) and 2002 (post-treatment) shared taxa**

Ephemeroptera: Fourteen taxa were shared between samples. All unshared entries were rare or uncommon taxa; of these, 3 were collected in 1997 only and none was collected in 2002 only. Two of the 3 taxa missing from the 2002 sample were represented by a single specimen in 1997–*Baetis* sp. (not *B. sp. cf. tricaudatus*) and *Stenacron* sp. cf. *pallidum*.

Table 16. EPT and non-EPT taxa and specimens collected at site 8 in February 1997 and 2002.

| Sampling date  | 1 Feb 1997 |           | 10 Feb 2002 |           |
|----------------|------------|-----------|-------------|-----------|
|                | Taxa       | Specimens | Taxa        | Specimens |
| Ephemeroptera  | 13         | 228       | 16          | 509       |
| Plecoptera     | 12         | 98        | 19          | 107       |
| Trichoptera    | 21         | 151       | 21          | 227       |
| Total EPT      | 46         | 477       | 56          | 843       |
| Non-EPT        | 9          | 113       | 15          | 63        |
| Total          | 55         | 590       | 71          | 906       |
| EPT Percentage | 83.6       | 80.8      | 78.9        | 93        |
| No. per hour   | 6.3        | 67.8      | 10.9        | 139.4     |
| Hours effort   | 8.7        |           | 6.5         |           |
| Collectors     | 4          |           | 3           |           |

Table 17. EPT and non-EPT taxa and specimens collected at site 9 in February 1997 and 2002.

| Sampling date  | 1 Feb 1997 |           | 10 Feb 2002 |           |
|----------------|------------|-----------|-------------|-----------|
|                | Taxa       | Specimens | Taxa        | Specimens |
| Ephemeroptera  | 15         | 229       | 14          | 271       |
| Plecoptera     | 13         | 115       | 13          | 84        |
| Trichoptera    | 18         | 140       | 20          | 140       |
| Total EPT      | 46         | 484       | 47          | 495       |
| Non-EPT        | 17         | 121       | 18          | 138       |
| Total          | 63         | 605       | 65          | 633       |
| EPT Percentage | 73         | 80        | 85.5        | 78.2      |
| No. per hour   | 8.2        | 78.6      | 6.9         | 79.2      |
| Hours effort   | 7.7        |           | 8           |           |
| Collectors     | 4          |           | 4           |           |

Plecoptera: Thirteen taxa were taken in both samples, but the composition changed. All unshared entries were rare or uncommon taxa; of these, 3 were collected in 1997 only and 4 were collected in 2002 only. All of the 8 species that were not shared in the 2 samples were represented by single specimens, except for *Paracapnia angulata* (3 in 2002) and *Taeniopteryx* sp. (4 in 2002); both taxa were represented only by adults.

Trichoptera: Sixteen taxa were shared between the samples. All unshared entries were rare taxa; of these, 2 were collected in 1997 only and 4 were collected in 2002 only.

Non-EPT taxa: Nine taxa were shared between the samples. All unshared entries were rare taxa; of these, 4 were collected in 1997 only and 12 were collected in 2002 only.

Summary – These data indicate the similarity between the pre- and post-treatment February samples. All taxa that were common in 1997 were collected in 2002. The 2002 sample was taken only about 3 months after potassium permanganate, used as a detoxicant for the antimycin ichthyocide, had eliminated all but one mayfly specimen and all but one peltoperlid stonefly specimen from this site. Some of the mayflies taken in 2002 were in last instar, and presumably drifted into the study area from upstream. Smaller mayflies may have been in permanganate-resistant stages (diapausing eggs or early larvae) when the permanganate was released, or could also have drifted.

Only 2 specimens of the caddisfly *Fattigia pele*—a species well known for its precise habitat specificity—were taken in 2002, while 14 were found in 1997.

### **Comparison of pre- and post-treatment benthic communities – June 1996 and 2002**

Figures 6-9 show the total number of taxa, total number of specimens, total number of EPT taxa, and total number of EPT specimens, respectively, collected at sites 1-9 in June 1996 (pre-treatment) and June 2002 (post-treatment).

#### ***Site 1. (Control)***

Table 18 shows the number of EPT and non-EPT taxa collected at site 1 in June 1996 and 2002. Specific taxa are listed in Table A2.

Ephemeroptera – Eight taxa were shared between samples. *Ephemerella subvaria* (12) was common in 1996 but was not collected in 2002. *Baetis* sp. cf. *flavistriga* (29), *B.* sp. cf. *tricaudatus* (15), *Ephemerella* sp. cf. *catawba* (15), *Ephemerella hispida* (54), *Epeorus* sp. cf. *pleuralis* (38), and *Leucrocuta thetis* (9) were common in 2002 but not collected in 1996. The differences in *Ephemerella* species between 1996 and 2002 may be attributable to the previously mentioned difficulty in accurate identification of this taxon to species level. Other unshared entries were rare or uncommon taxa; of these, 2 were collected in 1996 only and 4 were collected in 2002 only.

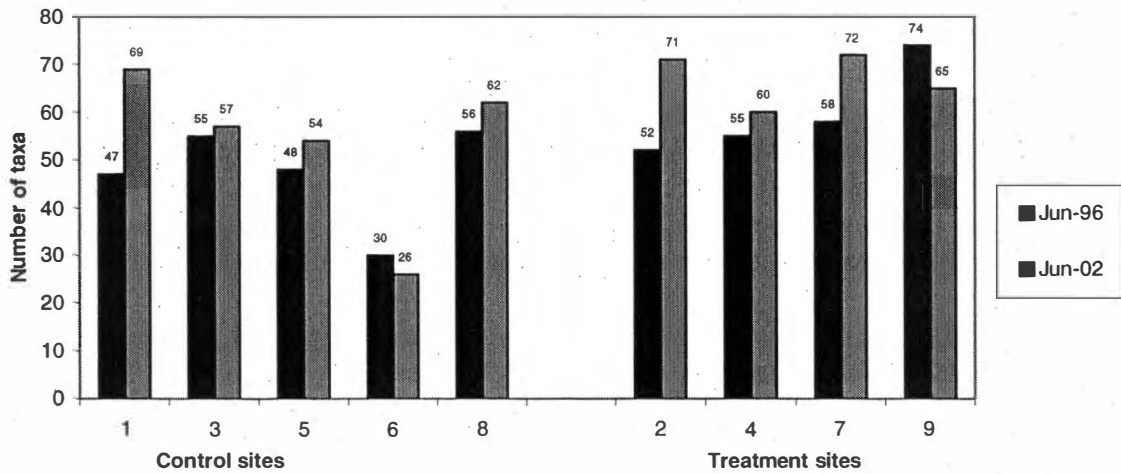


Figure 6. Total taxa collected at control sites (1, 3, 5, 6, 8) and treatment sites (2, 4, 7, 9) June 1996 (pre-treatment) and June 2002 (post-treatment).

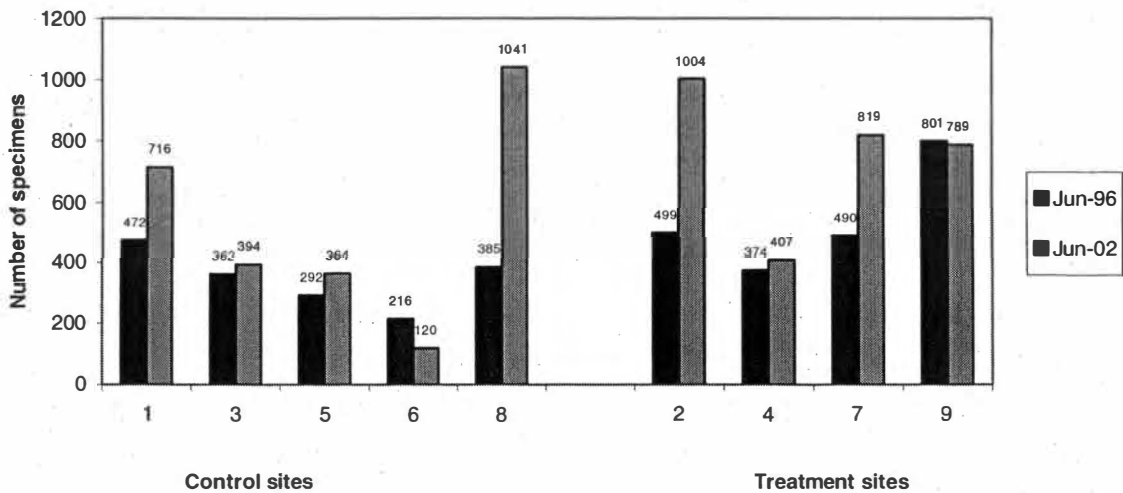


Figure 7. Total specimens collected at control sites (1, 3, 5, 6, 8) and treatment sites (2, 4, 7, 9) June 1996 (pre-treatment) and June 2002 (post-treatment).



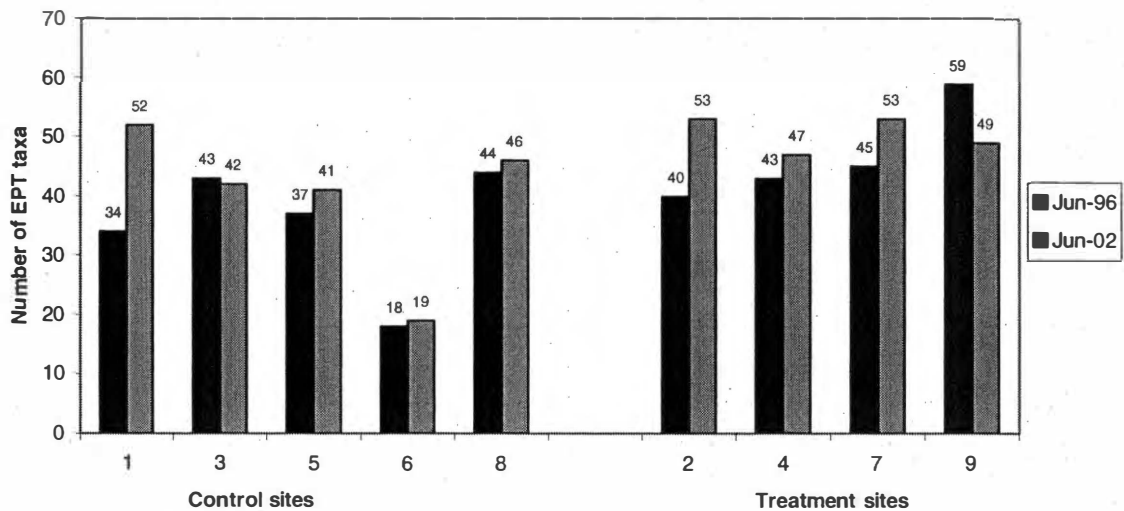


Figure 8. EPT taxa collected at control sites (1, 3, 5, 6, 8) and treatment sites (2, 4, 7, 9) June 1996 (pre-treatment) and June 2002 (post-treatment).

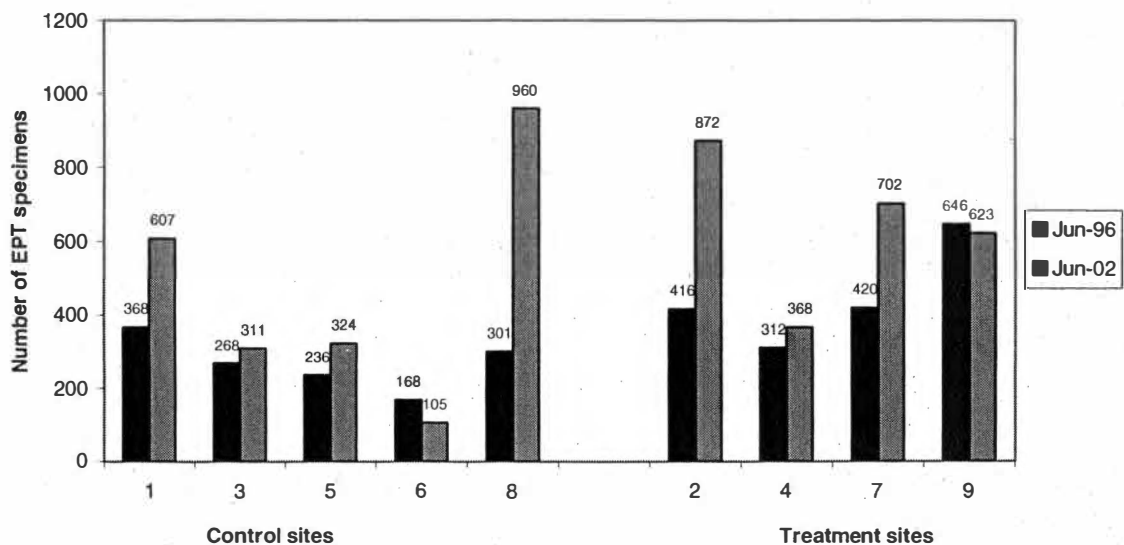


Figure 9. EPT specimens collected at control sites (1, 3, 5, 6, 8) and treatment sites (2, 4, 7, 9) June 1996 (pre-treatment) and June 2002 (post-treatment).

Table 18. EPT and non-EPT taxa and specimens collected at site 1 in June 1996 and 2002.

| Sampling date  | 6 Jun 1996 |           | 1 Jun 2002 |           |
|----------------|------------|-----------|------------|-----------|
|                | Taxa       | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 11         | 127       | 18         | 296       |
| Plecoptera     | 9          | 108       | 11         | 100       |
| Trichoptera    | 14         | 133       | 23         | 211       |
| Total EPT      | 34         | 368       | 52         | 607       |
| Non-EPT        | 13         | 104       | 17         | 109       |
| Total          | 47         | 472       | 69         | 716       |
| EPT Percentage | 72.3       | 78        | 75.4       | 84.8      |
| No. per hour   | 8.9        | 89.9      | 13.3       | 137.7     |
| Hours effort   | 5.2        |           | 5.2        |           |
| Collectors     | 3          |           | 3          |           |

Plecoptera – Seven taxa were shared between samples. *Helopicus subvarians* (3) was collected in 1996 only. *Acroneuria abnormis* (8), *Isoperla* sp. cf. *dicala* (27), and *Eccoptura xanthenes* (5) were taken in 2002 only. Of rare taxa, one was taken in 1996 only and one was taken in 2002 only.

Trichoptera – Twelve taxa were shared between samples. All taxa that were common in 1996 were collected in 2002. *Rhyacophila fuscula* (14), and *Fattigia pele* (6) were common in 2002 but not collected in 1996. Other unshared entries were rare or uncommon taxa; of these, 2 were collected in 1996 only and 8 were collected in 2002 only. *Diplectrona modesta* (28), *Lepidostoma* sp. (29), and *Psilotreta frontalis* (33), accounted for most of the increase in the number of specimens in 2002.

Non-EPT – Nine taxa were shared between samples. *Dicranota* sp. (7) was common in 1996 but not collected in 2002. Other unshared entries were rare or uncommon taxa; of these, 3 were collected in 1996 only and 5 were collected in 2002 only.

Summary – Three taxa that were common in 1996 were not collected in 2002. The June 2002 collection from this site was more diverse than the 1996 collection.

### Site 2. (Treatment)

Table 19 shows the number of EPT and non-EPT taxa collected at site 2 in June 1996 (pre-treatment) and 2002 (post-treatment). Specific taxa are listed in Table A3.

Ephemeroptera – Nine taxa were shared between samples. *Ephemerella subvaria* (8) was

Table 19. EPT and non-EPT taxa and specimens collected at site 2 in June 1996 and 2002.

| Sampling date  | 6 Jun 1996 |           | 1 Jun 2002 |           |
|----------------|------------|-----------|------------|-----------|
|                | Taxa       | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 14         | 198       | 16         | 467       |
| Plecoptera     | 10         | 94        | 14         | 168       |
| Trichoptera    | 16         | 124       | 23         | 237       |
| Total EPT      | 40         | 416       | 53         | 872       |
| Non-EPT        | 12         | 83        | 18         | 132       |
| Total          | 52         | 499       | 71         | 1004      |
| EPT Percentage | 76.9       | 83.4      | 74.6       | 86.8      |
| No. per hour   | 10         | 96        | 10.1       | 143.4     |
| Hours effort   | 5.2        |           | 7          |           |
| Collectors     | 3          |           | 4          |           |

common in 1996 but not collected in 2002. *Drunella longicornis* (39 specimens) and *Habrophlebia vibrans* (10 specimens) were common in 2002 but not collected in 1996. Other unshared entries were rare or uncommon taxa; of these, 2 were collected in 1996 only and 4 were collected in 2002 only.

Plecoptera – Eight taxa were shared between samples. All taxa that were common in 1996 were collected in 2002. *Acroneuria abnormis* (8) and *Malirekus hastatus* (8) were common in 2002 but not collected in 1996. Other unshared entries were rare or uncommon taxa; of these, 3 were collected in 1996 only and 3 were collected in 2002 only.

Trichoptera – Ten taxa were shared between samples. Both philopotamids (12 *Dolophilodes distinctus*, 16 *Wormaldia* sp.) were common in 1996 but not collected in 2002. *Glossosoma nigrior* (7) and *Rhyacophila appalachia/nigrita* (16) were common 2002 but not collected in 1996. Other unshared entries were rare taxa; of these, one was collected in 1996 only and 4 were collected in 2002 only.

Non-EPT's – Eight taxa were shared between samples. All taxa that were common in 1996 were collected in 2002. *Atherix lantha* (9) and *Dixa* (12) were common in 2002 but not collected in 1996. Other unshared entries were rare or uncommon taxa; of these, 4 were collected in 1996 only and one was collected in 2002 only.

Summary – Three taxa common in 1996 were not collected in 2002, but 6 taxa not collected in 1996 were common in 2002. There was more diversity at this site in 2002

than in 1996. There was some “replacement” of common species that is probably real but more taxa were added than deleted in 2002. Only 2 common taxa from 1996, *Ephemerella subvaria* (8 specimens) and *Ameletus cryptostimulus* (3 specimens) were not collected in the 2002 sample. Again, it’s possible the *Ephemerella* is an identification problem and not a real difference.

In Trichoptera, the family Philopotamidae (12 *Dolophilodes distinctus*, 16 *Wormaldia* sp.) was abundant in 1996 but not collected in 2002. Philopotamids were also not collected from the other 2 antimycin sites (4 and 7) in June 2002. Philopotamids may be particularly sensitive to antimycin.

There were 3 workers in 1996 versus 4 in 2002, plus an additional 1.8 hours of effort in 2002. These increases in workers and time accounts for most of the increased diversity in 2002.

### Site 3. (Control)

Table 20 shows the number of EPT and non-EPT taxa collected at site 3 in June 1996 and 2002. Specific taxa are shown in Table A4.

Ephemeroptera – Twelve taxa were shared between samples. *Ephemerella subvaria* (3) was collected only in 1996. *Baetis* sp. cf. *flavistriga*, *Ephemerella* sp. 1 (7), *Epeorus* sp. cf. *pleuralis* (9), and *Paraleptophebia* sp. cf. *guttata* (6) were common in 2002 but not collected in 1996. Other unshared entries were rare or uncommon taxa; of these, 2 were collected in 1996 only and 2 were collected in 2002 only.

Plecoptera – Seven taxa were shared between samples. *Sweltsa* sp. (9) and *Isoperla holochlora* (19) were common in 1996 but not collected in 2002. *Isoperla* sp. cf. *dicala* (17) was common in 2002 but was not collected in 1996. *Alloperla* sp. (5), and *Beloneuria* sp. (3) were collected only in 2002. Other unshared entries were rare or uncommon taxa; of these, one was collected in 1996 only and 5 were collected in 2002 only.

Trichoptera – Twelve taxa were shared between samples. All unshared entries were rare or uncommon taxa; of these, 6 were collected in 1996 only and one was collected in 2002 only.

Non-EPT – Five taxa were shared between the samples. *Bezzia/Palpomyia* sp. (6) was common in 1996 but was not collected in 2002. *Placobdella* sp. (19) and *Ectopria* sp. (7) were common in 2002 but not collected in 1996. Other unshared entries were rare or uncommon taxa.

Summary – Four taxa common in 1996 were not collected in 2002. The 2 collections at this site show no evidence of a change in diversity between 1996 and 2002. Rare taxa accounted for almost all the differences in number of taxa collected at this site.

Table 20. EPT and non-EPT taxa and specimens collected at site 3 in June 1996 and 2002.

| Sampling date  | 6 Jun 1996 |           | 1 Jun 2002 |           |
|----------------|------------|-----------|------------|-----------|
|                | Taxa       | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 13         | 96        | 16         | 110       |
| Plecoptera     | 10         | 76        | 12         | 74        |
| Trichoptera    | 20         | 96        | 14         | 127       |
| Total EPT      | 43         | 268       | 42         | 311       |
| Non-EPT        | 12         | 94        | 15         | 83        |
| Total          | 55         | 362       | 57         | 394       |
| EPT Percentage | 78.2       | 74        | 73.7       | 78.9      |
| No. per hour   | 11         | 72.4      | 12.7       | 87.6      |
| Hours effort   | 5          |           | 4.5        |           |
| Collectors     | 3          |           | 3          |           |

#### Site 4. (Treatment)

Table 21 shows the number of EPT and non-EPT taxa collected at site 4 in June 1996 (pre-treatment) and 2002 (post-treatment). Specific taxa are listed in Table A5.

Ephemeroptera – Eleven taxa were shared between samples. All taxa that were common in 1996 were collected in 2002. *Ephemerella* sp. 1 and *Leucrocuta maculipennis* were collected only in 2002. Other unshared entries were rare taxa; of these, 2 were collected in 1996 only and one was collected in 2002 only.

Plecoptera – Eleven taxa were shared between samples. All unshared entries were rare taxa; of these, one was collected in 2001 only and 4 were collected in 2002 only.

Trichoptera – Thirteen taxa were shared between samples. *Glossosoma nigrior* (6) and *Dolophilodes distinctus* (6) were common in 1996 but not collected in 2002. *Neophlylax consimilis* (11) was common in 2002 but not collected in 1996. Other unshared entries were rare or uncommon taxa; of these, 2 were collected in 1996 only and 3 were collected in 2002 only.

Non-EPT's – Eight taxa were shared between samples. All unshared entries were rare taxa; of these, 4 were collected in 1996 only and 3 were collected in 2002 only.

Summary- Two taxa common in 1996 were not collected in 2002. Overall, there is incredible similarity between the 1996 and 2002 samples. The increased diversity in 2002 is almost certainly due to more collectors (4 vs. 3) in 2002 than in 1996 and 1.5 hours more effort in 2002. *Ephemerella* sp. 1 (7 specimens in 2002) may have been collected

Table 21. EPT and non-EPT taxa and specimens collected at site 4 in June 1996 and 2002.

| Sampling date  | 6 Jun 1996 |           | 1 Jun 2002 |           |
|----------------|------------|-----------|------------|-----------|
|                | Taxa       | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 13         | 128       | 14         | 173       |
| Plecoptera     | 13         | 67        | 15         | 60        |
| Trichoptera    | 17         | 117       | 18         | 135       |
| Total EPT      | 43         | 312       | 47         | 368       |
| Non-EPT        | 12         | 62        | 13         | 39        |
| Total          | 55         | 374       | 60         | 407       |
| EPT Percentage | 78.2       | 83.4      | 78.3       | 90.4      |
| No. per hour   | 12.2       | 83.1      | 10         | 67.8      |
| Hours effort   | 4.5        |           | 6          |           |
| Collectors     | 3          |           | 4          |           |

in 1996 but confused with *E. catawba*. No representatives of the family Philopotamidae were collected in 2002; 7 *Dolophilodes distinctus* were taken in 1996.

#### Site 5. (Control)

Table 22 shows the number of EPT and non-EPT taxa collected at site 5 in June 1996 and 2002. Specific taxa are listed in Table A6.

Ephemeroptera - Eight taxa were shared between samples. All taxa common in 1996 were collected in 2002. *Paraleptophlebia* sp. cf. *guttata* (6) was common in 2002 but not collected in 1996. Other unshared entries were rare or uncommon taxa; of these, 2 were collected in 1996 only and 5 were collected in 2002 only.

Plecoptera – Ten taxa were shared between samples. *Alloperla* sp. (7) was common in 1996 but not collected in 2002. Other unshared entries were rare or uncommon taxa; of these, none was collected in 1996 only and 3 were collected in 2002 only.

Trichoptera – There were 12 taxa shared between samples. All unshared entries were rare or uncommon taxa; of these, 3 were collected in 1996 only and 2 were collected in 2002 only.

Non-EPT – Five taxa were shared between samples. All unshared entries were rare taxa; of these, 6 were collected in 1996 only and 5 were collected in 2002 only.

Table 22. EPT and non-EPT taxa and specimens collected at site 5 in June 1996 and 2002.

| Sampling date  | 7 Jun 1996 |           | 1 Jun 2002 |           |
|----------------|------------|-----------|------------|-----------|
|                | Taxa       | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 10         | 104       | 14         | 134       |
| Plecoptera     | 12         | 49        | 13         | 62        |
| Trichoptera    | 15         | 83        | 14         | 128       |
| Total EPT      | 37         | 236       | 41         | 324       |
| Non-EPT        | 11         | 56        | 13         | 40        |
| Total          | 48         | 292       | 54         | 364       |
| EPT Percentage | 77.1       | 80.8      | 75.9       | 89        |
| No. per hour   | 10.7       | 64.9      | 18         | 121.3     |
| Hours effort   | 4.5        |           | 3          |           |
| Collectors     | 3          |           | 2          |           |

Summary – One taxon common in 1996 was not collected in 2002. These 2 sites had similar diversity in 1996 and 2002.

#### *Site 6. (Control)*

Table 23 shows the number of EPT and non-EPT taxa collected at site 6 in June 1996 and 2002. Specific taxa are listed in Table A7.

Ephemeroptera – Only one taxon was collected in 1996. There was 1 taxon shared between samples. Only 3 taxa were taken in 2002. The additional taxa taken in 2002 were both rare. No taxa were common in either year.

Plecoptera – There were no unshared plecopterans between years at this site. The same 5 taxa were collected both years.

Trichoptera – Seven taxa were shared between samples. All unshared entries were rare or uncommon taxa; of these, 5 were collected in 1996 only and 4 were collected in 2002 only.

Non-EPT's – There were 5 taxa shared between samples. Simuliidae sp. (17) was common in 1996 but not collected in 2002. Other unshared entries were rare taxa; of these, 6 were collected in 1996 only and none was collected in 2002 only.

Summary – One taxon common in 1996, the tolerant dipteran Simuliidae, was not collected in 2002. This site is depauperate relative to the others. Numbers of taxa taken here are generally much lower. Diversity was still similar between years, however.



Table 23. EPT and non-EPT taxa and specimens collected at site 6 in June 1996 and 2002.

| Sampling date  | 7 Jun 1996 |           | 1 Jun 2002 |           |
|----------------|------------|-----------|------------|-----------|
|                | Taxa       | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 1          | 1         | 3          | 5         |
| Plecoptera     | 5          | 123       | 5          | 56        |
| Trichoptera    | 12         | 44        | 11         | 44        |
| Total EPT      | 18         | 168       | 19         | 105       |
| Non-EPT        | 12         | 48        | 7          | 15        |
| Total          | 30         | 216       | 26         | 120       |
| EPT Percentage | 60         | 77.8      | 73.1       | 87.5      |
| No. per hour   | 6.9        | 50.8      | 10.4       | 48        |
| Hours effort   | 4.2        |           | 2.5        |           |
| Collectors     | 3          |           | 2          |           |

#### *Site 7. (Treatment)*

Table 24 shows the number of EPT and non-EPT taxa collected at site 7 in June 1996 (pre-treatment) and 2002 (post-treatment). Specific taxa are listed in Table A8.

Ephemeroptera – Twelve taxa were shared between samples. All unshared entries were rare taxa; of these, 2 were collected in 1996 only and 5 were collected in 2002 only. In 1996 only 4 *Stenonema* specimens were taken compared to 49 specimens taken in 2002. There were 3 more collectors and 1.5 more hours of effort in 2002, which accounts for the difference.

Plecoptera – Eight taxa were shared between samples. All taxa common in 1996 were collected in 2002. *Tallaperla* (8) was common in 2002 but not collected 1996. The 1996 sample was taken on 7 June and the 2002 sample was taken on 1 June, so it's likely that *Tallaperla* was present in 1996 but not collected for some reason. Other unshared entries were rare or uncommon taxa; of these, one was collected in 1996 only and none was collected in 2002 only.

Trichoptera – Fifteen taxa were shared between samples. Other unshared entries were rare or uncommon taxa; of these, 2 were collected in 1996 only and 3 were collected in 2002 only. There were no philopotamids in 2002.

Non-EPT's – Eleven taxa were shared between samples. All unshared entries were rare taxa; of these, one was collected in 1996 only and 5 were collected in 2002 only.



Table 24. EPT and non-EPT taxa and specimens collected at site 7 in June 1996 and 2002.

| Sampling date  | 7 Jun 1996 |           | 1 Jun 2002 |           |
|----------------|------------|-----------|------------|-----------|
|                | Taxa       | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 14         | 229       | 19         | 388       |
| Plecoptera     | 12         | 93        | 12         | 117       |
| Trichoptera    | 19         | 98        | 22         | 197       |
| Total EPT      | 45         | 420       | 53         | 702       |
| Non-EPT        | 13         | 70        | 19         | 117       |
| Total          | 58         | 490       | 72         | 819       |
| EPT Percentage | 77.6       | 85.7      | 73.6       | 85.7      |
| No. per hour   | 9.7        | 81.7      | 9.6        | 109.2     |
| Hours effort   | 6          |           | 7.5        |           |
| Collectors     | 3          |           | 6          |           |

Summary – All taxon common in 1996 were collected in 2002. Overall, the fauna from the 2 samples is virtually identical. Philopotamids were rare in 1996 and were not collected in 2002. They were also not collected at the other treatment sites in 2002.

#### *Site 8. (Control)*

Table 25 shows the number of EPT and non-EPT taxa collected at site 8 in June 1996 and 2002. Specific taxa are listed in Table A9.

Ephemeroptera – Nine taxa were shared between samples. All taxa common in 1996 were collected in 2002. *Baetis* sp. cf. *flavistriga* (17), *Ephemerella catawba* (13), *E. hispida* (21), *Epeorus* sp. cf. *pleuralis* (8), *Stenonema meririvulanum* (79), and *Paraleptophlebia* sp. cf. *guttata* (19) were common in 2002 but not collected in 1996. Other unshared entries were rare or uncommon taxa; of these, 4 were collected in 1996 only and 3 were collected in 2002 only. There were 4 additional hours of effort and 1 additional collector in 2002. Of 510 specimens taken in 2002, 206 were *Ephemerella rossi*, 48 were *Epeorus* sp. cf. *dispar*, and 79 were *Stenonema meririvulanum*.

Plecoptera – Eight taxa were shared between samples. All unshared entries were rare or uncommon taxa; of these, 4 were collected in 1996 only and one was collected in 2002 only. *Tallaperla* sp. (30), *Acroneuria abnormis* (35), *Isoperla holochlora* (37), and *Perlesta* sp. cf. *frisoni* (30) accounted for most of the Plecoptera specimens in 2002.

Table 25. EPT and non-EPT taxa and specimens collected at site 8 in June 1996 and 2002.

| Sampling date  | 7 Jun 1996 |           | 2 Jun 2002 |           |
|----------------|------------|-----------|------------|-----------|
|                | Taxa       | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 13         | 80        | 17         | 510       |
| Plecoptera     | 12         | 36        | 9          | 160       |
| Trichoptera    | 19         | 185       | 20         | 290       |
| Total EPT      | 44         | 301       | 46         | 960       |
| Non-EPT        | 12         | 84        | 16         | 81        |
| Total          | 56         | 385       | 62         | 1041      |
| EPT Percentage | 78.6       | 78.2      | 88.5       | 92.2      |
| No. per hour   | 11.2       | 77        | 6.9        | 115.7     |
| Hours effort   | 5          |           | 9          |           |
| Collectors     | 3          |           | 4          |           |

Trichoptera – Fifteen taxa were shared between samples. *Rhyacophila atrata* adults (10) were common in 1996 but not collected in 2002. *Neophylax mitchelli* (13) was common in 2002 but was not collected in 1996. Other unshared entries were rare or uncommon taxa; of these, 3 were collected in 1996 only and 4 were collected in 2002 only. *Diplectrona modesta* (80) accounted for most of the increase in specimens in 2002.

Non-EPT – Seven taxa were shared between samples. *Dicranota* (10) was common in 1996 but was not collected in 2002. All taxon common in 2002 were collected in 1996. Other unshared entries were rare or uncommon taxa; of these, 3 were collected in 1996 only and 5 were collected in 2002 only.

Summary – Two taxa common in 1996 were not collected in 2002. The additional collector and effort in 2002, as well as an apparent collector bias toward keeping more mayflies than other taxa, are almost surely responsible for the much larger number of mayfly specimens in that year. Plecoptera taxa were fewer in 2002, despite more effort and collectors, but specimens were more numerous, again pointing to a propensity to keep more specimens in 2002. Trichoptera taxa only increased by one; the increased specimen count was largely accounted for by one taxon. These data show that diversity was similar between years at this site.

#### **Site 9. (potassium permanganate)**

Table 26 shows the number of EPT and non-EPT taxa collected at site 9 in June 1996 (pre-treatment) and 2002 (post-treatment). Specific taxa are listed in Table A10.

Table 26. EPT and non-EPT taxa and specimens collected at site 9 in June 1996 and 2002.

| Sampling date  | 7 Jun 1996 |           | 2 Jun 2002 |           |
|----------------|------------|-----------|------------|-----------|
|                | Taxa       | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 16         | 271       | 17         | 303       |
| Plecoptera     | 15         | 125       | 12         | 91        |
| Trichoptera    | 28         | 250       | 20         | 229       |
| Total EPT      | 59         | 646       | 49         | 623       |
| Non-EPT        | 15         | 155       | 16         | 166       |
| Total          | 74         | 801       | 65         | 789       |
| EPT Percentage | 79.7       | 80.6      | 75.4       | 79        |
| No. per hour   | 6.4        | 69.6      | 8.1        | 98.6      |
| Hours effort   | 11.5       |           | 8          |           |
| Collectors     | 5          |           | 4          |           |

Ephemeroptera – Twelve taxa were shared between samples. *Epeorus* sp. cf. *pleuralis* (9) was common in 1996 but not collected in 2002. *Baetis* sp. cf. *flavistriga* (6) and *Eurylophella* sp. (10) were common in 2002 but not collected in 1996. Other unshared entries were rare taxa; of these, 3 were collected in 1996 only and 2 were collected in 2002 only.

Plecoptera – Twelve taxa were shared between samples. All unshared entries were rare taxa; of these, 2 were collected in 1996 only and one was collected in 2002 only.

Trichoptera – Eighteen taxa were shared between samples. All unshared entries were rare taxa; of these, 5 were collected in 1996 only and 2 were collected in 2002 only. Philopotamids (6 *Dolophilodes distinctus*) persisted in 2002.

Non-EPT's – Eleven taxa were shared between samples. *Dicranota* (8) was common in 1996 but was not collected in 2002. Other unshared entries were rare or uncommon taxa; of these, 2 were collected in 1996 only and 5 were collected in 2002 only.

Summary – Two taxa common in 1996 were not collected in 2002 and 2 taxa common in 2002 were not collected in 1996. In 1996, 145 adult Trichoptera were taken, 67 of which were males. These contained 5 species not represented by larvae. The larger number of taxa in 1996 is surely due mostly to these 5 species. There were 5 collectors in 1996 that worked a total of 11.5 hours versus 4 collectors in 2002 who worked 8 hours. More collectors and more effort may have had a slight impact on the increased diversity in 1996, but these factors were probably countered by the more experienced 2002 collecting team.

## Comparisons of pre- and post-treatment benthic communities September 1996, 2001 and 2002

### *Site 1. (Control)*

Table 27 shows the number of EPT and non-EPT taxa collected at site 1 in September 1996, 2001 and 2002. Specific taxa are listed in Table A2.

### *Site 1. September 1996 (pre-treatment) and 2002 (post-treatment) shared taxa*

Ephemeroptera – One taxon was shared between the samples. All taxa common in 1996 were collected in 2002. *Leucrocuta thetis* (7 specimens preserved), *Stenonema pudicum* (33), *Paraleptophlebia* sp. (7 early instars)) and *Ephemerella* sp. (23 early instars) were common in 2002 but were not collected in 1996. Other unshared entries were rare or uncommon taxa; of these, 2 were collected in 1996 only and 2 were collected in 2002 only.

Plecoptera – Six taxa were shared between samples. All unshared entries were rare taxa. One rare taxon was taken in 1996 only while 3 were taken in 2002 only.

Trichoptera – Twelve taxa were shared between samples. All taxa common in 1996 were collected in 2002. *Ceratopsyche macleodi* (7), *Diplectrona modesta* (33), *Nyctiophylax* sp. (6), *Rhyacophila* sp. 1 (14), and *Neophylax ornatus* (15) were common in 2002 but not collected in 1996. Two rare taxa were collected in 1996 only and one rare taxon was collected in 2002 only.

Non-EPT – Eleven taxa were shared between samples. All unshared entries were rare taxa. Of rare taxa, one was collected in 1996 only and 2 were collected in 2002 only.

Summary – All taxa common in 1996 were collected in 2002. This site was more diverse in 2002 than in 1996.

### *Site 1. September 2001 (pre-treatment) and 2002 (post-treatment) shared taxa*

Ephemeroptera – Five taxa were shared between the September 2001 and 2002 samples. *Baetis tricaudatus* (9) and *Stenonema meririvulatum* (28) were common in 2001 but not collected in 2002. *Stenonema pudicum* (33) was common in 2002 but not collected in 2001. Other unshared entries were rare taxa. Of rare taxa, one was collected in 2001 only while one was collected in 2002 only.

Plecoptera – Eight taxa were shared between the samples. All unshared entries were rare taxa. Of rare taxa, one was collected in 2001 and one was collected in 2002 only.

Trichoptera – Seventeen taxa were shared between the samples. All unshared entries were rare or uncommon taxa; of these, 4 were collected in 2001 only and 2 were

Table 27. EPT and non-EPT taxa and specimens collected at site 1 in September 1996, 2001, and 2002.

| Sampling date  | 7 Sep 1996 |           | 22 Sep 2001 |           | 30 Sep 2002 |           |
|----------------|------------|-----------|-------------|-----------|-------------|-----------|
|                | Taxa       | Specimens | Taxa        | Specimens | Taxa        | Specimens |
| Ephemeroptera  | 3          | 13        | 7           | 84        | 9           | 89        |
| Plecoptera     | 7          | 42        | 9           | 89        | 9           | 71        |
| Trichoptera    | 15         | 124       | 19          | 132       | 21          | 232       |
| Total EPT      | 25         | 179       | 35          | 305       | 39          | 392       |
| Non-EPT        | 12         | 55        | 14          | 44        | 15          | 62        |
| Total          | 37         | 234       | 49          | 349       | 54          | 454       |
| EPT Percentage | 67.6       | 76.5      | 71.4        | 87.4      | 72.2        | 85.8      |
| No. per hour   | 8.2        | 52.0      | 8.2         | 58.2      | 13.5        | 114.2     |
| Hours effort   | 4.5        |           | 6           |           | 4.0         |           |
| Collectors     | 3          |           | 2           |           | 2           |           |

collected in 2002 only.

Non-EPT – Twelve taxa were shared between the samples. All unshared entries were rare or uncommon taxa; of these, 3 were collected in 2001 only and 2 were collected in 2002 only.

Summary – Only 2 taxa common in 2001 were not collected in 2002, while one taxon common in 2002 was not collected in 2001.

#### *Site 2. (Treatment)*

Table 28 shows the number of EPT and non-EPT taxa collected at site 2 in September 1996 and 2001 (pre-treatment) and 2002 (post-treatment). Specific taxa are listed in Table A3.

#### *Site 2. September 1996 (pre-treatment) and 2002 (post-treatment) shared taxa*

Ephemeroptera – Four taxa were shared between samples. *Drunella tuberculata* (15) and *Heptagenia* sp. (6) were common in 1996 but not collected in 2002. *Ephemerella* sp. (7 early instars), *Leucrocuta juno/maculipennis* (11) and *L. thetis* (22) were common in 2002 but not collected in 1996. Of rare taxa, 2 were taken in 1996 only and 3 were taken in 2002 only.

Plecoptera – Three taxa were shared between samples. *Isoperla similis* (14) was common in 2002 but not collected in 1996. *Alloperla* sp. (4) and *Perlesta* sp. cf. *frisoni* (1) were the only other non-shared taxa collected in 1996. *Sweltsa* sp. (2), *Acroneuria abnormis*

Table 28. EPT and non-EPT taxa and specimens collected at site 2 in September 1996, 2001, and 2002.

| Sampling date  | 7 Sep 1996 |           | 22 Sep 2001 |           | 30 Sep 2002 |           |
|----------------|------------|-----------|-------------|-----------|-------------|-----------|
|                | Taxa       | Specimens | Taxa        | Specimens | Taxa        | Specimens |
| Ephemeroptera  | 6          | 65        | 10          | 115       | 8           | 68        |
| Plecoptera     | 5          | 115       | 7           | 45        | 10          | 42        |
| Trichoptera    | 22         | 179       | 17          | 129       | 12          | 62        |
| Total EPT      | 33         | 359       | 34          | 289       | 30          | 172       |
| Non-EPT        | 11         | 57        | 14          | 44        | 11          | 54        |
| Total          | 44         | 416       | 48          | 333       | 41          | 226       |
| EPT Percentage | 75.0       | 86.3      | 70.1        | 86.8      | 73.2        | 76.1      |
| No. per hour   | 9.8        | 92.4      | 12.0        | 83.2      | 7.3         | 37.7      |
| Hours effort   | 4.5        |           | 6.0         |           | 6.0         |           |
| Collectors     | 3          |           | 3           |           | 2           |           |

(3), and *Eccoptyura xanthenes* (3), were collected in 2002 but were not collected from the 1996 sample.

Trichoptera – Eleven taxa were shared between samples. *Dolophilodes distinctus* (28) was common in 1996 but not collected in 2002. *Nyctiophylax* sp. (3) was collected in 2002 but was not collected in 1996. Of rare taxa, 2 were collected in 1996 only and 3 were collected in 2002 only. *Parapsyche cardis* (40) and *Ceratopsyche macleodi* (64) were collected in large numbers in 1996 but were uncommon in 2002, with 4 and 5 specimens respectively, in 2002. *Diplectrona modesta* was represented by 5 specimens in 1996 and 72 specimens in 2002.

Non-EPT – Seven taxa were shared between samples. *Dicranota* (7) was common in 1996 but not collected in 2002. *Placobdella* (5) was taken in 2002 but not in 1996. Of rare taxa, 3 were taken in 1996 only and 3 were taken in 2002 only.

Summary – Ephemeroptera and Plecoptera faunas were comparable in 2001 and 2002. The Trichoptera fauna was about even as well, with the exception of the loss of *Dolophilodes distinctus*. No philopotamid caddisflies have been collected at this site since September of 2001. It is the only site at which the loss of philopotamids has persisted. They have since been found at site 1, which is a control site upstream, since the fall of 2001; as yet, they have not repopulated site 2. It is likely they will. They have also been collected in post-treatment samples at sites 3 and 4, in Starkey Creek; site 5, unnamed tributary to Sams Creek; site 6, Churn Hollow; site 7, third crossing; site 8, Thunderhead Prong above Sams Creek; and site 9, Thunderhead Prong below Sams Creek. See Table 36 for details.

### Site 2. September 2001 (pre-treatment) and 2002 (post-treatment) shared taxa

Ephemeroptera – Six taxa were shared between the samples. *Leucrocuta juno/maculipennis* (11) was common in 2002 but not collected in 2001. Other unshared entries were rare or uncommon taxa; of these, 2 were collected in 2001 only and 3 were collected in 2002 only.

Plecoptera- Four taxa were shared between the samples. *Isoperla similis* (14) was common in 2002 but was not collected in 2001. Other unshared entries were rare or uncommon taxa; of these, 5 were collected in 2001 only and 2 were collected in 2002 only.

Trichoptera – Nine taxa were shared between the samples. *Rhyacophila* sp 1. (9) was common in 2001 but not collected in 2002. *Psilotreta frontalis* (7) was common in 2002 but not collected in 2001. Other unshared entries were rare or uncommon taxa; of these, 6 were collected in 2001 only and 7 were collected in 2002 only.

Non-EPT – Ten taxa were shared between the samples. All unshared entries were rare taxa; of these, one was collected in 2001 only and 4 were collected in 2002 only.

Summary – Only one taxon common in 2001 was not collected in 2002.

### Site 3. (Control)

Table 29 shows the number of EPT and non-EPT taxa collected at site 3 in September 1996, 2002, and 2002. Specific taxa are shown in Table A4.

### Site 3. September 1996 (pre-treatment) and 2002 (post-treatment) shared taxa

Ephemeroptera – Five taxa were shared between samples. *Drunella tuberculata* (10) and *Stenonema meririvulanum* (14) were common in 1996 but not collected in 2002. *Stenonema pudicum* (28) was common in 2002 but not collected in 1996. Of rare taxa, 2 were collected in 1996 only and none was collected only in 2002.

Plecoptera – Three taxa were shared between samples. *Malirekus hastatus* (12) was common in 1996 but not collected in 2002. *Tallaperla* sp. (13) was common in 2002 but not collected in 1996. Of rare taxa, 4 were taken in 1996 only and 2 were taken in 2002 only.

Trichoptera – Fifteen taxa were shared between samples. *Ceratopsyche macleodi* (18) was common in 1996 but not collected in 2002. All taxa that were common in 2002 were collected in 1996. Of rare taxa, 3 were collected in 1996 only and 2 were collected in 2002 only. *Rhyacophila carolina* (4) was collected in 1996 only while *Neophylax ornatus* (4) was collected in 2002 only.



Table 29. EPT and non-EPT taxa and specimens collected at site 3 in September 1996, 2001, and 2002.

| Sampling date  | Sep 1996 |           | 22 Sep 2001 |           | 30 Sep 2002 |           |
|----------------|----------|-----------|-------------|-----------|-------------|-----------|
|                | Taxa     | Specimens | Taxa        | Specimens | Taxa        | Specimens |
| Ephemeroptera  | 8        | 56        | 6           | 62        | 7           | 36        |
| Plecoptera     | 11       | 105       | 6           | 33        | 5           | 25        |
| Trichoptera    | 20       | 106       | 18          | 67        | 20          | 91        |
| Total EPT      | 39       | 267       | 30          | 162       | 32          | 153       |
| Non-EPT        | 15       | 75        | 8           | 26        | 9           | 26        |
| Total          | 54       | 342       | 38          | 188       | 41          | 179       |
| EPT Percentage | 72.2     | 78.1      | 81.6        | 86.2      | 78.0        | 85.5      |
| No. per hour   | 12       | 76.0      | 9.7         | 47.0      | 10.2.       | 44.7      |
| Hours effort   | 4.5      |           | 4.0         |           | 4.0         |           |
| Collectors     | 3        |           | 2           |           | 2           |           |

Non-EPT – Six taxa were shared between samples. Simuliidae (5) and *Dicranota* sp. (3) were collected in 1996 only. Seven rare taxa were collected in 1996 only. No rare taxa collected in 2002 were absent in 1996.

Summary – The fauna at this site was more diverse in the 1996 sample than in the 2002 sample.

*Site 3. September 2001 (pre-treatment) and 2002 (post-treatment) shared taxa*

Ephemeroptera - Three taxa were shared between the samples. *Stenonema meririvulatum* (9) was common in 2001 but was not collected in 2002. *Stenonema pudicum* (28) and *Paraleptophlebia* sp. cf. *guttata* (11) were common in 2002 but not collected in 2001.

Plecoptera – Four taxa were shared between the samples. All unshared entries were rare or uncommon taxa; of these, one was collected in 2001 only and 2 were collected in 2002 only.

Trichoptera – Sixteen taxa were shared between the samples. *Ceratopsyche macleodi* (8) was common in 2001 but was not collected in 2002. Other unshared entries were rare taxa; of these, one was collected in 2001 only and 2 were collected in 2002 only.

Non-EPT – Four taxa were shared between the samples. Other unshared entries were rare or uncommon taxa; of these, 4 were collected in 2001 only and 4 were collected in 2002 only.

Summary – Two taxa common in 2001 were not collected in 2002.



#### Site 4. (Treatment)

Table 30 shows the number of EPT and non-EPT taxa collected at site 4 in September 1996 and 2001 (pre-treatment) and 2002 (post-treatment). Specific taxa are listed in Table A5.

#### Site 4. September 1996 (pre-treatment) and 2002 (post-treatment) shared taxa

Ephemeroptera – Three taxa were shared between samples. *Baetis* sp. cf. *tricaudatus* (5) and *Drunella tuberculata* (4) were collected in 1996 but not in 2002. *Leucrocuta hebe/aphrodite* (5) was collected in 2002 only. All rare taxa collected in 1996 were collected in 2002. Three rare taxa were collected in 2002 only.

Plecoptera – Four taxa were shared between samples. *Malirekus hastatus* (17) was collected in 1996 only. *Sweltsa* sp. (6) was common in 2002 but not collected in 1996. *Isoperla similis* (3) and *Pteronarcys scotti/proteus* (1) were collected in 2002 but were not collected in 1996.

Trichoptera – Seven taxa were shared between samples. *Glossosoma nigrior* (8) was common in 1996 but was not collected in 2002. All taxa that were common in 2002 were collected in 1996. Of rare taxa, 3 were collected in 1996 only and 4 were collected in 2002 only. Five specimens of a species of *Rhyacophila* in the *invaria* group were collected in 1996. Two taxa in the *R. invaria* group were collected in 2002, *R. appalachia/nigrita* (4) and an undescribed species, *R. sp. nov. cf. nigrita* (2), so shared taxa may be more than 7. *Arctopsyche irrorata* (3) and *Molanna blenda* (3) were collected in 1996 but were not collected in 2002. *Lepidostoma* sp. (4) and *Neophylax* sp. (3 specimens, not *N. mitchelli*) were collected in 2002 only.

Non- EPT – Six taxa were shared between samples. All unshared entries were rare or uncommon taxa.

Summary – Except for *Malirekus hastatus* and *Glossosoma nigrior*, differences in the composition of the faunas between samples were accounted for by rare or uncommon taxa. It is likely that shared Trichoptera taxa are at least 8, due to the presence of members of the *R. invaria* group in both samples.

#### Site 4. September 2001 (pre-treatment) and 2002 (post-treatment) shared taxa

Ephemeroptera – Five taxa were shared between the samples. All unshared entries were rare or uncommon taxa; of these, 6 were collected in 2001 only and 3 were collected in 2002 only.

Plecoptera - Six taxa were shared between the samples. *Eccopectura xanthenes* (6) and *Malirekus hastatus* (6) were common in 2001 but not collected in 2002. Other unshared

Table 30. EPT and non-EPT taxa and specimens collected at site 4 in September 1996, 2001, and 2002.

| Sampling date  | 7 Sep 1996 |           | 22 Sep 2001 |           | 30 Sep 2002 |           |
|----------------|------------|-----------|-------------|-----------|-------------|-----------|
|                | Taxa       | Specimens | Taxa        | Specimens | Taxa        | Specimens |
| Ephemeroptera  | 6          | 25        | 11          | 124       | 10          | 51        |
| Plecoptera     | 5          | 84        | 11          | 81        | 7           | 29        |
| Trichoptera    | 17         | 125       | 20          | 182       | 15          | 114       |
| Total EPT      | 28         | 234       | 42          | 387       | 32          | 194       |
| Non-EPT        | 10         | 33        | 12          | 47        | 12          | 28        |
| Total          | 38         | 267       | 54          | 434       | 44          | 222       |
| EPT Percentage | 73.7       | 87.6      | 77.8        | 89.2      | 72.7        | 87.4      |
| No. per hour   | 8.4        | 59.3      | 9.0         | 72.3      | 9.6         | 48.3      |
| Hours effort   | 4.5        |           | 6           |           | 4.6         |           |
| Collectors     | 3          |           | 3           |           | 2           |           |

Trichoptera – Twelve taxa were shared between the samples. *Neophylax ornatus* (12) was common in 2001 but not collected in 2002. Other unshared entries were rare or uncommon taxa; of these, 6 were collected in 2001 only and 2 were collected in 2002 only.

Non-EPT – Seven taxa were shared between the samples. Unshared entries were rare or uncommon taxa; of these, 4 were collected in 2001 only and 5 were collected in 2002 only.

Summary – Three taxa common in 2001 were not collected in 2002.

#### **Site 5. (Control)**

Table 31 shows the number of EPT and non-EPT taxa collected at site 5 in September 1996, 2001, and 2002. Specific taxa are listed in Table A6.

#### **Site 5. September 2001 (pre-treatment) and 2002 (post-treatment) shared taxa**

Ephemeroptera – Two taxa were shared between the samples. Ephemerellidae sp. (6) and *Stenonema meririvulanum* (11) were common in 2001 but not collected in 2002. *Stenonema pudicum* (23) and *Paraleptophlebia* sp. cf. *guttata* (9) were common in 2002 but not collected in 2001. Other unshared entries were rare or uncommon taxa; of these, one was collected in 2001 only and 2 were collected in 2002 only.

Table 31. EPT and non-EPT taxa and specimens collected at site 5 in September 1996, 2001, and 2002.

| Sampling date  | 7 Sep 1996 |           | 22 Sep 2001 |           | 30 Sep 2002 |           |
|----------------|------------|-----------|-------------|-----------|-------------|-----------|
|                | Taxa       | Specimens | Taxa        | Specimens | Taxa        | Specimens |
| Ephemeroptera  | 9          | 42        | 6           | 35        | 6           | 66        |
| Plecoptera     | 7          | 54        | 8           | 26        | 13          | 57        |
| Trichoptera    | 16         | 133       | 12          | 59        | 10          | 85        |
| Total EPT      | 32         | 229       | 26          | 120       | 29          | 208       |
| Non-EPT        | 16         | 63        | 15          | 39        | 14          | 31        |
| Total          | 48         | 292       | 41          | 159       | 43          | 239       |
| EPT Percentage | 66.7       | 78.4      | 63.4        | 75.5      | 67.4        | 87.0      |
| No. per hour   | 10.7       | 64.9      | 9.1         | 35.3      | 11.9        | 66.4      |
| Hours effort   | 4.5        |           | 4.5         |           | 3.6         |           |
| Collectors     | 6          |           | 3           |           | 4           |           |

Trichoptera – Six taxa were shared between the samples. *Parapsyche apicalis* (16) was common in 2001 but not collected in 2002. *Parapsyche cardis* (8) was common in 2002 but not collected in 2001. Other unshared entries were rare taxa; of these, 5 were collected in 2001 only and 2 were collected in 2002 only.

Non-EPT – Seven taxa were shared between the samples. All unshared entries were rare or uncommon taxa; of these, 8 were collected in 2001 only and 7 were collected in 2002 only.

Summary – Three taxa common in 2001 were not collected in 2002, and 3 taxa common in 2002 were not collected in 2001.

#### *Site 6. (Control)*

Site 6 was not sampled in September 1996 because it was dry. Table 32 shows the number of EPT and non-EPT taxa collected at site 6 in September 2000, 2001 and October 2002. Specific taxa are listed in Table A7.

#### *Site 6. September 2001 (pre-treatment) and 2002 (post-treatment) shared taxa*

Ephemeroptera – One taxon was shared between the 2 samples. *Stenonema meririvulatum* (7) was common in 2001 but not collected in 2002. Other unshared entries were rare taxa; of these, none was collected in 2001 only and 2 were collected in 2002 only.

Table 32. EPT and non-EPT taxa collected at site 6 in September 2000, 2001, and October 2002.

| Sampling date  | 23 Sep 2000 |           | 22 Sep 2001 |           | 1 Oct 2002 |           |
|----------------|-------------|-----------|-------------|-----------|------------|-----------|
|                | Taxa        | Specimens | Taxa        | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 2           | 2         | 3           | 5         | 2          | 8         |
| Plecoptera     | 5           | 13        | 4           | 18        | 6          | 15        |
| Trichoptera    | 6           | 14        | 6           | 14        | 10         | 76        |
| Total EPT      | 13          | 29        | 13          | 37        | 18         | 99        |
| Non-EPT        | 6           | 14        | 7           | 14        | 8          | 21        |
| Total          | 19          | 43        | 20          | 51        | 26         | 120       |
| EPT Percentage | 68.4        | 67.4      | 65.0        | 72.5      | 69.2       | 82.5      |
| No. per hour   | 12.6        | 28.7      | 16.7        | 42.5      | 7.4        | 34.3      |
| Hours effort   | 1.5         |           | 1.2         |           | 2.2        |           |
| Collectors     | ?           |           | 3           |           | 2          |           |

? – missing data

Plecoptera – Two taxa were shared between the 2 samples. All unshared entries were rare taxa; of these, 4 were collected in 2001 only and 2 were collected in 2002 only.

Trichoptera – Three taxa were shared between the 2 samples. *Diplectrona metaqui* (6) and *Pycnopsyche flavata* (43) were common in 2001 but were not collected in 2002.

Other unshared entries were rare taxa; of these, 5 were collected in 2001 only and 2 were collected in 2002 only.

Non-EPT – Three taxa were shared between the samples. All unshared entries were rare or uncommon taxa; of these, 4 were collected in 2001 only and 3 were collected in 2002 only.

Summary – Three taxa common in 2001 were not collected in 2002.

#### *Site 7. (Treatment)*

Table 33 shows the number of EPT and non-EPT taxa at site 7 in September 1996 and 2001 (pre-treatment) and 2002 (post-treatment). Specific taxa are listed in Table A8.

#### *Site 7. September 1996 (pre-treatment) and 2002 (post-treatment) shared taxa*

Ephemeroptera – Five taxa were shared between samples. *Heptagenia* sp. (8) was common in 1996 but not collected in 2002. *Leucrocuta hebe/aphrodite* (18), *L. maculipennis* (7), and *L. thetis* (23), were common in 2002 but were not collected in

Table 33. EPT and non-EPT taxa and specimens collected at site 7 in September 1996, 2001, and 2002.

| Sampling date  | Sep 1996 |           | 22 Sep 2001 |           | 21 Sep 2002 |           |
|----------------|----------|-----------|-------------|-----------|-------------|-----------|
|                | Taxa     | Specimens | Taxa        | Specimens | Taxa        | Specimens |
| Ephemeroptera  | 11       | 90        | 11          | 134       | 13          | 128       |
| Plecoptera     | 11       | 99        | 11          | 120       | 6           | 75        |
| Trichoptera    | 19       | 169       | 26          | 278       | 24          | 150       |
| Total EPT      | 41       | 358       | 48          | 532       | 43          | 353       |
| Non-EPT        | 15       | 96        | 15          | 110       | 21          | 131       |
| Total          | 56       | 454       | 63          | 642       | 64          | 484       |
| EPT Percentage | 73.2     | 78.8      | 76.2        | 82.8      | 67.2        | 72.9      |
| No. per hour   | 9.3      | 75.6      | 7.9         | 80.1      | 8.8         | 67.2      |
| Hours effort   | 6.0      |           | 8.0         |           | 7.2         |           |
| Collectors     | 4        |           | 4           |           | 6           |           |

1996. Larval *Heptagenia* and *Leucrocota* are another confusing taxonomic problem so it is possible shared Ephemeroptera taxa in this sample were greater than 5. Of rare taxa, 3 were collected in 1996 only and 2 were collected in 2002 only.

Plecoptera – Six taxa were shared between samples. *Perlesta* sp. cf. *frisoni* (7) was common in 1996 but not collected in 2002. All taxa that were common in 2002 were collected in 1996.

Trichoptera – Sixteen taxa were shared between samples. *Rhyacophila carolina* (27) was collected in 1996 but was not collected in 2002. *Neophylax consimilis* (6) was collected in 2002 but was not collected in 1996. All rare taxa taken in 1996 were collected in 2002. Five rare taxa were taken in 2002 that were not collected in 1996.

Non-EPT – Nine taxa were shared between samples. *Promoresia tardella* (8) was common in 1996 but not collected in 2002. *Cambarus* sp. (7) was common in 2002 but not collected in 1996. *Bezzia/Palpomyia* (4) and *Dicranota* sp. (5) were collected in 1996 but not in 2002. *Tipula* sp. 1 (5) was collected in 2002 but not in 1996. Of rare taxa, 2 were collected in 1996 only while 6 were collected in 2002 only.

Summary – Two common Ephemeroptera taxa were lost and 4 were gained in 2002. *Eurylophella funeralis* (2) was collected in 1996 and probably in 2002, since early instar *Eurylophella* were collected in 2002. *Epeorus* sp. cf. *dispar* (7) was collected in 2002 while only early instar *Epeorus* were collected in 1996. It is likely therefore that shared Ephemeroptera taxa were 6 rather than 4. One common Plecoptera taxon was lost and none gained in 2002. Adults were the only representatives of 2 *Leuctra* taxa in 1996; there were also 17 *Leuctra* larvae collected that year. In 2002 only larvae of *Leuctra* were

collected, so it is likely that shared Plecoptera taxa were as high as 8. One common Trichoptera taxon was lost and one was gained in 2002. Except for one uncommon taxon, rare taxa made up the other differences in the Trichoptera fauna. One specimen of *Dolophilodes distinctus* was collected in 2002 while 7 were collected in 1996. Two additional collectors and an additional hour of effort were expended in 2002. The 2002 sample was also conducted on 21 September while the 1996 sample was taken on 8 September. Despite these differences, the 2 faunas are quite similar, with the exception of some possible replacement in the Ephemeroptera.

*Site 7. September 2001 (pre-treatment) and 2002 (post-treatment) shared taxa*

Ephemeroptera – Five taxa were shared between the 2 samples. *Leucrocuta* sp. cf. *thetis* (30) and *Paraleptophlebia* sp. cf. *guttata* (12) were common in 2001 but not collected in 2002. *Leucrocuta hebe/aphrodite* (18), *L. maculipennis* (7), and *L. thetis* (23) were common in 2002 but not collected in 2001. Other unshared entries were rare or uncommon taxa; of these, 3 were collected in 2001 only and 4 were collected in 2002 only.

Plecoptera – Six taxa were shared between the 2 samples. All unshared entries were rare or uncommon taxa; of these, all were collected in 2001 only.

Trichoptera – Twenty taxa were shared between the 2 samples. *Neophylax consimilis* (6) was common in 2002 but not collected in 2001. Other unshared entries were rare or uncommon taxa; of these, 5 were collected in 2001 only and 4 were collected in 2002 only.

Non-EPT – Twelve taxa were shared between the samples. *Promoresia tardella* (6) was common in 2001 but not collected in 2002. Other unshared entries were rare or uncommon taxa; of these, 2 were collected in 2001 only and 8 were collected in 2002 only.

Summary – Three taxa common in 2001 were not collected in 2002, and 4 taxa common in 2002 were not collected in 2001.

*Site 8. (Control)*

Table 34 shows the number of EPT and non-EPT taxa collected at site 8 in September 1996, 2001, and 2002. Specific taxa are listed in Table A9.

*Site 8. September 1996 (pre-treatment) and 2002 (post-treatment) shared taxa*

Ephemeroptera – Nine taxa were shared between samples. All unshared entries were rare or uncommon taxa; of these, 4 were collected in 1996 only and 3 were collected in 2002 only.

Table 34. EPT and non-EPT taxa and specimens collected at site 8 in September 1996, 2001, and 2002.

| Sampling date  | 8 Sep 1996 |           | 22 Sep 2001 |           | 1 Oct 2002 |           |
|----------------|------------|-----------|-------------|-----------|------------|-----------|
|                | Taxa       | Specimens | Taxa        | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 13         | 97        | 13          | 129       | 12         | 124       |
| Plecoptera     | 10         | 121       | 8           | 72        | 8          | 73        |
| Trichoptera    | 20         | 120       | 21          | 182       | 19         | 128       |
| Total EPT      | 43         | 338       | 42          | 383       | 39         | 325       |
| Non-EPT        | 17         | 97        | 13          | 68        | 16         | 87        |
| Total          | 60         | 435       | 55          | 451       | 55         | 412       |
| EPT Percentage | 71.7       | 77.7      | 76.4        | 84.9      | 70.9       | 78.9      |
| No. per hour   | 10.0       | 72.5      | 9.2         | 75.2      | 11.6       | 86.7      |
| Hours effort   | 6.0        |           | 6.0         |           | 4.7        |           |
| Collectors     | 4          |           | 3           |           | 4          |           |

Plecoptera – Seven taxa were shared between samples. *Isoperla holochlora* (56) was common in 1996 but not collected in 2002. Other unshared entries were rare taxa; of these, 3 were collected in 1996 only and one was collected in 2002 only.

Trichoptera – Fourteen taxa were shared between samples. *Rhyacophila carolina* (14) was common in 1996 but was not collected in 2002. *Parapsyche cardis* (8), *Goera fuscula*, and *Rhyacophila* sp. (10) were common in 2002 but not collected in 1996. Other unshared entries were rare or uncommon taxa; of these, 3 were collected in 1996 only and one was collected in 2002 only.

Non-EPT – Ten taxa were shared between samples. *Dicranota* (9) was common in 1996 but not collected in 2002. *Placobdella* sp. (15) was common in 2002 but was not collected in 1996. Other unshared entries were rare or uncommon taxa; of these, 6 were collected in 1996 only and 3 were collected in 2002 only.

Summary – Three taxa common in 1996 were not collected in 2002, and 3 taxa common in 2002 were not collected in 1996. One common Ephemeroptera taxon was lost and one was gained in 2002. The rest of the difference in the non-rare Ephemeroptera was made up of taxa represented by 4 or fewer specimens. One common plecopteran was lost and none was gained in 2002. Two adult female *Leuctra* sp. were collected in 2002 so it is possible shared Plecoptera taxa were 7. One common Trichoptera taxon was lost and 2 were gained in 2002. Although the same number of people worked at this site in 1996 and 2002, they were not the same people each time, so some of the differences in the 2 samples may have resulted from different search images. In addition, the 2002 sample was collected on 1 October while the 1996 sample was collected on 8 September, which surely accounts for some of the differences in the 2 samples. The 2 samples are similar,

even with different collectors, fewer hours of effort and a much later sample date in 2002.

*Site 8. September 2001 (pre-treatment) and 2002 (post-treatment) shared taxa*

Ephemeroptera – Nine taxa were shared between the 2 samples. All unshared entries were rare or uncommon taxa; of these, 3 were collected in 2001 only and one was collected in 2002 only.

Plecoptera – Six taxa were shared between the 2 samples. All unshared entries were rare or uncommon taxa; of these, 2 were collected in 2001 only and 2 were collected in 2002 only.

Trichoptera – Sixteen taxa were shared between the 2 samples. All unshared entries were rare or uncommon taxa; of these, 7 were collected in 2001 only and 2 were collected in 2002 only.

Non-EPT – Eleven taxa were shared between the samples. *Placobdella* (15) was common in 2002 but was not collected in 2001. All unshared entries were rare taxa; of these, 2 were collected in 2001 only and 4 were collected in 2002 only.

Summary – All taxa common in 2001 were collected in 2002.

*Site 9. (potassium permanganate)*

Table 35 shows the number of EPT and non-EPT taxa collected at site 9 in September 1996 and 2001 (pre-treatment) and October 2002 (post-treatment). Specific taxa are listed in Table A10.

*Site 9. September 1996 (pre-treatment) and 2002 (post-treatment) shared taxa*

Ephemeroptera – Seven taxa were shared between samples. *Acentrella* sp. (9), *Baetis* sp. cf. *flavistriga* (6), and *Drunella tuberculata* (8) were common in 1996 but not collected in 2002. Other unshared entries were rare or uncommon taxa; of these, 3 were collected in 1996 only and 5 were collected in 2002 only.

Plecoptera – Seven taxa were shared between samples. *Malirekus hastatus* (9) was common in 1996 but not collected in 2002. All taxa that were common in 2002 were collected in 1996. Other unshared entries were rare taxa; of these, 5 were collected in 1996 only and none was collected in 2002 only.

Trichoptera – Eighteen taxa were shared between samples. All unshared entries were rare or uncommon taxa; of these, 6 were collected in 1996 only and 4 were collected in 2002 only.

Non-EPT – Thirteen taxa were shared between samples. *Promoresia tardella* (11) was



Table 35. EPT and non-EPT taxa and specimens collected at site 9 in September 1996, 2001, and October 2002.

| Sampling date  | 8 Sep 1996 |           | Sep 2001 |           | 1 Oct 2002 |           |
|----------------|------------|-----------|----------|-----------|------------|-----------|
|                | Taxa       | Specimens | Taxa     | Specimens | Taxa       | Specimens |
| Ephemeroptera  | 13         | 82        | 15       | 115       | 14         | 99        |
| Plecoptera     | 13         | 80        | 10       | 75        | 8          | 35        |
| Trichoptera    | 24         | 123       | 19       | 137       | 23         | 180       |
| Total EPT      | 50         | 285       | 44       | 327       | 45         | 314       |
| Non-EPT        | 17         | 101       | 17       | 91        | 20         | 87        |
| Total          | 67         | 386       | 61       | 418       | 65         | 401       |
| EPT Percentage | 74.6       | 73.8      | 72.1     | 78.2      | 69.2       | 78.3      |
| No. per hour   | 9.6        | 55.1      | 7.6      | 52.2      | 8.5        | 52.7      |
| Hours effort   | 7.0        |           | 8.0      |           | 7.6        |           |
| Collectors     | 6          |           | 7        |           | 4          |           |

common in 1996 but not collected in 2002. The remaining unshared entries were rare or uncommon taxa.

Summary – Five taxa common in 1996 were not collected in 2002. Three Ephemeroptera common in 1996 were not collected in 2002. Three Ephemeroptera uncommon in 1996 were not collected on 2002 and 3 uncommon in 2002 were not collected in 1996. One mayfly new for this site was taken in 2002. Total Ephemeroptera taxa and specimens were greater in 2002 than in 1996. The Ephemeroptera fauna at this site seems to have recovered from being virtually eliminated by potassium permanganate in the fall of 2001.

The Plecoptera fauna was virtually identical, the main difference being the absence of *Malirekus hastatus* in 2002. *Tallaperla*, which was also virtually eliminated by potassium permanganate in 2001, was represented by 3 specimens in 2002. Although this is suggestive of a less robust recovery than in the Ephemeroptera, *Tallaperla* sp. was common in the February and June 2002 samples at this site so it has probably recovered as well.

The Trichoptera fauna was virtually identical between the samples. No taxa common in 1996 were lost in 2002. One *Wormaldia moesta* and 5 *Dolophilodes distinctus* were collected in 1996. No *W. moesta*, 5 *D. distinctus*, and one *Chimarra* sp., a new philopotamid for this site, were collected in 2002.

Overall, the similarity between the 2 samples is remarkable, especially considering the insult delivered to this site from the potassium permanganate in 2001.

*Site 9. September 2001 (pre-treatment) and 2002 (post-treatment) shared taxa*

Ephemeroptera – Ten taxa were shared between the 2 samples. All unshared entries were rare or uncommon taxa; of these, 5 were collected in 2001 only and 3 were collected in 2002 only.

Plecoptera – Six taxa were shared between the 2 samples. All unshared entries were rare taxa; of these, 3 were collected in 2001 only and one was collected in 2002 only.

Trichoptera – Fourteen taxa were shared between the 2 samples. *Molanna blenda* (8) was common in 2002 but not collected in 2001. Other unshared entries were rare or uncommon taxa; of these, 4 were collected in 2001 only and 6 were collected in 2002 only.

Non-EPT – Fourteen taxa were shared between the samples. *Dixa* sp. (7) was common in 2001 but was not collected in 2002. The chironomid tribe Tanytarsini (9) was common in 2002 but was not collected in 2001. Other unshared entries were rare or uncommon taxa; of these, 2 were collected in 2001 only and 5 were collected in 2002 only.

Summary – One taxon common in 2001, the dipteran *Dixa* sp., was not collected in 2002.

## VI. Discussion

### Immediate post-treatment effects (October 2001)

Figures 10-13 show the total taxa, total specimens, EPT taxa, and EPT specimens, respectively, collected at sites 1-9 before (September 2001) and after (October 2001) treatment. Note that at the 4 treatment sites all 4 metrics decreased except for total taxa at site 2. There is no apparent pattern associated with metrics at the control sites.

#### *Treatment sites*

Some changes in the fauna at the treatment sites were evident in the post-treatment samples taken in October 2001 (Figures 10-13). Taxa richness (total taxa) declined by 18-25% at the 3 antimycin treatment sites. Abundance (total specimens) declined by 12.7-64.2%. In general, there was a reduction in numbers of specimens and taxa in the post-treatment samples at sites 4 and 7. EPT taxa declined by 20% at site 4 and EPT specimens declined by 63.2%. Total taxa at site 4 declined 25% and total specimens declined by 64.2%. Total EPT taxa increased by 11.1% at site 7 but total EPT specimens declined by 30.3%. Total taxa declined 18% at site 7 while total specimens declined by 58%. Specific taxa responsible for these changes are discussed under the individual site results.

With the exception of mayflies, site 2 did not experience the reductions seen at sites 4 and 7. At site 2, mayfly specimens declined by 63%. With the exception of *Leuctra* sp., the reduction in Plecoptera taxa at site 2 is based on taxa represented by a single specimen, and Plecoptera and Trichoptera taxa are not considered as being different for the 2 samples. At site 4, reduction in taxa and specimens was much greater than at the comparable site 2.

Potassium permanganate was applied at a site above the mouth of Sams Creek daily during the course of the antimycin treatment. This strong oxidizer is undoubtedly responsible for the almost total lack of mayflies and *Tallaperla* sp. at site 9. At site 9, which was downstream of the potassium permanganate drip station, there was only one mayfly specimen and one *Tallaperla* sp. specimen in the post-treatment sample compared to 100 mayfly specimens and 17 *Tallaperla* sp. in the pre-treatment sample. Four months later, in February 2002, the sample from site 9 contained 275 mayfly specimens in 14 taxa and 11 *Tallaperla* sp. specimens. This indicates the mayfly and peltoperlid faunas at this site have recovered.

Midges (Diptera: Chironomidae) at site 9 also were apparently affected by the potassium permanganate, with taxa not changing noticeably, but number of specimens declining from 37 to 18. Midge numbers also declined considerably at the antimycin sites, dropping by 61.9% at site 2, 76.4% at site 4, and 34% at site 7. Minckley and Mihalick (1981) also observed a decline in midge numbers following antimycin treatment.

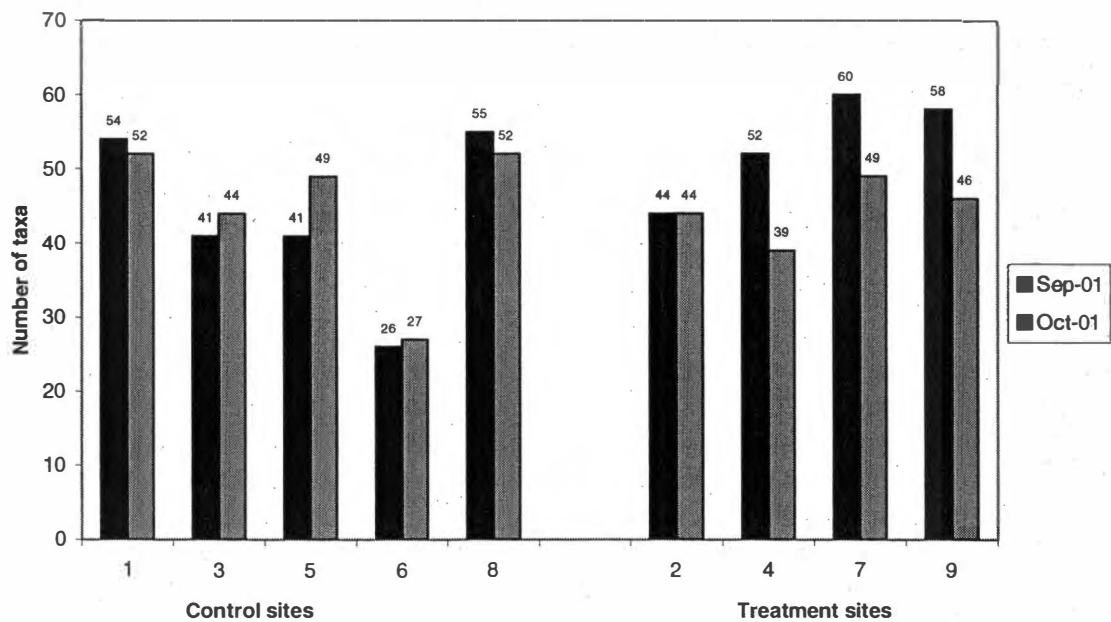


Figure 10. Total taxa collected at control sites (1, 3, 5, 6, 8) and treatment sites (2, 4, 7, 9) before (September 2001) and after (October 2001) treatment.

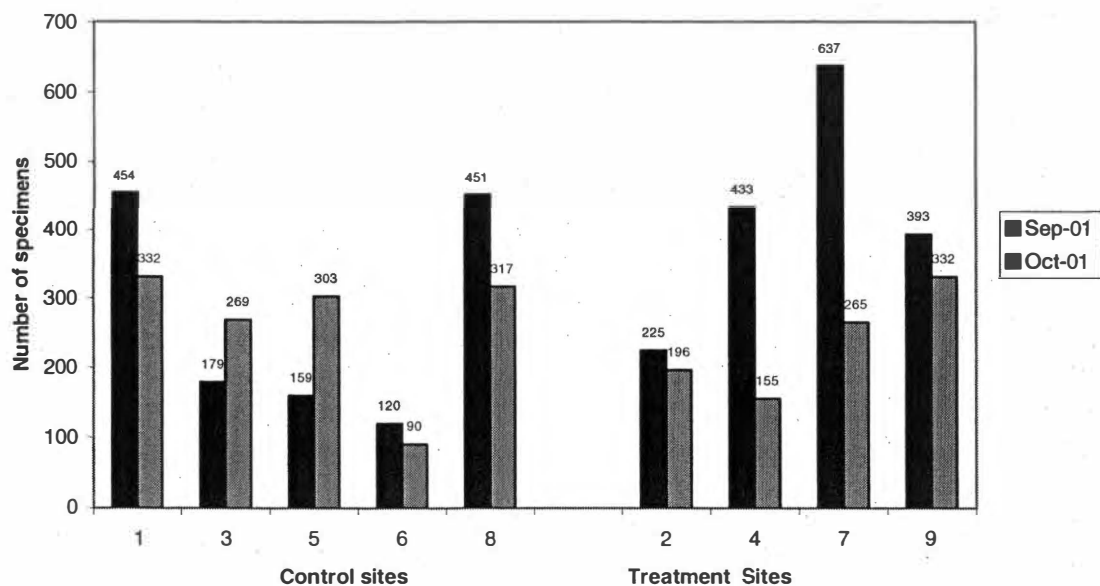


Figure 11. Total specimens collected at control sites (1,3, 5, 6, 8) and treatment sites (2, 4, 7, 9) before (September 2001) and after (October 2001).

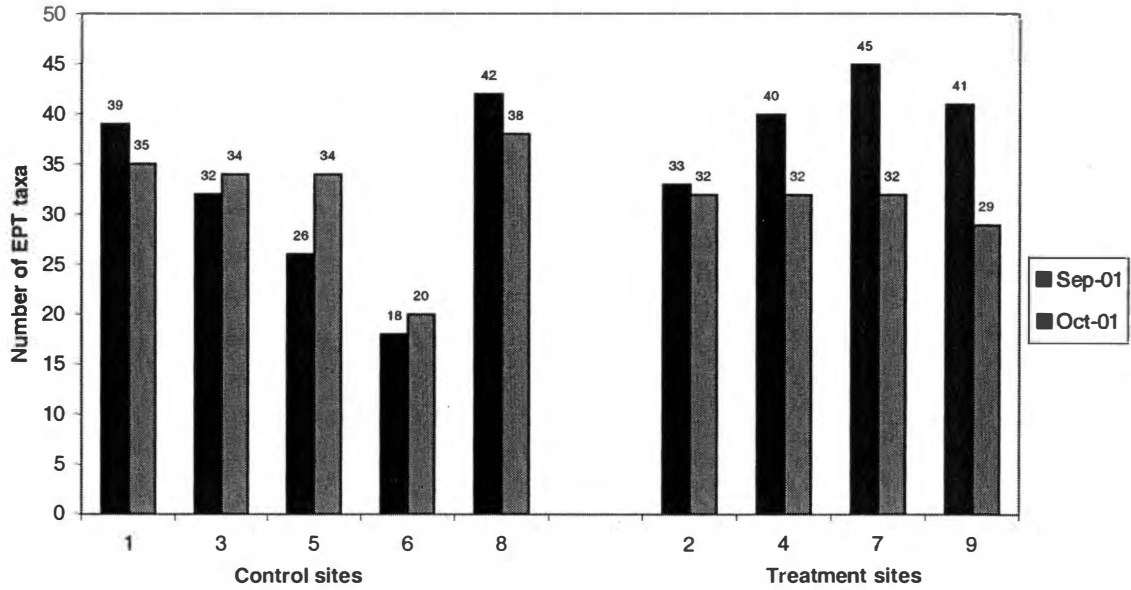


Figure 12. EPT taxa collected at control sites (1,3, 5, 6, 8) and treatment sites (2, 4, 7, 9) before (September 2001) and after (October 2001) treatment.

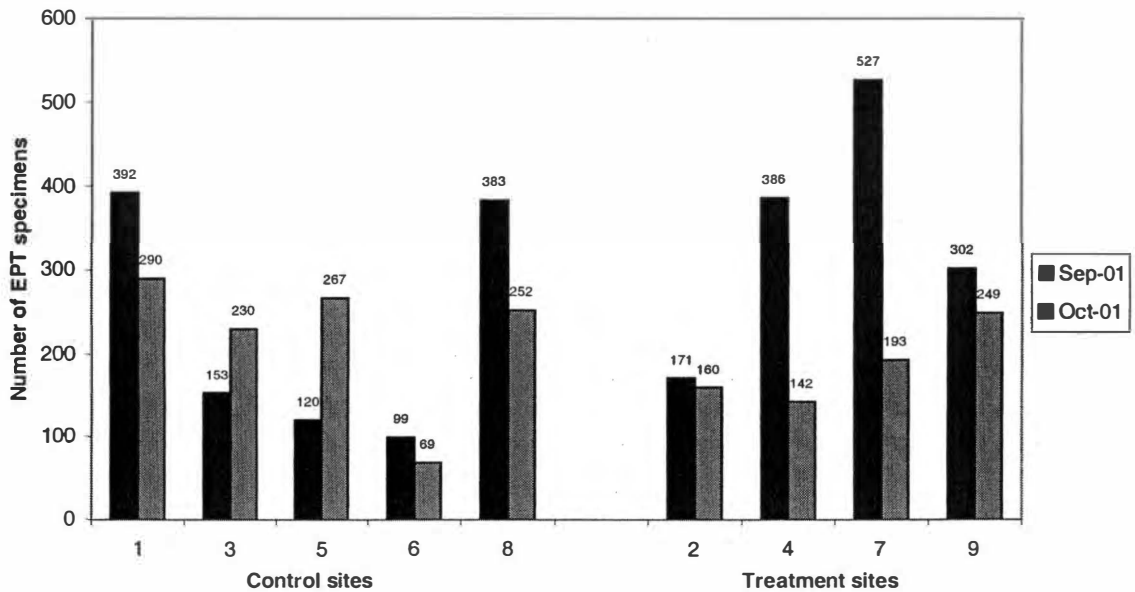


Figure 13. EPT specimens collected at control sites (1,3, 5, 6, 8) and treatment sites (2, 4, 7, 9) before (September 2001) and after (October 2001) treatment.

No philopotamid caddisflies (*Dolophilodes distinctus*, *Wormaldia*) were collected in any post-treatment sample at site 2 (Table 36). The absence at site 2 of philopotamids, together with their sporadic collection at the other 2 antimycin sites since treatment, suggests this caddisfly family may be sensitive to antimycin. Although they were collected at site 1, the control site upstream of site 2, they had not yet repopulated site 2 by September 2002. Philopotamids do not appear to have been affected by the potassium permanganate at site 9.

### ***Control sites***

The control stations showed considerable variation between the 22 September 2001 samples and the early October 2001 samples (Figures 10-13). The change in EPT taxa at the control sites ranged from a decline of 10.2 % at site 1 to an increase of 30.8% at site 5. The change in total EPT specimens ranged from a decline of 30.3% at site 6 to an increase of 122.5% at site 5. The change in total taxa numbers ranged from a decline of 5.4% at site 8 to an increase of 19.5% at site 5. The change in total specimens ranged from a decline of 29.7% at site 8 to an increase of 90.5% at site 5.

With the exception of site 9, downstream of the potassium permanganate treatment, these changes seem likely to be caused by a combination of factors. The time of year when leaves of deciduous trees fall and enter the creek is an important event for benthos. Even in a 2-week period, taxa that were too small to detect during an earlier sample might be common 2 weeks later. In contrast, some Trichoptera (*Pycnopsyche*, *Neophylax*) and Plecoptera (*Leuctra*) that emerge in fall might be collected as pupae or mature larvae in the early sample, and all might have emerged by the next sample date. Trichoptera can usually be detected by the presence of recently abandoned cases. The net result from fall collections should be more taxa and specimens on the later date, as rapidly growing early larvae "recruited" into the visible benthos have a greater contribution than those lost to the community by emergence. More taxa were collected at control sites 3, 5, and 6. Declines in total taxa at control sites 1 and 8 were slight, 3.7% and 5.4%, respectively, while EPT taxa declined at sites 1 and 8 by 10.2% and 9.5%, respectively.

In the 2 seeps (sites 5 and 6), however, the area available for sampling is so small, that the benthos could actually be depleted during the first sample. This does not appear to have occurred however, since total taxa collected increased by 12 in the fall 2001 post-treatment sample at site 5 and stayed about the same at site 6.

### **Effects after one year**

The total number of taxa, total number of specimens, total number of EPT taxa, and total number of EPT specimens, respectively, collected at sites 1-9 in the fall of 1996 and

Table 36. Presence/absence of philopotamid caddisflies at sites 1-9, fall 1996, 2000-02, February 1997, 2001-02, and June 1996 and 2002.

|                 | Jun<br>'96 | Sep<br>'96 | Feb<br>'97 | Sep<br>'00 | Oct/<br>Nov<br>'00 | Feb<br>'01 | Sep<br>'01 | Oct<br>'01 | Feb<br>'02 | Jun<br>'02 | Sep/<br>Oct<br>'02 |
|-----------------|------------|------------|------------|------------|--------------------|------------|------------|------------|------------|------------|--------------------|
| Control sites   |            |            |            |            |                    |            |            |            |            |            |                    |
| 1               | +          | +          | +          | +          | -                  | -          | +          | +          | +          | +          | +                  |
| 3               | +          | +          | +          | +          | n/s                | n/s        | +          | +          | +          | +          | +                  |
| 5               | +          | +          | +          | +          | n/s                | n/s        | +          | +          | -          | +          | +                  |
| 6               | +          | -          | +          | -          | n/s                | n/s        | -          | -          | +          | +          | -                  |
| 8               | +          | +          | +          | +          | n/s                | n/s        | +          | -          | +          | +          | +                  |
| Treatment sites |            |            |            |            |                    |            |            |            |            |            |                    |
| 2               | +          | +          | +          | +          | +                  | -          | +          | -          | -          | -          | -                  |
| 4               | +          | +          | +          | +          | n/s                | n/s        | +          | -          | +          | -          | +                  |
| 7               | +          | +          | +          | -          | +                  | +          | +          | +          | +          | -          | +                  |
| 9               | +          | +          | +          | +          | n/s                | n/s        | -          | +          | +          | +          | +                  |

+ collected

- not collected

n/s not sampled

2000-2002 are shown in Figures 14-17.

A comparison of the September 2001 pre-treatment and September/October 2002 post-treatment samples shows that total taxa and EPT taxa increased at all the control sites and decreased at all treatment sites except site 9 (Figures 14 and 16). The decrease in EPT taxa at treatment sites ranged from 23.8% at site 4 to 10.4% at site 7. There was a slight increase at site 9 (2.2%). Total taxa increased or were unchanged at all 5 control sites. The change at the treatment sites ranged from a decline of 18.5% at site 4 to an increase of 6.6% at site 9.

Treatment sites 2 and 9 both lost one common taxon from September 2001 to 2002. Control sites 1 and 3 lost 2 common taxa in that period and sites 5 and 6 lost 3. All taxa common in September 2002 were collected in October 2002 at control site 8. Treatment sites 4 and 7 lost 3 common taxa from 2001 to 2002.

### **Changes between 1996/97 and 2002**

Changes in taxa in the February 1997 and 2002 samples (Figures 2-5) and the June 1996 and 2002 samples (Figures 6-10) were similar for treatment and control sites, indicating that diversity and abundance was unchanged in these samples. Total taxa and total EPT

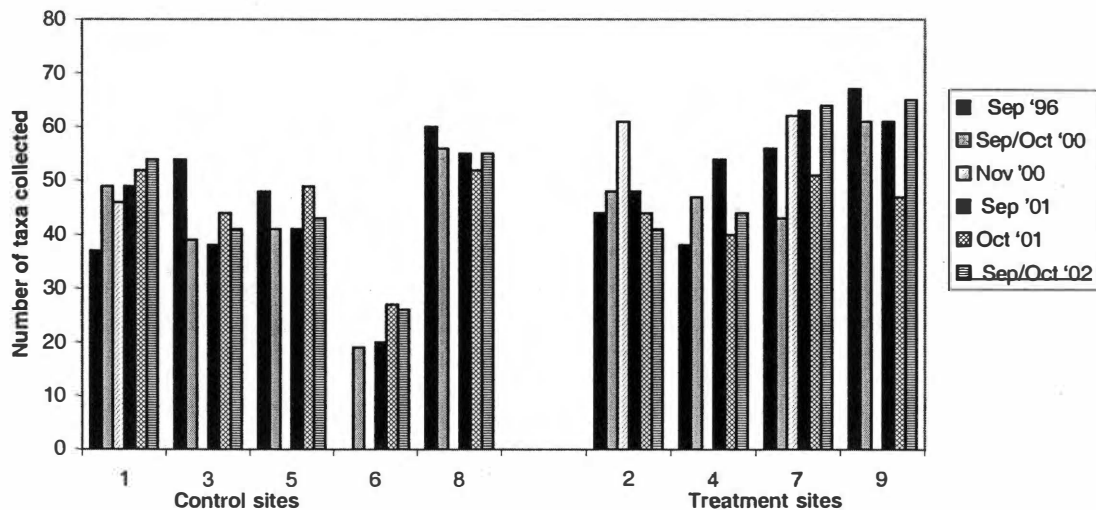


Figure 14. Total taxa collected at control sites (1, 3, 5, 6, 8) and treatment sites (2, 4, 7, 9) fall 1996, 2000-2002. Only sites 1, 2, and 7 were sampled in November 2000.

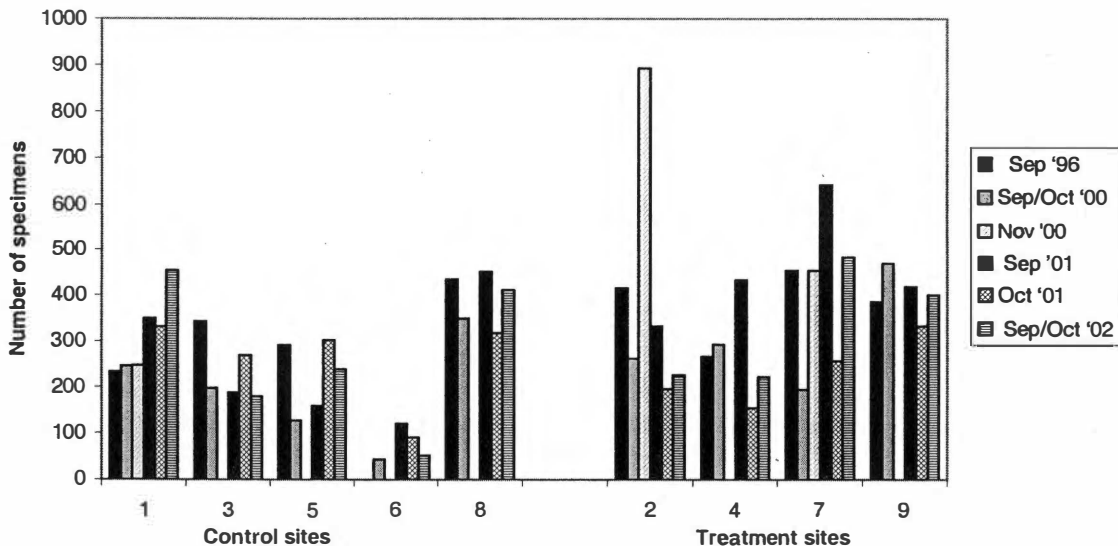


Figure 15. Total specimens collected at control sites (1, 3, 5, 6, 8) and treatment sites (2, 4, 7, 9) fall 1996, 2000-2002. Only sites 1, 2, and 7 were sampled in November 2000.



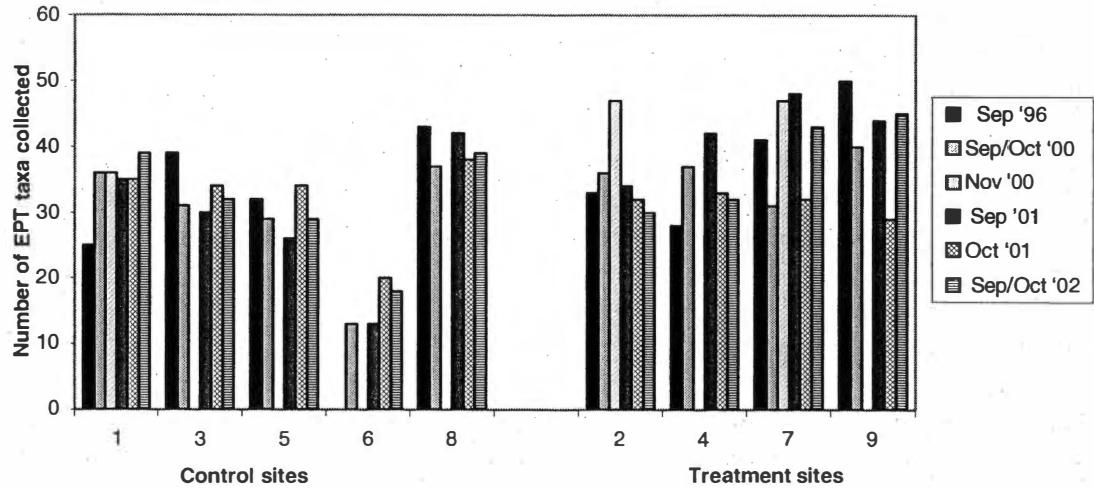


Figure 16. EPT taxa collected at control sites (1, 3, 5, 6, 8) and treatment sites (2, 4, 7, 9) fall 1996, 2000-2002. Only sites 1, 2, and 7 were sampled in November 2000.

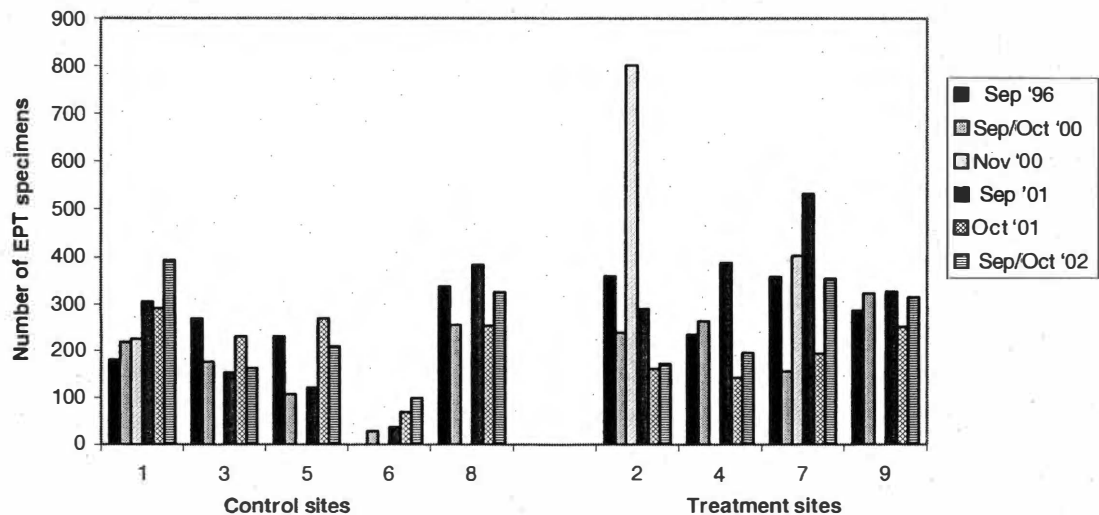


Figure 17. EPT specimens collected at control sites (1, 3, 5, 6, 8) and treatment sites (2, 4, 7, 9) fall 1996, 2000-2002. Only sites 1, 2, and 7 were sampled in November 2000.

taxa increased or decreased only slightly at control and treatment sites between September 1996 and 2002 samples (Figures 14 and 16).

In general, over all 9 sites in this study, differences between benthic invertebrate faunas between 1996-97 and 2002 are slight and similarities striking. Some actual differences are surprising, e.g., the abundance of *Drunella longicornis* at site 2 in 2002 and its absence in 1996, and the immediate post-treatment loss of mayflies and peltoperlids at site 9. As expected, rare taxa were often collected in only one of 2 sampling periods compared and often accounted for most of the differences in unshared taxa between samples.

### **Sample variability**

Variability in control and treatment sites occurs in part because this is a variable system. Stochastic dispersal events in small aquatic systems can result in annual oviposition by many, several, or no females in any given year; variation in the timing of oviposition by different species relative to large perturbations such as flooding or drought can affect the composition of a sample. Additionally, inherent differences in collectors' search images, field expertise, and habitat/taxonomic bias can contribute to sample variation from year to year. Quality and availability of guides to larval aquatic insects have improved over the years, and this can contribute to apparent sample variability, especially when comparing the 1996/97 samples to the 2002 samples.

The strongest evidence that treatment affected the communities comes from the immediate post-treatment samples (Figures 10-13). Although there is some evidence from the February sample of a continued depression in numbers, the subsequent samples (June and September) showed that the communities had recovered from the treatment. In samples taken at the treatment sites immediately after treatment, i.e. in October 2001, there were, with a single exception, consistent declines (Figures 10-13) in all 4 metrics used to determine effects (number of taxa, number of specimens, number of EPT taxa and number of EPT specimens). The exception was site 2, where the total number of taxa remained the same. The control sites did not exhibit this consistent decline. Some sites had greater numbers of taxa and specimens after the treatment dates and some had fewer (Figures 10-13). Given that all metrics declined at all treatment sites (with the exception of one parameter at one site) and they did not consistently decline at the control sites, it is felt the declines at the treatment sites in October 2001 are real.

The declines at the antimycin treatment sites continued into February 2002, with all 4 metrics (total taxa, total specimens, EPT taxa, and EPT specimens) lower than 1997, again with a single exception (Figures 2-5). The exception was site 7, where EPT specimens increased by 2 (235 to 237). At site 9, the potassium permanganate site, all 4 metrics showed an increase in February 2002, indicating that recovery from the potassium permanganate effects had already taken place. Two of 4 control sites for which data are available also showed declines in total taxa from 1997 levels but at one of these total specimens and total EPT specimens increased. One control site showed no change in

total taxa but did show declines in the other 3 metrics. The lack of a consistent pattern in the control sites indicates the consistent changes at the treatment sites are probably real.

By June of 2002, 3 of 4 treatment sites showed increases in all 4 metrics, as did 4 of 5 control sites (Figures 6-9). This indicates that by June there was no difference in the treatment and control sites.

By September 2002, 3 of 4 control sites for which data are available showed declines in all 4 metrics, while there was no consistent pattern in the treatment sites (Figures 14-17).

### **Community effects**

All 4 metrics at the treatment sites were comparable to pre-treatment levels and not different from the control sites by June 2002 (Figures 6-9, 10-13), but is the community composition similar to pre-treatment levels? The way this question is answered is to see how many taxa collected before treatment are collected after treatment; these are what are termed "shared taxa". These shared taxa are termed common (6 or more specimens), uncommon (3-5 specimens), or rare (1-2 specimens).

#### ***Short-term effects (October 2001)***

In terms of community effects, no changes in common shared taxa were seen at control sites 3, 5, and 6 in the samples taken in October 2001, immediately after treatment. Only two taxa common in the pre-treatment (September 2001) samples were not collected in the post-treatment samples at control site 1 and treatment site 2. Treatment site 4 showed no change in the number of common shared taxa. One common pre-treatment taxon was not collected in the post-treatment sample at control site 8. Seven taxa common in the pre-treatment sample at treatment site 7 were not collected in the post-treatment sample, while 14 taxa common in the pre-treatment sample at treatment site 9 were not collected in the post-treatment sample. Thirteen of the common taxa not collected in the post-treatment sample at site 9 were mayflies whose absence is attributable to potassium permanganate. So larger changes in the communities were seen at treatment sites 7 and 9 in the immediate post-treatment samples than at any of the other sites.

For uncommon (3-5 specimens) taxa in the immediate pre- and post-treatment samples (September/October 2001), changes occurred at all 9 sites. Among the control sites, the greatest change occurred at site 6, where 4 uncommon taxa that were not collected in the pre-treatment sample were collected in the post-treatment sample and no taxa that were uncommon in the pre-treatment sample were not collected in the post-treatment sample. The other control sites had no more than one or 2 additions or deletions of uncommon taxa.

The greatest changes in uncommon taxa at the treatment sites occurred at sites 4 and 9. At site 4, six taxa that were uncommon in the pre-treatment sample were not collected in the post-treatment sample and no taxa uncommon in the post-treatment sample were

collected in the pre-treatment sample. At site 9, 10 taxa uncommon in the pre-treatment sample were not collected in the post-treatment sample and 4 taxa uncommon in the post-treatment sample were not collected in the pre-treatment sample. The other 2 treatment sites had no more than one or two additions or deletions of uncommon taxa.

For rare (1-2 specimens) taxa in the immediate pre- and post-treatment samples, changes also occurred at all 9 sites. Among the control sites, the largest changes occurred at sites 3 and 8. At site 3, 7 taxa that were rare in the pre-treatment sample were not collected in the post-treatment sample, while 11 taxa that were rare in the post-treatment sample were not collected in the pre-treatment sample. At site 8, eleven taxa that were rare in the pre-treatment sample were not collected in the post-treatment sample. At the other control sites additions were not more than 3 taxa and losses were not more than 2.

The greatest changes in rare taxa at the treatment sites occurred at sites 4 and 9. At site 4, 14 taxa that were rare in the pre-treatment sample were not collected in the post-treatment sample, while 8 taxa that were rare in the post-treatment sample were not collected in the pre-treatment sample. At site 9, 17 taxa that were rare in the pre-treatment sample were not collected in the post-treatment sample, while 10 taxa that were rare in the post-treatment sample were not collected in the pre-treatment sample. Other additions or deletions were no more or less than at the control sites.

### ***Longer-term effects***

Beginning in February 2002 and continuing to the final sample in September 2002, there are no patterns in the differences in the numbers of shared taxa between control and treatment sites. That is, pre-treatment common taxa are nearly all present in the post-treatment samples; loss of common taxa is no greater at treatment sites than at control sites, and addition of common taxa is as frequent at treatment sites as addition of common taxa at control sites. The same pattern persists for uncommon and rare taxa, with post-treatment losses no greater at treatment sites than at control sites, and post-treatment additions of taxa approximating post-treatment loss of taxa at both treatment and control sites. This is another indication that the communities have returned to their pre-treatment composition.

### **Annual variation**

Annual variation cannot be determined from this data set. The 1996/97 and 2002 samples are 5-6 years apart with no information about the intervening years. There is data for September 2000 and 2001 pre-treatment samples so a mean can be calculated for September but that is all that can be discussed. However, a mean for an  $n = 2$  sample is not very informative. For the June and February samples, there is pre-treatment data for 1996 and 1997 respectively, so all that can be done is to compare the differences between the pre- and post-treatment composition of the samples. As the above discussion shows, there were declines in numbers of taxa and specimens immediately after treatment, which

shows a short-term effect from the antimycin. The fact that there were no differences in the community composition just 4 months after treatment indicates no long-term effect.

### **Collector bias**

During this study, having more people work less time rather than fewer people working longer to collect a site resulted in more taxa being collected. The advantages of this approach are that more collectors mean more search images at more sites within the sample reach; therefore the total number of taxa collected is likely to be higher. For example, in one sample at site 9, 5 workers collected 73 taxa, while no one worker collected more than 48. In this way, a more accurate picture of the invertebrate community is obtained. In addition, collectors working fewer hours at a site do not get as tired, so their efficiency is maintained.

With this method, bias is a function of field identification skills, not collecting skills; one person may keep more specimens than another but is likely to collect a similar number of taxa. That is why the emphasis is on numbers of taxa more than specimens. This method gets close to the universe of taxa at a site. Having more collectors results in more specimens, but it also results in many more taxa as these data show.

### **Recommendations**

Site 2 should be re-sampled to determine if the loss of philopotamids is permanent.

This study contained only 3 sample sites in the approximately 3 miles of treatment zone. Only one of these was located on the main stem of Sams Creek. It is recommended that future studies of this type have more sample sites located in the treatment zone. Fewer resources should be expended on small ephemeral sites such as sites 5 and 6 in this study.

Evidence from Moore et al. (2002) that antimycin breaks down within a relatively short distance indicates that potassium permanganate isn't necessary as a detoxicant when antimycin is used under similar conditions. The effect of the detoxicant on mayflies and peltoperlid stoneflies was much worse than the effect of antimycin.

These data indicate that antimycin can be used in GRSM streams without long-term harm to the benthic macroinvertebrate community.

## VII. The search for *Neophylax kolodskii*

*Neophylax kolodskii* Parker (Parker 2000) was described from adults collected from a light trap on 22-23 September, 1987, at the campsite about 200 m below the confluence of Sams and Starkey creeks. At the outset of the brook trout restoration project, the assumption was that *N. kolodskii* would be found outside the treatment zone of Sams and Starkey creeks. However, larval searching outside the treatment zone failed to produce additional specimens. Two adult specimens were light trapped from the type locality on 17 September 2000. Eight additional light trap collections around GRSM in the latter part of September 2000 (see Appendix 2) produced no additional specimens. These results pointed up the need for a more concerted effort to determine the distribution of *N. kolodskii*.

### Light trapping

Light trapping was conducted in an attempt to find additional localities for *Neophylax kolodskii*. Commercially available light traps (Bioquip Products, Inc.) with 22 watt ultra-violet fluorescent bulbs were used to collect adult aquatic insects. Isopropanol was the killing agent. Photocells were attached to the traps so several could be set out before dark and retrieved the following day. Once activated by the photocell at dusk, the lights would stay on until the battery ran out, usually 3-4 hours. Fourteen light trap collections were made along Sams Creek, Thunderhead Prong, Lynn Camp Prong, unnamed tributaries west of Davis Ridge, Fish Camp Prong, and Derrick Knob shelter on the AT in GRSM in early September 2001. Light trap locations are given in Appendix 2.

### Larval searching

In the genus *Neophylax*, adults of the Tennessee species (except for *N. ornatus*) emerge, mate, oviposit, and die during a 2- to 7-week period in the fall. Oviposition for at least one Tennessee species (*N. concinnus*) is terrestrial, slightly above water level, and near the larval habitat (Wiggins, 1973). This is the only reproductive information available. The eggs presumably hatch in about 2 weeks, and the newly emerged larvae make their way to the water and begin feeding in association with the recently fallen leaves in the stream. They grow quickly and are fully grown by April or May, in spite of the cold water temperatures at this time of year. The mature larvae close the end of their case with a flat pebble and attach the case securely to a large cobble or boulder. The larva is dormant within the case as a prepupa from late spring until early fall, when pupation occurs. Once the front of the larval case is sealed and the case is attached, it will remain there until emergence of the adult.

Since the larva of *N. kolodskii* is unknown, the treatment area of Sams Creek was intensively searched for *Neophylax* prepupae. Searches began in the last week of May 2001. In an attempt to ensure that this sampling effort did not seriously deplete potential *Neophylax kolodskii* populations in the portion of Sams Creek sampled, collecting effort was restricted to 20-25 m of each 100 m reach of stream between the mouth of Starkey

Creek and the lower detoxification site. Stations established for flow studies of Sams Creek prior to treatment were selected as sample locations. These stations were located at 100 m intervals beginning above the fish barrier located at 646 m elevation. The reach from the waterfall to the mouth of Starkey Creek was searched. Some stations were skipped because they couldn't be located. Specimens were not found at all stations.

When prepupae were found that appeared to be too large to represent those of the tiny and extremely abundant *N. mitchelli*, their locations were marked so they could be relocated later. Where several prepupae were found on a single rock (they often aggregate), a single specimen was preserved. These were examined in the laboratory to determine if they conformed to the known larvae (Etnier, 2000, unpublished) of other species of *Neophylax* from GRSM (*N. concinnus*, *N. consimilis*, *N. mitchelli*, *N. ornatus*).

## **Results**

Light trapping resulted in 3 new localities for *N. kolodskii*; in addition, 2 females were taken from the type locality on 18 September (site 62, Appendix 2). One male and one female, and 2 males and 2 females, were taken from 2 sites on Thunderhead Prong, sites 56 and 61, respectively, on 2 September. One male and 8 females were taken on 18 September from a site next to Sams Creek at 1097 m elevation. These results show that the flight period of adult *N. kolodskii* begins at least as early as 2 September. Its original collection on 22-23 September was probably near the end of its flight period. Details of taxa collected in light traps during this study are shown in Appendix 2.

Only one specimen of a larva was found that did not conform to one of the known species of *Neophylax* during the larval searches conducted outside the 9 sample sites. This specimen was collected in June 2002 at sample site 2 (Sams Creek ca 50 m above mouth of Starkey Creek). It may represent the larva of *N. kolodskii*, but this is uncertain because the specimen had not transformed to a pre-pupa at the time of collection and might not be a last instar larva (on which the larval key is based). It seems very unlikely that this larva represents an early instar of *N. consimilis*, *N. mitchelli*, or *N. ornatus*, the 3 *Neophylax* species known from that area, but it resembles *N. concinnus*, also known from the Park. Site 2 is considered a likely spot for the collection of *N. kolodskii* larvae due to its proximity to the type locality.

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## **Appendices**

Table A1. Taxa collected in Sams Creek, Starkey Creek, Thunderhead Prong and unnamed tributaries in GRSM, June 1996 to October 2002. The symbols ♂, ♀, or ♀♂, indicate all of the specimens were adult males, females, or both. Site locations are shown in Figure 1. Site 7A is ca. 150 m below mouth of Starkey Creek.

| Site                            | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 7A | 8 | 9 |
|---------------------------------|---|---|---|---|---|---|---|----|---|---|
| <b>TAXA</b>                     |   |   |   |   |   |   |   |    |   |   |
| Platyhelminthes                 |   |   |   |   |   |   |   |    |   |   |
| Planarians                      |   |   | x |   | x |   |   |    |   |   |
| Nematomorpha                    |   |   |   |   |   |   |   |    |   |   |
| Horsehair worms                 | x |   |   | x |   |   | x |    | x | x |
| Annelida                        |   |   |   |   |   |   |   |    |   |   |
| Hirudinea                       |   |   |   |   |   |   |   |    |   |   |
| <i>Placobdella</i> sp.          | x | x | x | x | x | x | x |    | x | x |
| Oligochaeta                     | x | x | x | x | x | x | x | x  | x | x |
| Mollusca                        |   |   |   |   |   |   |   |    |   |   |
| Pelecypoda                      |   |   |   |   |   |   |   |    |   |   |
| <i>Sphaerium</i> sp.            |   |   |   |   |   |   |   |    |   | x |
| Arthropoda                      |   |   |   |   |   |   |   |    |   |   |
| Arachnida                       |   |   |   |   |   |   |   |    |   |   |
| Hydracarina                     | x |   | x | x | x | x | x | x  | x | x |
| Crustacea                       |   |   |   |   |   |   |   |    |   |   |
| Copepoda                        |   |   |   |   |   |   |   |    |   |   |
| Harpacticoida                   |   |   |   |   | x |   |   |    |   |   |
| Decapoda                        |   |   |   |   |   |   |   |    |   |   |
| Astacidae                       |   |   |   |   |   |   |   |    |   |   |
| <i>Cambarus bartoni</i>         | x | x | x | x | x | x | x |    | x | x |
| <i>Cambarus</i> sp. (juveniles) | x | x | x | x | x | x | x |    | x | x |
| Isopoda                         |   |   |   |   |   |   |   |    |   |   |
| Asellidae                       |   |   |   |   |   |   |   |    |   |   |
| <i>Lirceus</i> sp.              | x | x |   |   |   | x |   |    |   |   |
| Insecta                         |   |   |   |   |   |   |   |    |   |   |

Table A1. Continued.

| Site                                 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 7A | 8 | 9 |
|--------------------------------------|---|---|---|---|---|---|---|----|---|---|
| <b>TAXA</b>                          |   |   |   |   |   |   |   |    |   |   |
| Plecoptera                           |   |   |   |   |   |   |   |    |   |   |
| Capniidae                            |   |   |   |   |   |   |   |    |   |   |
| <i>Allocapnia/Paracapnia</i> (early) | x |   |   |   |   |   | x | x  |   |   |
| <i>Allocapnia</i> sp.                | x | x |   |   | x | x |   |    | x |   |
| <i>Paracapnia angulata</i>           | x |   |   | x | x |   | x |    |   | x |
| <i>Paracapnia</i> sp.                |   | x | x |   |   | x | x |    | x |   |
| Capniidae sp. (early)                | x | x | x | x | x | x |   |    |   |   |
| Chloroperlidae                       |   |   |   |   |   |   |   |    |   |   |
| <i>Alloperla neglecta</i>            |   |   |   |   |   |   |   |    |   | x |
| <i>Alloperla</i> sp.                 | x | x | x | x | x |   | x | x  | x | x |
| <i>Haploperla brevis</i>             |   | x | x | x | x |   | x |    | x | x |
| <i>Sweltsa lateralis/urticae</i> ♀   |   |   |   | x |   |   | x |    |   |   |
| <i>Sweltsa mediana</i> ♂             |   |   |   |   |   |   |   |    |   | x |
| <i>Sweltsa</i> sp.                   | x | x | x | x | x | x | x | x  | x | x |
| Chloroperlidae sp. (early)           | x | x | x | x | x |   | x | x  | x |   |
| Leuctridae                           |   |   |   |   |   |   |   |    |   |   |
| <i>Leuctra biloba/grandis</i> ♀♂     |   |   |   |   |   |   |   |    |   | x |
| <i>Leuctra carolinensis</i> ♂        |   |   |   |   |   |   |   |    |   | x |
| <i>Leuctra ferruginea</i> ♂          |   |   | x |   |   |   |   |    | x |   |
| <i>Leuctra triloba</i> ♂             |   |   |   |   |   |   | x |    |   |   |
| <i>Leuctra truncata</i> ♂            |   |   |   |   |   |   | x |    |   |   |
| <i>Leuctra</i> sp.                   | x | x | x | x | x | x | x | x  | x | x |
| <i>Paraleuctra sara</i>              | x |   | x | x |   |   |   |    | x |   |
| <i>Zealuctra</i> ? (long pronotum)   | x |   |   |   |   |   |   |    |   |   |
| Leuctridae sp.                       |   |   |   |   |   |   | x |    |   |   |
| Nemouridae                           |   |   |   |   |   |   |   |    |   |   |
| <i>Amphinemura appalachia</i>        | x | x | x | x | x | x | x |    | x | x |
| <i>Amphinemura nigrita</i>           |   |   |   |   |   |   |   |    |   | x |

Table A1. Continued.

| Site                                   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 7A | 8 | 9 |
|----------------------------------------|---|---|---|---|---|---|---|----|---|---|
| <b>TAXA</b>                            |   |   |   |   |   |   |   |    |   |   |
| <i>Amphinemura wui</i>                 |   |   |   |   |   |   | x |    |   | x |
| <i>Amphinemura</i> sp. (early)         |   | x | x | x | x | x |   |    |   | x |
| <i>Nemoura</i> sp.                     |   |   |   |   |   | x |   |    |   |   |
| <i>Soyedina kondratieffi</i>           |   |   |   |   |   |   | x |    |   |   |
| <i>Nemouridae</i> sp. (early)          |   |   | x |   |   | x |   |    |   |   |
| Peltoperlidae                          |   |   |   |   |   |   |   |    |   |   |
| <i>Tallaperla elisa</i> ♂              |   |   |   | x |   |   |   |    |   | x |
| <i>Tallaperla</i> sp.                  | x | x | x | x | x | x | x | x  | x | x |
| <i>Viehopera</i> sp.                   |   |   | x |   |   | x |   |    |   |   |
| Peltoperlidae sp. (early)              |   |   | x |   |   | x | x |    |   |   |
| Perlidae                               |   |   |   |   |   |   |   |    |   |   |
| <i>Acroneuria abnormis</i>             | x | x | x | x | x |   | x | x  | x | x |
| <i>Agnetina annulipes</i>              |   |   |   | x |   |   |   |    |   |   |
| <i>Agnetina</i> sp. (early instars)    |   |   |   |   |   |   |   |    |   | x |
| <i>Beloneuria</i> sp.                  | x | x | x | x | x | x | x | x  | x |   |
| <i>Eccopectura xanthenes</i>           | x | x | x | x | x | x | x | x  | x | x |
| <i>Hansonoperla appalachia</i>         |   |   |   |   |   |   |   |    |   | x |
| <i>Paragnetina immarginata</i>         |   |   |   |   |   |   |   |    | x | x |
| <i>Perlesta</i> sp. cf. <i>frisoni</i> | x | x | x | x | x |   | x |    | x | x |
| Perlidae sp. (early)                   | x | x | x |   | x | x | x |    | x | x |
| Perlodidae                             |   |   |   |   |   |   |   |    |   |   |
| <i>Cultus decius</i>                   |   |   | x |   |   |   |   |    |   |   |
| <i>Helopicus subvarians</i>            | x | x |   |   |   |   |   |    |   |   |
| <i>Isoperla holochlora</i>             | x | x | x | x | x |   | x |    | x | x |
| <i>Isoperla lata</i>                   |   |   |   |   |   |   |   |    |   | x |
| <i>Isoperla</i> sp. cf. <i>dicala</i>  | x | x | x |   | x |   |   |    | x |   |
| <i>Isoperla similis</i>                | x | x | x | x | x | x | x |    | x | x |
| <i>Isoperla</i> sp. (early)            | x | x |   | x | x | x | x |    | x | x |

Table A1. Continued.

| Site                                     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 7A | 8 | 9 |
|------------------------------------------|---|---|---|---|---|---|---|----|---|---|
| <b>TAXA</b>                              |   |   |   |   |   |   |   |    |   |   |
| <i>Malirekus hastatus</i>                | x | x | x | x | x | x | x | x  | x | x |
| <i>Remenus bilobatus</i>                 | x | x | x | x | x |   | x |    | x | x |
| <i>Yugus arinus</i>                      | x |   |   |   |   |   | x |    | x | x |
| <i>Yugus/Malirekus</i> (early)           | x | x | x | x |   |   | x |    | x | x |
| Perlodidae sp. (early)                   | x | x | x | x | x | x | x |    | x | x |
| Pteronarcyidae                           |   |   |   |   |   |   |   |    |   |   |
| <i>Pteronarcys scotti/proteus</i>        | x | x |   | x | x |   | x | x  | x | x |
| Taeniopterygidae                         |   |   |   |   |   |   |   |    |   |   |
| <i>Bolotoperla rossi</i>                 | x | x |   | x | x |   | x |    | x | x |
| <i>Oemopteryx contorta</i>               | x | x | x |   | x |   | x |    | x |   |
| <i>Oemopteryx/Taenionema</i> sp.         | x | x | x | x | x |   | x |    |   | x |
| <i>Strophopteryx limata</i>              |   | x |   |   |   |   |   |    |   | x |
| <i>Strophopteryx</i> sp.                 | x | x | x | x | x | x | x |    | x |   |
| <i>Taeniopteryx</i> sp. cf. <i>lita</i>  |   |   |   |   |   |   | x |    |   |   |
| <i>Taeniopteryx</i> sp.                  |   | x |   |   |   |   | x |    | x | x |
| Taeniopterygidae sp. (early)             |   | x |   |   |   |   | x |    |   |   |
| Ephemeroptera                            |   |   |   |   |   |   |   |    |   |   |
| Ameletidae                               |   |   |   |   |   |   |   |    |   |   |
| <i>Ameletus cryptostimulus</i>           | x | x | x | x | x | x | x |    | x | x |
| <i>Ameletus</i> sp. (early)              | x | x |   | x |   |   | x | x  | x |   |
| Baetidae                                 |   |   |   |   |   |   |   |    |   |   |
| <i>Acentrella</i> sp. cf. <i>amplus</i>  |   |   |   |   |   |   |   |    | x |   |
| <i>Acentrella carolina?</i>              |   |   |   |   |   |   |   |    |   | x |
| <i>Acentrella</i> sp.                    |   | x |   |   |   |   | x |    |   |   |
| <i>Baetis</i> sp. cf. <i>flavistriga</i> | x | x | x | x | x |   | x |    | x | x |
| <i>Baetis</i> sp. cf. <i>tricaudatus</i> | x | x | x | x | x |   | x |    | x | x |
| <i>Baetis</i> sp. (other)                | x | x |   |   |   |   |   |    |   | x |
| <i>Baetis</i> sp. (early/damaged)        | x | x | x | x | x |   | x |    | x | x |



Table A1. Continued.

| Site                                       | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 7A | 8 | 9 |
|--------------------------------------------|---|---|---|---|---|---|---|----|---|---|
| <b>TAXA</b>                                |   |   |   |   |   |   |   |    |   |   |
| <i>Centropilum</i> s.l. (damaged)          |   |   | x |   |   |   |   |    | x |   |
| Baetidae sp. (early)                       | x | x | x | x | x |   |   |    | x | x |
| Ephemerellidae                             |   |   |   |   |   |   |   |    |   |   |
| <i>Drunella longicornis</i>                | x | x | x | x |   |   | x |    | x | x |
| <i>Drunella tuberculata</i>                | x | x | x | x | x |   | x |    | x | x |
| <i>Drunella</i> sp. (early)                |   | x |   | x |   |   |   |    | x | x |
| <i>Ephemerella catawba</i>                 | x | x | x | x | x | x | x |    | x | x |
| <i>Ephemerella rossi</i>                   | x | x | x | x | x | x | x |    | x | x |
| <i>Ephemerella hispida</i>                 | x | x | x | x | x |   | x |    | x | x |
| <i>Ephemerella rotunda</i>                 |   |   |   |   |   |   |   |    |   | x |
| <i>Ephemerella</i> sp. (early)             | x | x |   | x | x |   | x |    | x | x |
| <i>Eurylophella funeralis</i>              |   | x | x | x | x |   | x |    | x | x |
| <i>Eurylophella</i> sp. (early)            |   |   |   |   | x |   | x |    | x | x |
| <i>Serratella</i> sp. cf. <i>deficiens</i> |   |   |   |   |   |   |   |    |   | x |
| <i>Serratella spiculosa</i> ?              |   |   |   |   |   |   |   |    |   | x |
| <i>Timpanago</i> (= <i>Danella</i> ) sp.   |   |   |   |   |   |   |   |    |   | x |
| Ephemerellidae sp. (early)                 | x |   | x | x | x |   | x | x  | x | x |
| Heptageniidae                              |   |   |   |   |   |   |   |    |   |   |
| <i>Cinygmula subaequalis</i>               | x | x | x | x | x |   | x |    | x | x |
| <i>Epeorus</i> sp. cf. <i>dispar</i>       | x | x | x | x | x | x | x | x  | x | x |
| <i>Epeorus</i> sp. cf. <i>pleuralis</i>    | x | x | x | x | x |   | x |    | x | x |
| <i>Epeorus rubidus/subpallidus</i>         |   |   |   |   |   |   |   |    |   | x |
| <i>Epeorus</i> sp. (early)                 | x | x | x | x | x | x | x | x  | x | x |
| <i>Heptagenia julia</i>                    |   |   |   | x |   |   |   |    | x |   |
| <i>Heptagenia marginalis</i>               |   |   |   |   |   |   |   |    |   | x |
| <i>Heptagenia pulla</i>                    |   |   |   |   |   |   | x |    |   | x |
| <i>Heptagenia</i> sp.                      | x | x |   |   | x |   | x |    | x | x |
| <i>Leucrocuta hebe/aphrodite</i>           |   | x |   | x |   |   | x |    |   | x |

Table A1. Continued.

| Site                                           | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 7A | 8 | 9 |
|------------------------------------------------|---|---|---|---|---|---|---|----|---|---|
| <b>TAXA</b>                                    |   |   |   |   |   |   |   |    |   |   |
| <i>Leucrocuta maculipennis</i>                 |   | x |   | x |   |   | x |    |   |   |
| <i>Leucrocuta thetis</i>                       | x | x | x | x | x |   | x |    | x | x |
| <i>Leucrocuta</i> sp. cf. <i>thetis</i>        |   | x |   |   |   |   | x | x  |   |   |
| <i>Leucrocuta</i> sp. 1 (harlequin)            |   |   |   | x |   |   | x |    |   |   |
| <i>Leucrocuta</i> sp.                          | x |   | x | x | x | x |   |    | x | x |
| <i>Leucrocuta/ Heptagenia</i>                  |   |   |   |   |   |   | x |    |   |   |
| <i>Rhithrogena</i> sp. cf. <i>amica</i>        | x |   |   |   |   |   | x |    | x | x |
| <i>Rhithrogena</i> sp. cf. <i>fuscifrons</i>   |   |   |   |   |   |   |   |    | x |   |
| <i>Rhithrogena</i> sp.                         | x | x |   | x | x |   | x |    | x | x |
| <i>Stenacron</i> sp. cf. <i>carolina</i>       | x | x | x | x | x | x | x |    |   |   |
| <i>Stenacron</i> sp. cf. <i>pallidum</i>       | x | x | x |   | x |   | x |    | x | x |
| <i>Stenacron</i> sp. (early)                   |   |   |   | x |   |   |   |    | x |   |
| <i>Stenonema femoratum</i>                     |   |   |   |   |   |   |   |    |   | x |
| <i>Stenonema merrivulcanum</i>                 | x | x | x | x | x | x | x | x  | x | x |
| <i>Stenonema pudicum</i>                       | x | x | x | x | x | x | x | x  | x | x |
| <i>Stenonema</i> sp. (early)                   | x | x | x | x | x |   | x | x  | x | x |
| Heptageniidae sp. (early)                      | x | x | x |   | x |   | x |    | x |   |
| Leptophlebiidae                                |   |   |   |   |   |   |   |    |   |   |
| <i>Habrophlebia vibrans</i>                    | x | x | x | x | x | x | x |    | x | x |
| <i>Habrophlebiodes</i> sp.                     | x |   |   |   | x | x | x |    | x |   |
| <i>Paraleptophlebia adoptiva/mollis</i>        | x | x | x | x | x | x | x | x  | x | x |
| <i>Paraleptophlebia</i> sp. cf. <i>guttata</i> | x | x | x | x | x |   | x | x  | x | x |
| <i>Paraleptophlebia</i> sp. (early)            | x | x | x | x | x |   | x | x  | x |   |
| Leptophlebiidae sp. (early/<br>damaged)        | x | x | x | x | x | x | x | x  | x | x |
| Odonata                                        |   |   |   |   |   |   |   |    |   |   |
| Aeschnidae                                     |   |   |   |   |   |   |   |    |   |   |
| <i>Boyeria vinosa</i>                          |   |   |   |   |   |   |   |    | x |   |

Table A1. Continued.

| Site                                   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 7A | 8 | 9 |
|----------------------------------------|---|---|---|---|---|---|---|----|---|---|
| <b>TAXA</b>                            |   |   |   |   |   |   |   |    |   |   |
| <i>Boyeria grafiana</i>                |   |   | x |   |   |   |   |    | x | x |
| Calopterygidae                         |   |   |   |   |   |   |   |    |   |   |
| <i>Calopteryx maculata/dimidiata</i>   |   |   |   |   |   |   |   |    |   | x |
| Cordulegastridae                       |   |   |   |   |   |   |   |    |   |   |
| <i>Cordulegaster erronea</i>           | x | x | x |   | x | x | x | x  | x | x |
| <i>Cordulegaster maculata</i>          |   |   |   |   |   |   | x | x  | x |   |
| Gomphidae                              |   |   |   |   |   |   |   |    |   |   |
| <i>Lanthus vernalis</i>                | x | x | x | x | x | x | x | x  | x | x |
| Heteroptera                            |   |   |   |   |   |   |   |    |   |   |
| Gerridae                               |   |   |   |   |   |   |   |    |   |   |
| <i>Aquarius remigis</i>                | x | x | x | x | x | x | x | x  | x | x |
| Veliidae                               |   |   |   |   |   |   |   |    |   |   |
| <i>Microvelia</i> sp.                  | x | x |   |   |   |   |   |    |   |   |
| <i>Rhagovelia obesa</i>                |   | x |   |   | x |   | x |    |   | x |
| Megaloptera                            |   |   |   |   |   |   |   |    |   |   |
| Corydalidae                            |   |   |   |   |   |   |   |    |   |   |
| <i>Nigronia serricornis</i>            |   |   |   |   |   |   |   |    |   | x |
| Sialidae                               |   |   |   |   |   |   |   |    |   |   |
| <i>Sialis</i> sp.                      |   |   |   |   | x | x | x |    |   | x |
| Trichoptera                            |   |   |   |   |   |   |   |    |   |   |
| Apataniidae                            |   |   |   |   |   |   |   |    |   |   |
| <i>Apatania</i> sp.                    | x | x | x | x |   |   | x | x  | x | x |
| Brachycentridae                        |   |   |   |   |   |   |   |    |   |   |
| <i>Micrasema burksi</i>                | x | x | x | x | x | x | x | x  | x | x |
| <i>Micrasema charonis</i> ♂            |   |   |   |   |   |   |   |    |   | x |
| <i>Micrasema</i> sp. <sup>1</sup>      | x | x |   |   |   |   |   |    |   | x |
| Glossosomatidae                        |   |   |   |   |   |   |   |    |   |   |
| <i>Glossosoma nigrior</i> (inc. pupae) | x | x | x | x | x | x | x | x  | x | x |

Table A1. Continued.

| Site                                        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 7A | 8 | 9 |
|---------------------------------------------|---|---|---|---|---|---|---|----|---|---|
| <b>TAXA</b>                                 |   |   |   |   |   |   |   |    |   |   |
| Goeridae                                    |   |   |   |   |   |   |   |    |   |   |
| <i>Goera</i> sp. cf. <i>fuscata</i>         |   |   |   |   |   |   |   |    | x | x |
| Hydropsychidae                              |   |   |   |   |   |   |   |    |   |   |
| <i>Arctopsyche irrorata</i>                 | x | x |   | x | x | x | x | x  | x | x |
| <i>Ceratopsyche macleodi</i>                | x | x | x | x | x |   | x | x  | x | x |
| <i>Ceratopsyche slossonae</i>               |   | x |   |   |   |   |   |    | x | x |
| <i>Ceratopsyche sparna</i> (male pupa)      |   |   |   |   |   |   |   |    |   | x |
| <i>Ceratopsyche</i> sp. (early)             |   |   |   | x | x |   |   |    |   |   |
| <i>Cheumatopsyche</i> sp.                   |   |   |   |   |   |   |   |    |   | x |
| <i>Diplectrona metaqui</i>                  |   |   |   |   |   | x |   |    |   |   |
| <i>Diplectrona modesta</i>                  | x | x | x | x | x | x | x | x  | x | x |
| <i>Homoptera doringa</i> <sup>2</sup>       |   |   |   |   |   |   |   |    |   |   |
| <i>Hydropsyche franelemonti</i>             |   |   |   |   |   |   | x |    | x |   |
| <i>Hydropsyche</i> sp. cf. <i>venularis</i> |   |   |   |   |   |   |   |    |   | x |
| <i>Parapsyche apicalis</i>                  | x |   | x |   | x | x |   |    |   |   |
| <i>Parapsyche cardis</i>                    | x | x | x | x | x | x | x | x  | x | x |
| <i>Hydropsychidae</i> sp. (early)           | x | x | x | x | x | x | x |    | x | x |
| Lepidostomatidae                            |   |   |   |   |   |   |   |    |   |   |
| <i>Lepidostoma griseum</i> ♂                |   |   | x |   |   |   |   |    |   |   |
| <i>Lepidostoma lydia</i> ♂                  |   |   |   |   |   |   |   |    |   | x |
| <i>Lepidostoma</i> sp.                      | x | x | x | x | x | x | x | x  | x | x |
| Leptoceridae                                |   |   |   |   |   |   |   |    |   |   |
| <i>Ceraclea</i> sp. cf. <i>ancylus</i>      |   |   |   |   |   |   | x |    | x | x |
| <i>Triaenodes</i> sp. (empty cases)         |   |   |   |   |   |   |   |    |   | x |
| Leptoceridae sp. not <i>Ceraclea</i>        |   |   |   |   | x |   |   |    |   |   |
| Limnephilidae                               |   |   |   |   |   |   |   |    |   |   |
| <i>Pseudostenophylax uniformis</i>          | x |   |   |   |   |   |   |    |   |   |
| <i>Pycnopsyche antica/conspersa</i>         |   |   |   | x |   |   |   |    |   |   |

Table A1. Continued.

| Site                                                        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 7A | 8 | 9 |
|-------------------------------------------------------------|---|---|---|---|---|---|---|----|---|---|
| <b>TAXA</b>                                                 |   |   |   |   |   |   |   |    |   |   |
| <i>Pycnopsyche flavata</i>                                  | x |   | x |   | x | x | x |    |   |   |
| <i>Pycnopsyche gentilis</i>                                 | x | x |   | x | x | x | x |    | x |   |
| <i>Pycnopsyche flavata/gentilis</i>                         | x | x | x |   | x | x | x |    |   |   |
| <i>Pycnopsche</i> sp. cf. <i>guttifer</i>                   | x |   |   |   |   |   |   |    |   |   |
| <i>Pycnopsyche sonso</i>                                    | x | x | x | x | x | x | x |    | x | x |
| <i>Pycnopsyche luculenta/sonso</i><br>(early instars/cases) | x | x | x | x | x | x | x |    | x | x |
| <i>Pycnopsyche/Hydatophylax</i> sp.<br>(early instars)      | x |   |   |   |   |   |   |    |   |   |
| <i>Pycnopsyche</i> sp. (early/cases)                        | x | x | x | x | x | x | x | x  | x | x |
| Limnephilidae sp. (early)                                   | x |   |   |   |   |   |   |    |   | x |
| Molannidae                                                  |   |   |   |   |   |   |   |    |   |   |
| <i>Molanna blenda</i>                                       | x | x | x | x | x | x | x | x  | x | x |
| Odontoceridae                                               |   |   |   |   |   |   |   |    |   |   |
| <i>Psilotreta amera</i>                                     | x |   |   |   |   | x | x |    | x |   |
| <i>Psilotreta frontalis</i>                                 | x | x | x | x | x | x | x | x  | x | x |
| <i>Psilotreta rossi</i> (?)                                 |   |   |   |   |   | x | x |    |   |   |
| <i>Psilotreta rufa</i>                                      |   |   |   |   | x |   |   |    |   |   |
| <i>Psilotreta</i> sp. (early)                               |   | x | x |   | x |   | x |    | x | x |
| Philopotamidae                                              |   |   |   |   |   |   |   |    |   |   |
| <i>Chimarra</i> sp.                                         |   |   |   |   |   | x |   |    |   | x |
| <i>Dolophilodes distinctus</i>                              | x | x | x | x | x | x | x |    | x | x |
| <i>Wormaldia moesta</i>                                     |   |   | x | x | x | x | x |    |   | x |
| <i>Wormaldia</i> sp.                                        | x | x | x |   | x | x | x |    |   |   |
| Polycentropodidae                                           |   |   |   |   |   |   |   |    |   |   |
| <i>Nyctiophylax nephophilus</i> ♂                           |   |   |   |   |   |   |   |    |   | x |
| <i>Nyctiophylax</i> sp.                                     | x | x | x | x | x |   | x | x  | x | x |
| <i>Phylocentropus</i> sp. (empty tubes)                     |   |   |   |   |   |   |   |    |   | x |

Table A1. Continued.

| Site                                           | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 7A | 8 | 9 |
|------------------------------------------------|---|---|---|---|---|---|---|----|---|---|
| <b>TAXA</b>                                    |   |   |   |   |   |   |   |    |   |   |
| <i>Polycentropus carolinensis</i> ♂            |   |   |   |   |   |   |   |    |   | x |
| <i>Polycentropus cinereus</i> ♂                |   |   |   |   |   | x |   |    |   |   |
| <i>Polycentropus</i> sp.                       | x | x | x | x | x | x | x | x  | x | x |
| <b>Psychomiidae</b>                            |   |   |   |   |   |   |   |    |   |   |
| <i>Lype diversa</i>                            | x | x | x | x | x |   | x |    | x | x |
| <b>Rhyacophilidae</b>                          |   |   |   |   |   |   |   |    |   |   |
| <i>Rhyacophila appalachia</i> ♂                |   |   |   |   |   |   |   |    |   | x |
| <i>Rhyacophila appalachia/nigrita</i>          | x | x | x | x | x | x | x | x  | x | x |
| <i>Rhyacophila atrata</i>                      |   |   |   |   |   |   |   |    | x |   |
| <i>Rhyacophila carolina</i>                    | x | x | x | x | x | x | x | x  | x | x |
| <i>Rhyacophila fuscula</i>                     | x | x | x | x | x |   | x | x  | x | x |
| <i>Rhyacophila glaberrima</i>                  | x | x |   | x | x | x | x |    | x | x |
| <i>Rhyacophila minor</i>                       | x | x | x |   | x |   | x | x  | x | x |
| <i>Rhyacophila nigrita</i> ♂                   | x |   |   |   | x | x |   |    | x | x |
| <i>Rhyacophila teddyi</i> ♂                    |   |   |   |   |   |   |   |    | x | x |
| <i>Rhyacophila torva</i>                       | x | x | x | x | x | x | x |    | x | x |
| <i>Rhyacophila</i> sp. nov. cf. <i>nigrita</i> | x | x | x | x |   | x | x | x  | x | x |
| <i>Rhyacophila</i> sp. (early)                 | x | x | x | x | x | x | x |    | x | x |
| <i>Rhyacophila</i> sp. (pupae)                 |   | x |   | x |   |   |   |    | x | x |
| <b>Sericostomatidae</b>                        |   |   |   |   |   |   |   |    |   |   |
| <i>Fattigia pele</i>                           | x | x | x | x | x |   | x | x  | x | x |
| <b>Uenoidae</b>                                |   |   |   |   |   |   |   |    |   |   |
| <i>Neophylax aniqua</i>                        |   | x |   |   | x |   |   |    |   |   |
| <i>Neophylax concinnus</i>                     |   | x |   |   |   |   |   |    |   | x |
| <i>Neophylax consimilis</i>                    | x | x | x | x | x |   | x |    | x | x |
| <i>Neophylax mitchelli</i>                     | x | x | x | x | x | x | x | x  | x | x |
| <i>Neophylax ornatus</i>                       | x | x | x | x | x | x | x | x  | x |   |
| <i>Neophylax oligius?</i>                      |   |   |   |   |   |   |   |    | x |   |

Table A1. Continued.

| Site                                                                                             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 7A | 8 | 9 |
|--------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|----|---|---|
| <b>TAXA</b>                                                                                      |   |   |   |   |   |   |   |    |   |   |
| <i>Neophylax</i> sp. cf. <i>aniqua</i>                                                           | x |   |   |   |   |   |   |    |   |   |
| <i>Neophylax</i> sp. 1 (early; dark head with spine)                                             |   |   |   |   |   |   | x |    |   |   |
| <i>Neophylax securis</i> ? (early; black head; lat. gills pres; pronotal setae mostly posteriad) |   |   |   |   |   |   |   |    | x |   |
| <i>Neophylax</i> sp. (early)                                                                     | x | x | x | x | x | x | x |    | x | x |
| Coleoptera                                                                                       |   |   |   |   |   |   |   |    |   |   |
| Carabidae                                                                                        |   |   |   |   |   |   |   |    |   |   |
| <i>Chelanius</i> sp.                                                                             |   |   |   |   |   |   |   |    |   | x |
| Dryopidae                                                                                        |   |   |   |   |   |   |   |    |   |   |
| <i>Helichus basalis</i>                                                                          |   |   |   |   |   |   |   |    |   | x |
| Dytiscidae                                                                                       |   |   |   |   |   |   |   |    |   |   |
| <i>Hydaticus</i> sp.                                                                             |   |   |   |   |   | x |   |    |   |   |
| Eubriidae                                                                                        |   |   |   |   |   |   |   |    |   |   |
| <i>Ectopria</i> sp.                                                                              |   |   | x | x | x |   |   |    | x | x |
| Elmidae                                                                                          |   |   |   |   |   |   |   |    |   |   |
| <i>Optioservus immunis</i> ♂♀                                                                    | x | x | x |   | x |   | x |    | x | x |
| <i>Optioservus ovalis</i> ♂♀                                                                     | x | x |   | x | x |   | x | x  | x | x |
| <i>Optioservus trivitattus</i> ♂♀                                                                |   |   |   |   |   |   | x |    |   |   |
| <i>Optioservus</i> sp.                                                                           | x | x | x |   | x |   | x | x  | x | x |
| <i>Oulimnius latiusculus</i> ♂♀                                                                  | x | x |   | x | x |   | x |    | x | x |
| <i>Promoresia elegans</i>                                                                        |   | x |   |   |   |   | x |    |   | x |
| <i>Promoresia tardella</i>                                                                       |   |   |   |   | x |   | x |    | x |   |
| Hydrochidae                                                                                      |   |   |   |   |   |   |   |    |   |   |
| <i>Hydrochus</i> sp.                                                                             |   |   |   | x |   |   |   |    |   |   |
| Hydrophilidae                                                                                    |   |   |   |   |   |   |   |    |   |   |
| <i>Helophorous</i> sp.                                                                           |   |   |   |   |   |   | x |    |   |   |



Table A1. Continued.

| Site                        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 7A | 8 | 9 |
|-----------------------------|---|---|---|---|---|---|---|----|---|---|
| <b>TAXA</b>                 |   |   |   |   |   |   |   |    |   |   |
| Psephenidae                 |   |   |   |   |   |   |   |    |   |   |
| <i>Psephenus herricki</i>   |   |   |   |   |   |   |   |    |   | x |
| Ptilodactylidae             |   |   |   |   |   |   |   |    |   |   |
| <i>Anchytarsus</i> sp.      |   |   |   |   | x |   | x |    | x |   |
| Diptera                     |   |   |   |   |   |   |   |    |   |   |
| Athericidae                 |   |   |   |   |   |   |   |    |   |   |
| <i>Atherix lantha</i>       | x | x |   | x | x | x | x | x  | x | x |
| Blephariceridae             |   |   |   |   |   |   |   |    |   |   |
| <i>Blepharicera</i> sp.     | x | x | x | x | x | x | x |    | x | x |
| Ceratopogonidae             |   |   |   |   |   |   |   |    |   |   |
| <i>Atrichopogon</i> sp?     |   | x |   |   |   |   |   |    |   |   |
| <i>Bezzia</i> sp.           | x | x |   | x |   |   | x |    | x | x |
| <i>Bezzia/Palpomyia</i> sp. | x | x | x | x | x |   | x |    | x | x |
| <i>Probezzia</i> sp.        | x |   |   |   |   |   | x |    |   |   |
| Chironomidae                |   |   |   |   |   |   |   |    |   |   |
| Chironominae                |   |   |   |   |   |   |   |    |   |   |
| Chironomini                 | x | x | x | x | x | x | x |    | x | x |
| Tanytarsini                 | x | x | x | x | x | x | x | x  | x | x |
| Orthocladinae               | x | x | x | x | x | x | x | x  | x | x |
| Tanypodinae                 | x | x | x | x | x | x | x |    | x | x |
| Chironomidae pupae          | x | x | x | x | x | x | x |    | x | x |
| Chironomidae sp. (damaged)  |   |   | x |   |   |   |   |    |   |   |
| Dixidae                     |   |   |   |   |   |   |   |    |   |   |
| <i>Dixa</i> sp.             | x | x | x | x | x | x | x |    | x | x |
| Dolichopodidae              |   |   |   |   |   |   |   |    |   |   |
| <i>Rhaphium</i> sp.?        |   |   | x |   |   |   |   |    |   |   |
| Dolichopodidae sp.          |   |   |   |   | x |   |   |    |   |   |



Table A1. Continued.

| Site                            | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 7A | 8 | 9 |
|---------------------------------|---|---|---|---|---|---|---|----|---|---|
| <b>TAXA</b>                     |   |   |   |   |   |   |   |    |   |   |
| Empididae                       |   |   |   |   |   |   |   |    |   |   |
| Empididae sp.                   |   |   |   | x |   |   | x | x  |   |   |
| Muscidae                        |   |   |   |   |   |   |   |    |   |   |
| <i>Limnophora</i> sp.?          |   |   | x |   |   |   |   |    |   |   |
| Psychodidae                     |   |   |   |   |   |   |   |    |   |   |
| <i>Pericoma albitarsis</i>      |   | x |   | x | x |   |   |    |   | x |
| Simuliidae (including pupae)    | x | x | x | x | x | x | x |    | x | x |
| Syrphidae                       |   |   |   |   |   |   |   |    |   |   |
| <i>Chrysogaster</i> sp.         |   |   |   |   |   | x |   |    |   |   |
| Tabanidae                       |   |   |   |   |   |   |   |    |   |   |
| <i>Tabanus</i> sp.              |   |   |   |   | x |   |   |    |   |   |
| Thaumaleidae                    |   |   |   |   |   |   |   |    |   |   |
| <i>Thaumalia</i> sp.            |   |   |   |   |   | x |   |    |   |   |
| Tipulidae                       |   |   |   |   |   |   |   |    |   |   |
| <i>Antocha</i> sp.              | x | x | x | x | x |   | x |    | x | x |
| <i>Dactylolabis</i> sp.?        |   |   |   |   |   |   | x |    |   | x |
| <i>Dicranota</i> sp.            | x | x | x | x | x | x | x |    | x | x |
| <i>Erioptera</i> sp.            |   |   |   |   | x | x |   |    |   |   |
| <i>Hexatoma</i> sp.             | x | x | x | x |   | x | x | x  | x | x |
| <i>Longurio</i> sp.             | x | x |   |   | x |   | x |    |   | x |
| <i>Limnophila</i> sp.           |   | x | x | x | x | x | x |    | x |   |
| <i>Limonia</i> sp.              |   |   |   | x | x |   | x |    | x | x |
| <i>Lipsothrix</i> sp.           | x |   |   |   |   | x | x |    |   |   |
| <i>Ormosia</i> sp.              |   |   | x | x |   | x | x |    | x |   |
| <i>Pilaria</i> sp.              |   |   |   |   |   | x | x |    |   |   |
| <i>Pedicia</i> sp.              |   |   |   |   | x | x |   |    |   |   |
| <i>Tipula</i> "abdominalis"     | x | x |   | x | x | x | x |    | x | x |
| <i>Tipula</i> sp. "moss animal" | x | x | x | x | x | x | x |    | x | x |

Table A1. Continued.

| Site                                        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 7A | 8 | 9 |
|---------------------------------------------|---|---|---|---|---|---|---|----|---|---|
| TAXA                                        |   |   |   |   |   |   |   |    |   |   |
| <i>Tipula</i> sp cf. fig. 11.3 <sup>3</sup> | x |   |   |   | x | x | x |    |   |   |
| <i>Tipula</i> sp.                           | x |   | x |   |   |   | x |    |   | x |
| Tipulidae sp. (early)                       |   |   | x |   |   | x |   |    | x | x |

<sup>1</sup> vegetative cases, not *Micrasema burksi*

<sup>2</sup> collected from a seep near the junction of Sams Creek and Thunderhead Prong

<sup>3</sup> fig. 11. 3 in Brigham, et al. (1982)

Table A2. Taxa collected at site 1 by sampling date. The symbols ♂, ♀, or ♂♀, indicate some or all of the specimens were adult males, females or both. If the symbol is in the taxa column, it indicates all specimens were adults.

| Season                               | Fall |      |       |      |       |      | Winter |      |      | Spring |      |
|--------------------------------------|------|------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                        | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                          |      |      |       |      |       |      |        |      |      |        |      |
| Nematomorpha                         |      |      |       |      |       |      |        |      |      |        |      |
| Horsehair worms                      |      |      |       |      | 1     |      |        |      |      |        |      |
| Annelida                             |      |      |       |      |       |      |        |      |      |        |      |
| Hirudinea                            |      |      |       |      |       |      |        |      |      |        |      |
| <i>Placobdella</i> sp.               | 1    | 1    | 1     |      |       | 4    |        |      |      |        | 1    |
| Oligochaeta                          | 3    | 2    | 1     | 8    | 7     | 7    | 2      | 3    | 2    | 2      | 1    |
| Arthropoda                           |      |      |       |      |       |      |        |      |      |        |      |
| Arachnida                            |      |      |       |      |       |      |        |      |      |        |      |
| Hydracarina                          |      | 1    |       |      |       |      |        |      |      | 1      |      |
| Crustacea                            |      |      |       |      |       |      |        |      |      |        |      |
| Decapoda                             |      |      |       |      |       |      |        |      |      |        |      |
| Astacidae                            |      |      |       |      |       |      |        |      |      |        |      |
| <i>Cambarus bartoni</i>              | 1    | 3    | 2     | 1    | 2     |      | 1      | 1    |      | 4      |      |
| <i>Cambarus</i> sp. (juveniles)      |      |      |       |      |       | 1    |        | 1    | 1    |        | 4    |
| Isopoda                              |      |      |       |      |       |      |        |      |      |        |      |
| Asellidae                            |      |      |       |      |       |      |        |      |      |        |      |
| <i>Lirceus</i> sp.                   |      |      |       |      |       |      | 1      |      |      |        |      |
| Insecta                              |      |      |       |      |       |      |        |      |      |        |      |
| Plecoptera                           |      |      |       |      |       |      |        |      |      |        |      |
| Capniidae                            |      |      |       |      |       |      |        |      |      |        |      |
| <i>Allocapnia/Paracapnia</i> (early) |      |      | 4     |      |       |      |        |      |      |        |      |
| <i>Allocapnia</i> sp.                |      |      |       |      |       |      |        |      | 10   |        |      |
| <i>Paracapnia angulata</i>           |      |      |       |      |       |      | 1      |      |      |        |      |
| Capniidae sp. (early)                |      |      |       |      |       |      |        |      | 1    |        |      |
| Chloroperlidae                       |      |      |       |      |       |      |        |      |      |        |      |
| <i>Alloperla</i> sp.                 | 2    |      |       | 3    |       | 4    |        | 1    |      | 7      | 7    |

Table A2. Continued.

| Season<br>Sampling date                | Fall |      |       |      |       |      | Winter |      |      | Spring |      |
|----------------------------------------|------|------|-------|------|-------|------|--------|------|------|--------|------|
|                                        | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                            |      |      |       |      |       |      |        |      |      |        |      |
| <i>Sweltsa</i> sp.                     |      |      | 7     | 8    | 6     | 2    | 5      | 3    | 5    |        |      |
| Chloroperlidae sp. (early)             |      |      |       | 5    |       |      |        |      |      |        |      |
| Leuctridae                             |      |      |       |      |       |      |        |      |      |        |      |
| <i>Leuctra</i> sp.                     | 4♀♂  | 1    | 1     | 15   | 9     | 17   | 14     | 11   | 24   | 20     | 15   |
| <i>Paraleuctra sara</i>                |      |      |       |      | 1     |      |        |      |      |        |      |
| <i>Zealuctra</i> ? (long pronotum)     |      |      |       |      |       |      |        | 1    |      |        |      |
| Nemouridae                             |      |      |       |      |       |      |        |      |      |        |      |
| <i>Amphinemura appalachia</i>          |      |      |       |      |       | 2    | 1      | 1    | 1    | 9      | 7    |
| Peltoperlidae                          |      |      |       |      |       |      |        |      |      |        |      |
| <i>Tallaperla</i> sp.                  | 6    | 13   | 27    | 8    | 8     | 26   | 20     | 28   | 31   | 19     | 23   |
| Perlidae                               |      |      |       |      |       |      |        |      |      |        |      |
| <i>Acroneuria abnormis</i>             |      | 1    | 1     | 3    | 3     | 2    |        | 2    |      |        | 8    |
| <i>Beloneuria</i> sp.                  |      |      | 2     |      |       |      |        |      | 1    | 1      |      |
| <i>Eccoptura xanthenes</i>             | 2    | 5    | 2     | 2    | 6     | 6    | 4      | 5    | 2    |        | 5    |
| <i>Perlesta</i> sp. cf. <i>frisoni</i> | 1    |      |       |      |       |      |        |      |      | 2      | 3    |
| Perlidae sp. (early)                   |      |      | 4     |      | 1     |      |        |      |      |        |      |
| Perlodidae                             |      |      |       |      |       |      |        |      |      |        |      |
| <i>Helopicus subvarians</i>            |      |      |       |      |       |      |        |      |      | 3      |      |
| <i>Isoperla holochlora</i>             |      |      |       |      |       |      | 16     |      | 10   | 39     | 2    |
| <i>Isoperla</i> sp. cf. <i>dicala</i>  |      |      |       |      |       |      | 12     |      |      |        | 27   |
| <i>Isoperla similis</i>                | 3    | 4    |       |      | 2     | 24   | 7      | 2    | 11   |        |      |
| <i>Isoperla</i> sp. (early)            |      |      |       | 3    |       |      |        | 1    | 2    | 6      |      |
| <i>Malirekus hastatus</i>              | 23   | 7    | 3     | 19   | 7     | 6    | 19     | 11   | 16   |        |      |
| <i>Remenus bilobatus</i>               |      |      |       |      |       |      |        |      |      | 2      | 2    |
| <i>Yugus arinus</i>                    |      |      |       |      |       |      |        |      | 1    |        |      |
| <i>Yugus/Malirekus</i> (early)         |      |      |       |      |       |      | 13     |      |      |        | 1    |
| Perlodidae sp. (early)                 | 1    |      |       | 4    |       |      |        |      |      |        |      |

Table A2. Continued.

| Season<br>Sampling date                  | Fall |      |       |      |       |      | Winter |      |      | Spring |      |
|------------------------------------------|------|------|-------|------|-------|------|--------|------|------|--------|------|
|                                          | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                              |      |      |       |      |       |      |        |      |      |        |      |
| Pteronarcyidae                           |      |      |       |      |       |      |        |      |      |        |      |
| <i>Pteronarcys scotti/proteus</i>        |      | 1    |       | 1    |       |      |        |      |      |        |      |
| Taeniopterygidae                         |      |      |       |      |       |      |        |      |      |        |      |
| <i>Bolotoperla rossi</i>                 |      |      |       |      |       |      | 21     |      |      |        |      |
| <i>Oemopteryx contorta</i>               |      |      |       |      |       |      |        | 1    | 10   |        |      |
| <i>Oemopteryx/Taenionema</i> sp.         |      |      |       |      |       |      | 13     | 21   | 2    |        |      |
| <i>Strophopteryx</i> sp.                 |      |      |       |      |       |      |        | 2    | 7    |        |      |
| Ephemeroptera                            |      |      |       |      |       |      |        |      |      |        |      |
| Ameletidae                               |      |      |       |      |       |      |        |      |      |        |      |
| <i>Ameletus cryptostimulus</i>           |      |      |       |      |       |      | 12     | 16   | 36   | 2      | 3    |
| <i>Ameletus</i> sp. (early)              |      |      | 2     |      |       |      |        |      | 1    |        |      |
| Baetidae                                 |      |      |       |      |       |      |        |      |      |        |      |
| <i>Baetis</i> sp. cf. <i>flavistriga</i> |      |      |       |      |       | 1    |        |      |      |        | 29   |
| <i>Baetis</i> sp. cf. <i>tricaudatus</i> | 1    | 4    |       | 9    | 1     |      | 6      |      | 2    |        | 15   |
| <i>Baetis</i> sp. (other)                |      |      |       | 3    |       |      |        |      |      |        |      |
| <i>Baetis</i> sp. (early/damaged)        |      |      |       | 1    |       |      |        |      | 1    |        | 2    |
| Baetidae sp. (early)                     | 1    |      |       |      |       |      |        |      |      |        |      |
| Ephemerellidae                           |      |      |       |      |       |      |        |      |      |        |      |
| <i>Drunella longicornis</i>              |      |      |       |      |       |      |        |      |      | 1      | 10   |
| <i>Drunella tuberculata</i>              | 5    |      |       | 2    |       |      |        |      |      |        |      |
| <i>Ephemerella catawba</i>               |      |      |       |      |       |      | 158    | 31   | 112  | 13     | 40   |
| <i>Ephemerella rossi</i>                 |      |      |       |      |       |      |        |      | 1    | 42     | 30   |
| <i>Ephemerella hispida</i>               |      |      |       |      |       |      | 13     |      | 12   |        | 54   |
| <i>Ephemerella</i> sp. (early)           |      | 4    | 29    | 9    | 34    | 23   | 19     |      | 21   |        |      |
| Ephemerellidae sp. (early)               |      |      |       | 1    |       |      |        |      |      |        |      |
| Heptageniidae                            |      |      |       |      |       |      |        |      |      |        |      |
| <i>Cinygmula subaequalis</i>             |      |      |       |      |       |      | 7      | 11   |      |        | 1    |

Table A2. Continued.

| Season<br>Sampling date                        | Fall |      |       |      |       |      | Winter |      |      | Spring |      |
|------------------------------------------------|------|------|-------|------|-------|------|--------|------|------|--------|------|
|                                                | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                    |      |      |       |      |       |      |        |      |      |        |      |
| <i>Epeorus</i> sp. cf. <i>dispar</i>           | 5    | 7    | 1     | 8    | 12    | 3    | 21     | 42   |      | 37     | 40   |
| <i>Epeorus</i> sp. cf. <i>pleuralis</i>        |      |      |       |      |       |      |        | 1    |      |        | 38   |
| <i>Epeorus</i> sp. (early)                     | 1    |      |       |      |       |      | 4      |      |      | 5      |      |
| <i>Heptagenia</i> sp.                          |      | 2    |       |      |       |      |        |      |      |        |      |
| <i>Leucrocuta thetis</i>                       |      |      | 1     | 15   | 5     | 7    | 1      | 1    |      |        | 9    |
| <i>Leucrocuta</i> sp.                          |      |      |       |      |       | 1    |        |      |      |        |      |
| <i>Rhithrogena amica</i>                       |      |      |       |      |       |      | 4      |      |      |        |      |
| <i>Rhithrogena</i> sp. (early)                 |      |      | 1     |      |       |      |        |      |      |        |      |
| <i>Stenacron</i> sp. cf. <i>carolina</i>       |      | 1    |       | 1    | 2     | 3    |        |      | 1    | 1      | 6    |
| <i>Stenacron</i> sp. cf. <i>pallidum</i>       |      |      |       |      |       |      |        |      |      | 1      |      |
| <i>Stenonema merrivulvum</i>                   |      | 8    | 24    | 28   | 30    |      | 8      |      | 6    | 15     | 9    |
| <i>Stenonema pudicum</i>                       |      | 1    |       |      |       | 33   |        |      |      |        | 1    |
| <i>Stenonema</i> sp. (early)                   |      |      |       |      |       | 4    |        |      | 1    |        |      |
| Heptageniidae sp. (early)                      |      |      |       | 1    | 5     | 2    |        |      |      |        | 1    |
| Leptophlebiidae                                |      |      |       |      |       |      |        |      |      |        |      |
| <i>Habrophlebia vibrans</i>                    |      |      |       |      | 1     |      |        | 1    |      | 3      |      |
| <i>Habrophlebiodes</i> sp.                     |      |      |       |      |       |      |        |      |      |        | 1    |
| <i>Paraleptophlebia adoptiva/mollis</i>        |      | 1    | 1     |      |       |      | 4      | 1    | 9    | 7      | 1    |
| <i>Paraleptophlebia</i> sp. cf. <i>guttata</i> |      |      |       | 3    |       |      |        |      | 6    |        | 5    |
| <i>Paraleptophlebia</i> sp. (early)            |      |      |       | 8    | 5     | 7    |        |      | 2    |        |      |
| Leptophlebiidae sp. (early/ damaged)           |      |      |       |      |       |      |        | 1    |      |        | 1    |
| Odonata                                        |      |      |       |      |       |      |        |      |      |        |      |
| Cordulegastridae                               |      |      |       |      |       |      |        |      |      |        |      |
| <i>Cordulegaster erronea</i>                   |      |      |       |      | 2     |      |        |      |      |        |      |
| Gomphidae                                      |      |      |       |      |       |      |        |      |      |        |      |
| <i>Lanthus vernalis</i>                        | 14   | 5    | 3     | 2    | 7     | 2    | 13     | 32   | 2    | 19     | 27   |
| Heteroptera                                    |      |      |       |      |       |      |        |      |      |        |      |

Table A2. Continued.

| Season<br>Sampling date                | Fall |      |       |      |       |      | Winter |      |      | Spring |      |
|----------------------------------------|------|------|-------|------|-------|------|--------|------|------|--------|------|
|                                        | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                            |      |      |       |      |       |      |        |      |      |        |      |
| Gerridae                               |      |      |       |      |       |      |        |      |      |        |      |
| <i>Aquarius remigis</i>                | 1    | 1    | 5     | 3    | 3     | 2    |        | 1    |      | 2      | 4    |
| Veliidae                               |      |      |       |      |       |      |        |      |      |        |      |
| <i>Microvelia</i> sp.                  |      |      |       |      |       |      |        |      |      | 1      |      |
| Trichoptera                            |      |      |       |      |       |      |        |      |      |        |      |
| Apataniidae                            |      |      |       |      |       |      |        |      |      |        |      |
| <i>Apatania</i> sp.                    |      |      |       |      |       |      | 1      | 1    |      |        | 3    |
| Brachycentridae                        |      |      |       |      |       |      |        |      |      |        |      |
| <i>Micrasema burksi</i>                | 2    | 4    | 2     | 1    | 5     | 1    | 36     | 8    | 15   | 3      | 1    |
| <i>Micrasema</i> sp. <sup>1</sup>      |      |      |       |      |       |      |        |      |      | 1      |      |
| Glossosomatidae                        |      |      |       |      |       |      |        |      |      |        |      |
| <i>Glossosoma nigrior</i> (inc. pupae) | 5    | 8    | 3     | 7    | 4     | 1    | 1      |      | 3    |        | 2    |
| Hydropsychidae                         |      |      |       |      |       |      |        |      |      |        |      |
| <i>Arctopsyche irrorata</i>            | 1    | 3    |       | 2    |       | 1    | 1      |      |      |        |      |
| <i>Ceratopsyche macleodi</i>           |      | 33   | 10    | 44   | 35    | 7    | 47     | 2    | 22   |        |      |
| <i>Diplectrona modesta</i>             |      | 7    | 10    | 30   | 32    | 33   | 5      | 2    | 11   | 30     | 28   |
| <i>Parapsyche apicalis</i>             |      |      |       |      |       |      | 2      |      |      |        | 1    |
| <i>Parapsyche cardis</i>               | 44   | 23   | 28    | 77   | 29    | 2    | 29     | 9    | 18   | 6      | 16   |
| Hydropsychidae sp. (early)             |      |      |       |      |       | 20   |        |      | 2    |        | 3    |
| Lepidostomatidae                       |      |      |       |      |       |      |        |      |      |        |      |
| <i>Lepidostoma</i> sp.                 |      | 1    | 3     | 1    | 1     |      | 9      | 19   | 1    | 31     | 29   |
| Limnephilidae                          |      |      |       |      |       |      |        |      |      |        |      |
| <i>Pseudostenophylax uniformis</i>     |      |      |       |      |       |      | 1      |      |      |        |      |
| <i>Pycnopsyche flavata</i>             |      |      |       |      | 1     |      |        |      |      |        |      |
| <i>Pycnopsyche gentilis</i>            |      |      |       |      |       |      | 5      |      |      |        |      |
| <i>Pycnopsyche flavata/gentilis</i>    |      | 1    | 2     |      |       |      |        |      | 1    |        |      |
| <i>Pycnopsyche guttifer</i> ?          |      |      |       |      |       |      |        |      | 2    |        |      |

Table A2. Continued.

| Season<br>Sampling date               | Fall |      |       |      |       |                | Winter |      |      | Spring |      |
|---------------------------------------|------|------|-------|------|-------|----------------|--------|------|------|--------|------|
|                                       | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02           | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                           |      |      |       |      |       |                |        |      |      |        |      |
| <i>Pycnopsyche sonso</i>              |      |      |       |      |       |                |        |      | 23   |        | 19   |
| <i>Pycnopsyche luculenta/sonso</i>    | 1    | 2    |       | 1    |       | 6 <sup>1</sup> | 11     | 6    |      | 7      |      |
| (early instars)                       |      |      |       |      |       |                |        |      |      |        |      |
| <i>Pycnopsyche/Hydatophylax</i> sp.   |      |      |       |      |       |                |        | 1    |      |        |      |
| (early instars)                       |      |      |       |      |       |                |        |      |      |        |      |
| <i>Pycnopsyche</i> sp. (early)        |      |      | 20    |      |       |                |        |      | 2    |        |      |
| Limnephilidae sp. (early)             |      |      |       |      |       |                |        | 1    |      |        |      |
| Molannidae                            |      |      |       |      |       |                |        |      |      |        |      |
| <i>Molanna blenda</i>                 | 1    |      | 1     | 2    | 5     | 3              | 1      | 4    |      | 4      | 13   |
| Odontoceridae                         |      |      |       |      |       |                |        |      |      |        |      |
| <i>Psilotreta amera?</i> (pupa)       |      |      |       |      |       |                |        |      |      |        | 1    |
| <i>Psilotreta frontalis</i>           | 30   | 17   | 7     | 9    | 12    | 4              | 8      | 9    | 3    | 13     | 33   |
| Philopotamidae                        |      |      |       |      |       |                |        |      |      |        |      |
| <i>Dolophilodes distinctus</i>        | 8    | 3    |       | 12   | 1     | 4              | 2      |      | 4    | 8      | 1?   |
| <i>Wormaldia</i> sp.                  |      | 1    |       |      |       |                |        |      |      |        | 1    |
| Polycentropodidae                     |      |      |       |      |       |                |        |      |      |        |      |
| <i>Nyctiophylax</i> sp.               |      | 5    | 3     | 4    | 4     | 6              | 5      | 1    | 10   |        | 3    |
| <i>Polycentropus</i> sp.              | 2    |      | 3     | 1    | 3     | 1              | 1      | 2    |      |        | 3    |
| Psychomiidae                          |      |      |       |      |       |                |        |      |      |        |      |
| <i>Lype diversa</i>                   |      |      |       |      | 1     | 1              |        |      |      |        |      |
| Rhyacophilidae                        |      |      |       |      |       |                |        |      |      |        |      |
| <i>Rhyacophila appalachia/nigrita</i> | 3    | 6    |       | 3    | 9     | 5              | 1      | 4    | 8    | 5      | 6    |
| <i>Rhyacophila carolina</i>           | 2♂   | 1    | 1     |      |       |                |        |      |      | 1      | 1?   |
| <i>Rhyacophila fuscula</i>            | 1    | 3    | 3     |      |       | 2              |        |      | 2    |        | 14   |
| <i>Rhyacophila glaberrima</i>         |      |      | 1     | 1    | 1     |                | 1      |      |      | 2      |      |
| <i>Rhyacophila minor</i>              |      | 8    | 3     | 23   | 8     | 14             |        |      | 1    |        |      |
| <i>Rhyacophila nigrita</i>            |      |      |       |      |       |                |        |      |      | 5♂     | 1♂   |



Table A2. Continued.

| Season<br>Sampling date                        | Fall           |                 |                |      |       |      | Winter |      |      | Spring |      |
|------------------------------------------------|----------------|-----------------|----------------|------|-------|------|--------|------|------|--------|------|
|                                                | 9/96           | 9/00            | 10/00          | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                    |                |                 |                |      |       |      |        |      |      |        |      |
| <i>Rhyacophila torva</i>                       |                | 1               | 2              | 2    |       |      | 2      |      | 1    | 2      | 3    |
| <i>Rhyacophila</i> sp. nov. cf. <i>nigrita</i> |                |                 | 1              | 3    | 1     |      | 7      |      | 2    |        | 1    |
| <i>Rhyacophila</i> sp. (early)                 |                |                 |                | 1    |       |      |        |      |      |        |      |
| Sericostomatidae                               |                |                 |                |      |       |      |        |      |      |        |      |
| <i>Fattigia pele</i>                           | 14             | 6               | 4              | 4    | 1     | 3    | 8      | 16   | 2    |        | 6    |
| Uenoidae                                       |                |                 |                |      |       |      |        |      |      |        |      |
| <i>Neophylax consimilis</i>                    |                |                 |                |      |       |      | 3      | 2    | 11   |        |      |
| <i>Neophylax mitchelli</i>                     | 5 <sup>2</sup> | 12 <sup>2</sup> | 5 <sup>2</sup> | 6    |       | 1    |        | 14   | 1    | 10     | 20   |
| <i>Neophylax ornatus</i>                       |                | 12              | 3              | 1    | 4     | 15   | 3      | 1    | 4    |        | 2    |
| <i>Neophylax</i> sp. cf. <i>aniqua</i>         |                |                 |                |      |       |      | 4      | 3    |      |        |      |
| <i>Neophylax</i> sp. (early)                   | 5              |                 |                |      |       | 2    |        | 8    |      | 5      |      |
| Coleoptera                                     |                |                 |                |      |       |      |        |      |      |        |      |
| Elmidae                                        |                |                 |                |      |       |      |        |      |      |        |      |
| <i>Optioservus immunis</i> ♂♀                  | 2              | 2               |                | 2    | 1     | 3    |        | 1    |      |        | 1    |
| <i>Optioservus ovalis</i> ♂♀                   |                | 2               |                | 1    | 2     |      |        |      |      | 1      | 2    |
| <i>Optioservus</i> sp.                         |                |                 | 2              |      |       |      |        | 3    | 1    |        | 4    |
| <i>Oulimnius latiusculus</i> ♂♀                |                |                 |                |      | 1     |      |        |      |      |        |      |
| Diptera                                        |                |                 |                |      |       |      |        |      |      |        |      |
| Athericidae                                    |                |                 |                |      |       |      |        |      |      |        |      |
| <i>Atherix lantha</i>                          |                |                 |                |      |       | 1    | 1      |      |      |        | 3    |
| Blephariceridae                                |                |                 |                |      |       |      |        |      |      |        |      |
| <i>Blepharicera</i> sp.                        |                |                 |                |      |       |      | 2      |      |      |        | 1    |
| Ceratopogonidae                                |                |                 |                |      |       |      |        |      |      |        |      |
| <i>Bezzia</i> sp.                              |                |                 |                | 1    |       |      |        |      |      |        |      |
| <i>Bezzia</i> /Palpomyia sp.                   |                |                 | 1              |      |       | 2    |        |      | 1    | 3      | 3    |
| <i>Probezzia</i> sp.                           |                |                 |                | 1    |       |      |        |      |      |        |      |
| Chironomidae                                   | 21             |                 |                |      |       |      | 45     | 1    |      | 37     |      |

Table A2. Continued.

| Season<br>Sampling date         | Fall |      |       |      |       |      | Winter |      |      | Spring |      |
|---------------------------------|------|------|-------|------|-------|------|--------|------|------|--------|------|
|                                 | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |      |      |       |      |       |      |        |      |      |        |      |
| Chironominae                    |      |      |       |      |       |      |        |      |      |        |      |
| Chironomini                     |      | 2    | 1     | 5    | 2     | 2    |        | 1    | 4    |        | 11   |
| Tanytarsini                     |      | 2    | 5     | 25   |       | 3    |        | 2    |      |        | 4    |
| Orthocladinae                   |      | 2    | 2     | 12   | 7     | 9    |        | 40   | 13   |        | 11   |
| Tanypodinae                     |      |      |       |      | 1     |      |        | 4    | 3    |        | 3    |
| Chironomidae pupae              |      |      |       | 1    | 2     |      |        |      |      |        | 1    |
| Dixidae                         |      |      |       |      |       |      |        |      |      |        |      |
| <i>Dixa</i> sp.                 | 5    |      |       | 1    | 1     | 1    |        |      |      | 3      |      |
| Simuliidae (including pupae)    |      |      |       | 1    |       |      | 9      | 39   | 3    | 9      | 21   |
| Tipulidae                       |      |      |       |      |       |      |        |      |      |        |      |
| <i>Antocha</i> sp.              | 1    |      |       |      |       |      |        |      |      |        |      |
| <i>Dicranota</i> sp.            | 1    |      |       |      |       |      |        | 1    | 3    | 7      |      |
| <i>Hexatoma</i> sp.             | 3    | 5    |       | 1    | 1     | 4    | 17     | 4    | 3    | 14     | 5    |
| <i>Longurio</i> sp.             |      |      |       |      |       |      |        |      |      |        | 2    |
| <i>Lipsothrix</i> sp.           |      |      |       |      |       |      | 1      |      |      |        |      |
| <i>Tipula</i> "abdominalis"     |      | 1    |       |      |       |      |        | 1    |      |        |      |
| <i>Tipula</i> sp. "moss animal" | 2    |      |       | 1    | 1     | 3    | 2      | 2    | 1    |        |      |
| <i>Tipula</i> sp cf. fig. 11.3  |      |      |       |      |       |      |        | 1    |      |        |      |
| <i>Tipula</i> sp.               |      |      |       |      |       |      | 1      |      |      |        |      |

<sup>1</sup> cases only; for *Micrasema*, not *burksi*<sup>2</sup> includes mature pupae and adults

Table A3. Taxa collected at site 2 by sampling date. The symbols ♂, ♀, or ♂♀, indicate some or all of the specimens were adult males, females or both. If the symbol is in the taxa column, it indicates all specimens were adults.

| Season                          | Fall |      |       |      |       |      | Winter |      |      | Spring |      |
|---------------------------------|------|------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                   | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |      |      |       |      |       |      |        |      |      |        |      |
| Annelida                        |      |      |       |      |       |      |        |      |      |        |      |
| Hirudinea                       |      |      |       |      |       |      |        |      |      |        |      |
| <i>Placobdella</i> sp.          |      |      |       | 3    | 1     | 5    |        |      |      | 4      |      |
| Oligochaeta                     | 1    | 2    | 8     | 3    |       | 3    | 2      | 1    | 2    |        | 1    |
| Arthropoda                      |      |      |       |      |       |      |        |      |      |        |      |
| Crustacea                       |      |      |       |      |       |      |        |      |      |        |      |
| Decapoda                        |      |      |       |      |       |      |        |      |      |        |      |
| Astacidae                       |      |      |       |      |       |      |        |      |      |        |      |
| <i>Cambarus bartoni</i>         |      | 2    | 4     |      |       |      | 1      |      |      | 4      |      |
| <i>Cambarus</i> sp. (juveniles) |      |      |       |      |       | 2    |        | 3    |      |        | 10   |
| Isopoda                         |      |      |       |      |       |      |        |      |      |        |      |
| Asellidae                       |      |      |       |      |       |      |        |      |      |        |      |
| <i>Lirceus</i> sp.              |      |      |       |      |       |      | 4      |      |      |        |      |
| Insecta                         |      |      |       |      |       |      |        |      |      |        |      |
| Plecoptera                      |      |      |       |      |       |      |        |      |      |        |      |
| Capniidae                       |      |      |       |      |       |      |        |      |      |        |      |
| <i>Allocapnia</i> sp.           |      |      |       |      |       |      | 1      |      |      |        |      |
| <i>Paracapnia</i> sp.           |      |      |       |      |       |      |        | 1♀   |      |        |      |
| Capniidae sp. (early)           |      |      | 10    | 1    |       |      |        |      |      |        |      |
| Chloroperlidae                  |      |      |       |      |       |      |        |      |      |        |      |
| <i>Alloperla</i> sp.            | 4    |      | 1     | 1    |       |      | 1      | 3    | 1    | 5      |      |
| <i>Haploperla brevis</i>        |      |      |       |      |       |      |        |      |      |        | 3    |
| <i>Sweltsa</i> sp.              |      | 3    | 19    | 4    | 5     | 2    | 5      | 6    | 4    |        | 2    |
| Chloroperlidae sp. (early)      |      |      | 2     |      |       |      | 4      |      | 2    |        | 2    |

Table A3. Continued.

| Season                                 | Fall |      |       |      |       |      | Winter |      |      | Spring |      |
|----------------------------------------|------|------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                          | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                            |      |      |       |      |       |      |        |      |      |        |      |
| Leuctridae                             |      |      |       |      |       |      |        |      |      |        |      |
| <i>Leuctra</i> sp.                     | 15   | 4    | 8     | 11♀♂ |       | 5    | 52     | 3    | 5♀♂  | 26     | 31♀♂ |
| Nemouridae                             |      |      |       |      |       |      |        |      |      |        |      |
| <i>Amphinemura appalachia</i>          |      |      |       |      |       |      | 3      | 5    |      | 4      | 26   |
| <i>Amphinemura</i> sp. (early)         |      |      |       | 1    |       |      |        |      |      |        |      |
| Peltoperlidae                          |      |      |       |      |       |      |        |      |      |        |      |
| <i>Tallaperla</i> sp.                  | 67   | 19   | 75    | 9    | 26    | 16   | 18     | 21   | 22   | 9      | 36   |
| Perlidae                               |      |      |       |      |       |      |        |      |      |        |      |
| <i>Acroneuria abnormis</i>             |      | 1    | 12    |      | 3     | 3    | 1      | 2    | 3    |        | 8    |
| <i>Beloneuria</i> sp.                  |      | 1    | 7     |      |       |      | 1      |      |      | 5      |      |
| <i>Eccopectura xanthenes</i>           |      | 4    | 10    |      | 3     | 3    |        | 2    | 3    | 3      | 3    |
| <i>Perlesta</i> sp. cf. <i>frisoni</i> | 1    |      |       |      |       |      |        |      |      | 1      | 6    |
| Perlidae sp. (early)                   |      | 1    | 1     | 3    | 1     |      |        |      |      |        |      |
| Perlodidae                             |      |      |       |      |       |      |        |      |      |        |      |
| <i>Helopicus subvarians</i>            |      |      |       |      |       |      | 9      |      |      | 4      |      |
| <i>Isoperla holochlora</i>             |      |      | 55    | 3    | 1     |      | 9      |      | 6    | 25     | 19   |
| <i>Isoperla</i> sp. cf. <i>dicala</i>  |      |      |       |      |       |      |        |      |      |        | 3    |
| <i>Isoperla similis</i>                |      | 1    | 14    |      |       | 14   | 14     | 18   | 2    |        | 1    |
| <i>Isoperla</i> sp. (early)            |      |      | 5     |      |       |      | 4      |      |      | 10     | 7    |
| <i>Malirekus hastatus</i>              | 27   | 7    | 7     | 6    | 12    | 2    | 23     | 14   | 1    |        | 8    |
| <i>Remenus bilobatus</i>               |      |      |       |      |       |      |        |      |      | 2      | 5    |
| <i>Yugus/Malirekus</i> (early)         |      |      | 1     |      |       |      | 40     | 1    |      |        |      |
| Perlodidae sp. (early)                 | 1    |      | 3     | 2    |       |      |        |      | 2    |        | 7    |
| Pteronarcyidae                         |      |      |       |      |       |      |        |      |      |        |      |
| <i>Pteronarcys scotti/proteus</i>      |      | 1    | 2     | 1    |       |      |        |      |      |        | 1    |
| Taeniopterygidae                       |      |      |       |      |       |      |        |      |      |        |      |
| <i>Bolotoperla rossi</i>               |      |      |       |      |       |      | 19     |      |      |        |      |

Table A3. Continued.

| Season<br>Sampling date                  | Fall |      |       |      |       |      | Winter |      |      | Spring |      |
|------------------------------------------|------|------|-------|------|-------|------|--------|------|------|--------|------|
|                                          | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                              |      |      |       |      |       |      |        |      |      |        |      |
| <i>Oemopteryx contorta</i>               |      |      |       |      |       |      |        |      | 1♀   |        |      |
| <i>Oemopteryx/Taenionema</i> sp.         |      |      |       |      |       |      | 1      | 2    | 2    |        |      |
| <i>Strophopteryx limata</i>              |      |      |       |      |       |      | 11     |      |      |        |      |
| <i>Strophopteryx</i> sp.                 |      |      |       |      |       |      |        | 6    | 12   |        |      |
| <i>Taeniopteryx</i> sp.                  |      |      |       |      |       |      | 1♀     |      |      |        |      |
| Taeniopterygidae sp. (early)             |      |      | 4     |      |       |      | 1      |      |      |        |      |
| Ephemeroptera                            |      |      |       |      |       |      |        |      |      |        |      |
| Ameletidae                               |      |      |       |      |       |      |        |      |      |        |      |
| <i>Ameletus cryptostimulus</i>           |      |      | 3     |      |       |      | 15     | 33   |      | 3      |      |
| <i>Ameletus</i> sp. (early)              |      |      |       |      | 1     |      |        |      |      |        |      |
| Baetidae                                 |      |      |       |      |       |      |        |      |      |        |      |
| <i>Acentrella</i> sp.                    |      |      |       |      |       |      |        |      |      | 1      |      |
| <i>Baetis</i> sp. cf. <i>flavistriga</i> | 1    |      | 1     |      |       |      |        |      | 13   | 3      | 13   |
| <i>Baetis</i> sp. cf. <i>tricaudatus</i> | 10   | 8    | 8     | 15   | 3     | 3    | 12     | 6    | 11   | 39     | 12   |
| <i>Baetis</i> sp. (other)                |      |      |       |      |       |      |        |      |      |        | 10   |
| <i>Baetis</i> sp. (early/damaged)        | 2    |      | 2     |      |       |      |        |      | 1    | 1      | 56   |
| Baetidae sp. (early)                     |      |      | 1     |      |       |      |        |      |      |        |      |
| Ephemerellidae                           |      |      |       |      |       |      |        |      |      |        |      |
| <i>Drunella longicornis</i>              |      |      |       |      |       |      |        |      |      |        | 39   |
| <i>Drunella tuberculata</i>              | 15   |      | 1     | 5    | 2     |      |        |      |      |        |      |
| <i>Drunella</i> sp. (early)              |      |      |       |      |       |      |        |      |      |        | 1    |
| <i>Ephemerella catawba</i>               |      |      |       |      |       |      | 140    | 115  | 176  | 13     | 31   |
| <i>Ephemerella rossi</i>                 |      |      |       |      |       |      |        |      |      | 67     | 78   |
| <i>Ephemerella hispida</i>               |      |      |       |      |       |      |        | 12   |      | 9      |      |
| <i>Ephemerella</i> sp. (early)           |      |      | 83    | 15   | 6     | 7    | 27     | 19   | 27   | 3      | 7    |
| <i>Eurylophella funeralis</i>            |      |      |       | 1    |       |      |        |      |      |        | 2    |
| Heptageniidae                            |      |      |       |      |       |      |        |      |      |        |      |

Table A3. Continued.

| Season                                         | Fall |      |       |      |       |      | Winter |      |      | Spring |      |
|------------------------------------------------|------|------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                                  | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                    |      |      |       |      |       |      |        |      |      |        |      |
| <i>Cinygmula subaequalis</i>                   |      |      |       |      |       |      |        | 28   |      |        |      |
| <i>Epeorus</i> sp. cf. <i>dispar</i>           | 4    | 5    | 32    | 5    | 3     | 16   | 30     | 11   | 23   | 26     | 138  |
| <i>Epeorus</i> sp. cf. <i>pleuralis</i>        |      |      | 8     |      |       |      |        | 14   |      |        |      |
| <i>Epeorus</i> sp. (early)                     | 16   | 2    | 19    | 4    |       |      | 12     | 4    | 8    |        | 1    |
| <i>Heptagenia</i> sp.                          | 6    |      |       |      |       |      |        |      |      |        | 2    |
| <i>Leucrocuta hebe/aphrodite</i>               |      |      |       |      |       |      |        |      |      |        | 2    |
| <i>Leucrocuta juno/maculipennis</i>            |      |      |       |      |       | 11   |        |      |      |        |      |
| <i>Leucrocuta maculipennis</i>                 |      | 2    |       |      |       |      |        |      |      |        |      |
| <i>Leucrocuta thetis</i>                       |      | 7    | 17    | 9    | 4     | 22   | 8      | 3    | 7    | 10     | 20   |
| <i>Leucrocuta</i> sp. cf. <i>thetis</i>        |      |      |       |      |       | 1    |        |      |      |        |      |
| <i>Rhithrogena</i> sp. (early)                 |      | 1    | 12    |      | 1     |      |        |      |      |        |      |
| <i>Stenacron</i> sp. cf. <i>carolina</i>       |      |      | 14    |      |       | 2    |        | 1    |      | 4      | 3    |
| <i>Stenacron</i> sp. cf. <i>pallidum</i>       | 1    |      |       |      |       |      |        |      |      |        |      |
| <i>Stenacron</i> sp. (early)                   |      |      |       |      |       |      |        |      |      |        | 1    |
| <i>Stenonema merririvulanum</i>                | 8    | 26   | 48    | 8    | 5     | 47   | 7      | 9    | 5    | 7      | 29   |
| <i>Stenonema pudicum</i>                       |      |      |       |      |       | 2    |        |      | 1    |        | 1    |
| <i>Stenonema</i> sp. (early)                   |      | 5    |       |      |       |      |        |      |      |        |      |
| Heptageniidae sp. (early)                      | 1    |      | 4     |      |       |      | 4      | 2    |      |        |      |
| Leptophlebiidae                                |      |      |       |      |       |      |        |      |      |        |      |
| <i>Habrophlebia vibrans</i>                    |      |      |       |      |       |      |        |      |      |        | 10   |
| <i>Paraleptophlebia</i>                        |      |      |       |      |       |      |        |      |      |        |      |
| <i>adoptiva/mollis</i>                         |      |      | 15    |      |       |      | 15     | 5    |      | 10     | 8    |
| <i>Paraleptophlebia</i> sp. cf. <i>guttata</i> |      |      | 1     |      |       | 4    |        |      | 2    | 2      |      |
| <i>Paraleptophlebia</i> sp. (early)            | 1    | 5    | 17    | 6    |       |      | 1      |      |      |        |      |
| Leptophlebiidae sp. (early/<br>damaged)        |      |      |       |      |       |      |        | 1    |      |        | 3    |
| Odonata                                        |      |      |       |      |       |      |        |      |      |        |      |

Table A3. Continued.

| Season<br>Sampling date                 | Fall |      |       |      |       |      | Winter |      |      | Spring |      |
|-----------------------------------------|------|------|-------|------|-------|------|--------|------|------|--------|------|
|                                         | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                             |      |      |       |      |       |      |        |      |      |        |      |
| Cordulegastridae                        |      |      |       |      |       |      |        |      |      |        |      |
| <i>Cordulegaster erronea</i>            |      | 1    |       |      | 1     |      |        |      |      |        | 1    |
| Gomphidae                               |      |      |       |      |       |      |        |      |      |        |      |
| <i>Lanthus vernalis</i>                 | 7    | 4    | 2     | 1    | 4     | 4    | 12     | 14   | 5    | 15     | 15   |
| Heteroptera                             |      |      |       |      |       |      |        |      |      |        |      |
| Gerridae                                |      |      |       |      |       |      |        |      |      |        |      |
| <i>Aquarius remigis</i>                 |      | 2    | 6     |      | 1     | 2    |        |      |      | 3      | 5    |
| Veliidae                                |      |      |       |      |       |      |        |      |      |        |      |
| <i>Microvelia</i> sp.                   |      |      |       |      |       |      |        |      |      | 2      |      |
| <i>Rhagovelia obesa</i>                 |      |      |       |      |       |      |        |      |      |        | 2    |
| Trichoptera                             |      |      |       |      |       |      |        |      |      |        |      |
| Apataniidae                             |      |      |       |      |       |      |        |      |      |        |      |
| <i>Apatania</i> sp.                     |      |      | 1     | 1    | 1     |      |        | 3    |      |        | 4    |
| Brachycentridae                         |      |      |       |      |       |      |        |      |      |        |      |
| <i>Micrasema burksi</i>                 | 1    | 1    |       | 1    | 2     | 1    | 23     | 12   | 3    | 1      |      |
| <i>Micrasema</i> sp. <sup>2</sup>       |      |      |       |      |       |      |        |      |      | 1      | 4    |
| Glossosomatidae                         |      |      |       |      |       |      |        |      |      |        |      |
| <i>Glossosoma nigrrior</i> (inc. pupae) | 9    | 3    | 2     | 6    | 1     | 1    |        |      |      |        | 8    |
| Hydropsychidae                          |      |      |       |      |       |      |        |      |      |        |      |
| <i>Arctopsyche irrorata</i>             |      | 7    | 12    | 3    | 3     |      |        |      |      |        |      |
| <i>Ceratopsyche macleodi</i>            | 64   | 27   | 79    | 18   | 12    | 5    | 14     | 8    | 11   |        | 1    |
| <i>Ceratopsyche slossonae</i>           |      |      |       |      |       |      |        |      |      |        | 1    |
| <i>Diplectrona modesta</i>              | 5    | 3    | 16    | 5    | 9     | 72   | 21     | 2    | 4    | 37     | 92   |
| <i>Parapsyche cardis</i>                | 40   | 34   | 21    | 5    | 28    | 4    | 38     | 6    | 18   | 6      | 7    |
| Hydropsychidae sp. (early)              |      |      | 1     |      |       | 1    |        |      |      |        |      |
| Lepidostomatidae                        |      |      |       |      |       |      |        |      |      |        |      |
| <i>Lepidostoma</i> sp.                  | 1    |      |       | 1    | 1     |      | 8      | 12   | 8    | 9      | 4    |



Table A3. Continued.

| Season                                         | Fall           |                |       |      |                |                | Winter          |      |      | Spring         |      |
|------------------------------------------------|----------------|----------------|-------|------|----------------|----------------|-----------------|------|------|----------------|------|
| Sampling date                                  | 9/96           | 9/00           | 10/00 | 9/01 | 10/01          | 9/02           | 2/97            | 2/01 | 2/02 | 6/96           | 6/02 |
| <b>TAXA</b>                                    |                |                |       |      |                |                |                 |      |      |                |      |
| Limnephilidae                                  |                |                |       |      |                |                |                 |      |      |                |      |
| <i>Pycnopsyche gentilis</i>                    |                |                |       |      |                |                |                 | 2    |      |                |      |
| <i>Pycnopsyche flavata/gentilis</i>            |                |                |       |      |                | 2              |                 |      |      |                | 2    |
| <i>Pycnopsyche sonso</i>                       |                |                |       |      |                |                |                 | 33   | 27   |                | 25   |
| <i>Pycnopsyche luculenta/sonso</i>             | 1 <sup>1</sup> | 8 <sup>2</sup> |       |      | 2 <sup>2</sup> | 3 <sup>2</sup> | 26 <sup>1</sup> |      |      | 6 <sup>1</sup> |      |
| <i>Pycnopsyche</i> sp. (early)                 |                |                | 69    |      |                |                |                 | 1    | 2    |                |      |
| Molannidae                                     |                |                |       |      |                |                |                 |      |      |                |      |
| <i>Molanna blenda</i>                          | 6              | 6              |       |      |                | 5              | 4               |      |      | 3              | 13   |
| Odontoceridae                                  |                |                |       |      |                |                |                 |      |      |                |      |
| <i>Psilotreta frontalis</i>                    | 5              | 5              | 2     |      | 1              | 7              | 11              | 2    | 4    | 4              | 6    |
| <i>Psilotreta</i> sp. (early)                  | 1              |                |       |      |                |                |                 |      |      | 4              | 1    |
| Philopotamidae                                 |                |                |       |      |                |                |                 |      |      |                |      |
| <i>Dolophilodes distinctus</i>                 | 28♂            | 4              | 15    | 3    |                |                | 4♂              |      |      | 12♂            |      |
| <i>Wormaldia</i> sp.                           |                |                |       |      |                |                |                 |      |      | 16             |      |
| Polycentropodidae                              |                |                |       |      |                |                |                 |      |      |                |      |
| <i>Nyctiophylax</i> sp.                        |                | 5              | 17    |      |                | 3              | 4               | 3    | 2    |                | 5    |
| <i>Polycentropus</i> sp.                       | 1              |                | 4     |      | 1              | 2              | 2               | 1    |      |                | 4    |
| Psychomiidae                                   |                |                |       |      |                |                |                 |      |      |                |      |
| <i>Lype diversa</i>                            |                |                | 3     |      | 1              |                |                 |      |      |                | 1♂   |
| Rhyacophilidae                                 |                |                |       |      |                |                |                 |      |      |                |      |
| <i>Rhyacophila appalachia/nigrita</i>          | 3              | 7              | 4     | 3    | 6              | 6              |                 | 9    | 5    |                | 16   |
| <i>Rhyacophila carolina</i>                    | 2              | 1              | 2     |      |                | 1              | 1               | 1    |      | 1              |      |
| <i>Rhyacophila fuscula</i>                     | 3              | 2              | 2     | 1    | 3              | 3              | 3               | 3    | 5    | 9              | 4    |
| <i>Rhyacophila glaberrima</i>                  | 1              |                | 1     |      |                |                |                 |      | 2    | 5              |      |
| <i>Rhyacophila minor</i>                       |                | 5              | 3     | 9    | 7              |                |                 |      |      |                |      |
| <i>Rhyacophila torva</i>                       |                |                |       |      |                | 1              | 2               |      | 1    | 4              |      |
| <i>Rhyacophila</i> sp. nov. cf. <i>nigrita</i> |                |                |       | 1    | 3              |                | 5               | 4    | 4    |                | 1    |



Table A3. Continued.

| Season                          | Fall |                |       |                |                |                | Winter |      |      | Spring |      |
|---------------------------------|------|----------------|-------|----------------|----------------|----------------|--------|------|------|--------|------|
| Sampling date                   | 9/96 | 9/00           | 10/00 | 9/01           | 10/01          | 9/02           | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |      |                |       |                |                |                |        |      |      |        |      |
| <i>Rhyacophila</i> sp. (early)  |      |                | 2     |                |                | 5              |        |      |      |        |      |
| <i>Rhyacophila</i> sp. (pupae)  |      |                |       |                |                |                |        |      |      |        | 1    |
| Sericostomatidae                |      |                |       |                |                |                |        |      |      |        |      |
| <i>Fattigia pele</i>            | 5    |                |       | 1              |                | 6              | 10     | 2    |      | 4      | 4    |
| Uenoidae                        |      |                |       |                |                |                |        |      |      |        |      |
| <i>Neophylax aniqua?</i>        |      | 3              | 1     |                |                |                |        |      |      |        |      |
| <i>Neophylax concinnus</i>      |      |                |       |                |                |                |        |      |      |        | 1    |
| <i>Neophylax consimilis</i>     |      | 1              |       |                | 2              |                |        |      |      |        | 2    |
| <i>Neophylax mitchelli</i>      |      | 4 <sup>3</sup> |       | 1 <sup>3</sup> | 1 <sup>3</sup> | 1 <sup>3</sup> |        | 7    | 9    | 2      | 26   |
| <i>Neophylax ornatus</i>        |      | 9              | 30    | 2              |                |                | 6      | 4    | 5    |        | 4    |
| <i>Neophylax</i> sp. (early)    | 3    |                | 2     |                |                |                | 6      |      |      |        |      |
| Coleoptera                      |      |                |       |                |                |                |        |      |      |        | 1    |
| Elmidae                         |      |                |       |                |                |                |        |      |      |        |      |
| <i>Optioservus immunis</i> ♂♀   | 1    |                | 1     |                |                |                |        |      |      |        |      |
| <i>Optioservus ovalis</i> ♂♀    | 4    | 1              | 13    | 4              | 6              | 1              |        |      |      |        | 3    |
| <i>Optioservus</i> sp.          |      |                |       | 3              | 3              |                |        |      |      | 1      |      |
| <i>Oulimnius latiusculus</i> ♂♀ |      |                |       | 2              | 1              |                |        |      |      |        | 1    |
| <i>Promoresia elegans</i>       |      |                |       |                |                |                |        |      | 1    |        |      |
| Diptera                         |      |                |       |                |                |                |        |      |      |        |      |
| Athericidae                     |      |                |       |                |                |                |        |      |      |        |      |
| <i>Atherix lantha</i>           | 1    |                |       |                |                | 2              |        |      | 1    |        | 9    |
| Blephariceridae                 |      |                |       |                |                |                |        |      |      |        |      |
| <i>Blepharicera</i> sp.         | 2    |                |       |                |                |                |        | 1    |      | 1      | 1    |
| Ceratopogonidae                 |      |                |       |                |                |                |        |      |      |        |      |
| <i>Atrichopogon</i> sp?         | 1    |                |       |                |                |                |        |      |      |        |      |
| <i>Bezzia</i> sp.               |      |                |       |                |                |                |        |      | 2    |        |      |
| <i>Bezzia/Palpomyia</i> sp.     |      |                |       |                |                |                | 1      |      |      |        |      |

Table A3. Continued.

| Season                          | Fall |      |       |      |       |      | Winter |      |      | Spring |      |
|---------------------------------|------|------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                   | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |      |      |       |      |       |      |        |      |      |        |      |
| Chironomidae                    | 20   |      |       |      |       |      | 43     |      |      | 30     |      |
| Chironominae                    |      |      |       |      |       |      |        |      |      |        |      |
| Chironomini                     |      | 1    | 5     | 1    | 4     | 1    |        | 3    |      |        | 14   |
| Tanytarsini                     |      | 1    | 5     | 8    |       | 5    |        | 4    | 6    |        | 3    |
| Orthocladinae                   |      | 6    | 33    | 12   | 2     | 7    |        | 10   | 15   |        | 33   |
| Tanypodinae                     |      |      |       |      |       | 1    |        | 1    |      |        | 10   |
| Chironomidae pupae              |      |      | 3     |      | 2     | 2    |        |      |      |        | 1    |
| Dixidae                         |      |      |       |      |       |      |        |      |      |        |      |
| <i>Dixa</i> sp.                 |      |      | 1     | 3    | 4     | 1    |        |      |      |        | 12   |
| Psychodidae                     |      |      |       |      |       |      |        |      |      |        |      |
| <i>Pericoma albitarsis</i>      |      |      |       |      |       |      |        | 1    |      |        |      |
| Simuliidae (including pupae)    | 7    | 1    | 6     | 10   |       | 3    | 5      | 22   | 25   | 17     | 4    |
| Tipulidae                       |      |      |       |      |       |      |        |      |      |        |      |
| <i>Antocha</i> sp.              |      |      | 1     |      | 3     |      |        |      |      | 1      |      |
| <i>Dicranota</i> sp.            | 7    |      | 1     |      |       |      | 1      |      |      | 3      |      |
| <i>Hexatoma</i> sp.             | 4    | 3    | 2     | 4    | 3     | 5    | 11     | 2    | 2    | 2      | 6    |
| <i>Longurio</i> sp.             |      |      |       |      |       |      |        | 1    |      |        |      |
| <i>Limnophila</i> sp.           |      |      |       |      |       |      | 1      |      |      |        |      |
| <i>Tipula</i> "abdominalis"     |      |      |       |      |       |      | 1      | 1    |      |        |      |
| <i>Tipula</i> sp. "moss animal" |      | 1    |       |      | 1     |      |        |      |      |        |      |

<sup>1</sup> early instars<sup>2</sup> cases only; for *Micrasema*, not *burksi*<sup>3</sup> includes mature pupae and adults

Table A4. Taxa collected at site 3 by sampling date. The symbols ♂, ♀, or ♂♀, indicate some or all of the specimens were adult males, females or both. If the symbol is in the taxa column, it indicates all specimens were adults.

| Season                          | Fall |      |      |       |      | Winter |      | Spring |      |
|---------------------------------|------|------|------|-------|------|--------|------|--------|------|
| Sampling date                   | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |      |      |      |       |      |        |      |        |      |
| Platyhelminthes                 |      |      |      |       |      |        |      |        |      |
| Planarians                      |      |      |      |       |      | 1      |      |        |      |
| Annelida                        |      |      |      |       |      |        |      |        |      |
| Hirudinea                       |      |      |      |       |      |        |      |        |      |
| <i>Placobdella</i> sp.          |      |      |      |       |      |        |      |        | 19   |
| Oligochaeta                     | 1    | 1    |      | 2     | 4    | 5      | 2    |        | 5    |
| Arthropoda                      |      |      |      |       |      |        |      |        |      |
| Arachnida                       |      |      |      |       |      |        |      |        |      |
| Hydracarina                     | 1    |      |      |       |      |        |      | 1      |      |
| Crustacea                       |      |      |      |       |      |        |      |        |      |
| Decapoda                        |      |      |      |       |      |        |      |        |      |
| Astacidae                       |      |      |      |       |      |        |      |        |      |
| <i>Cambarus bartoni</i>         | 2    | 2    | 4    | 6     |      |        |      |        | 2    |
| <i>Cambarus</i> sp. (juveniles) |      |      |      |       |      |        | 2    |        |      |
| Insecta                         |      |      |      |       |      |        |      |        |      |
| Plecoptera                      |      |      |      |       |      |        |      |        |      |
| Capniidae                       |      |      |      |       |      |        |      |        |      |
| <i>Paracapnia</i> sp.           |      |      |      |       |      | 5♀     | 3    |        |      |
| Capniidae sp. (early)           |      | 2    |      |       |      |        |      |        | 1    |
| Chloroperlidae                  |      |      |      |       |      |        |      |        |      |
| <i>Alloperla</i> sp.            |      | 1    |      |       |      | 3      | 2    |        | 5    |
| <i>Haploperla brevis</i>        |      |      |      |       |      |        |      | 1      |      |
| <i>Sweltsa</i> sp.              | 9    | 6    | 4    | 7     | 2    | 1      | 3    | 9      |      |
| Chloroperlidae sp. (early)      |      | 2    |      |       |      | 1      |      |        | 3    |

Table A4. Continued.

| Season                                 | Fall |      |      |       |      | Winter |      | Spring |      |
|----------------------------------------|------|------|------|-------|------|--------|------|--------|------|
| Sampling date                          | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                            |      |      |      |       |      |        |      |        |      |
| Leuctridae                             |      |      |      |       |      |        |      |        |      |
| <i>Leuctra ferruginea</i> ♂            | 9    |      |      |       |      |        |      |        |      |
| <i>Leuctra</i> sp.                     | 17   | 6    | 7    | 3♂♀   | 11   | 24     | 4♂♀  | 22     | 12   |
| <i>Paraleuctra sara</i>                |      |      |      |       |      | 1      |      |        |      |
| Nemouridae                             |      |      |      |       |      |        |      |        |      |
| <i>Amphinemura appalachia</i>          |      |      |      |       | 2    | 9      | 3    | 9      | 13   |
| <i>Amphinemura</i> sp. (early)         |      | 2    |      | 2     |      | 1      |      |        |      |
| Nemouridae sp. (early)                 |      |      |      |       |      |        |      |        | 1    |
| Peltoperlidae                          |      |      |      |       |      |        |      |        |      |
| <i>Tallaperla</i> sp.                  |      | 34   | 14   | 25    | 13   | 10     | 9    |        | 10   |
| <i>Viehoperla</i> sp.                  |      |      |      | 1     |      |        |      |        |      |
| Peltoperlidae sp. (early)              | 48   |      |      |       |      |        |      | 4      |      |
| Perlidae                               |      |      |      |       |      |        |      |        |      |
| <i>Acroneuria abnormis</i>             | 1    |      |      | 1     |      |        |      | 1      | 1    |
| <i>Beloneuria</i> sp.                  |      |      |      |       |      | 1      |      |        | 3    |
| <i>Eccopectura xanthenes</i>           | 2    | 6    |      |       |      | 2      |      | 3      | 2    |
| <i>Perlesta</i> sp. cf. <i>frisoni</i> | 2    |      |      |       |      |        |      |        | 1    |
| Perlidae sp. (early)                   |      | 1    |      |       |      | 2      |      |        |      |
| Perlodidae                             |      |      |      |       |      |        |      |        |      |
| <i>Cultus decicus</i>                  | 1    |      |      |       |      |        |      |        |      |
| <i>Isoperla holochlora</i>             |      |      | 3    | 4     | 1    | 4      |      | 19     |      |
| <i>Isoperla</i> sp. cf. <i>dicala</i>  |      |      |      |       |      |        |      |        | 17   |
| <i>Isoperla similis</i>                | 4    | 2    |      | 1     | 4    | 12     | 2    |        |      |
| <i>Malirekus hastatus</i>              | 12   | 5    | 3    | 6     |      | 9      | 1    | 5      | 1    |
| <i>Remenus bilobatus</i>               |      |      |      |       |      |        |      | 3      | 3    |
| <i>Yugus/Malirekus</i> (early)         |      |      |      |       |      | 16     |      |        |      |
| Perlodidae sp. (early)                 |      | 1    | 2    |       |      |        |      |        | 1    |

Table A4. Continued.

| Season<br>Sampling date                  | Fall |      |      |       |      | Winter |      | Spring |      |
|------------------------------------------|------|------|------|-------|------|--------|------|--------|------|
|                                          | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                              |      |      |      |       |      |        |      |        |      |
| Taeniopterygidae                         |      |      |      |       |      |        |      |        |      |
| <i>Oemopteryx contorta</i> ♀             |      |      |      |       |      |        | 1    |        |      |
| <i>Oemopteryx/Taenionema</i> sp.         |      |      |      |       |      | 14     |      |        |      |
| <i>Strophopteryx</i> sp.                 |      |      |      |       |      | 41     |      |        |      |
| Ephemeroptera                            |      |      |      |       |      |        |      |        |      |
| Ameletidae                               |      |      |      |       |      |        |      |        |      |
| <i>Ameletus cryptostimulus</i>           |      |      |      |       |      | 7      | 2    | 1      | 1    |
| Baetidae                                 |      |      |      |       |      |        |      |        |      |
| <i>Baetis</i> sp. cf. <i>flavistriga</i> | 1    |      |      |       |      |        |      |        | 3    |
| <i>Baetis</i> sp. cf. <i>tricaudatus</i> | 9    | 3    | 4    | 3     | 1    | 20     |      |        | 1    |
| <i>Baetis</i> sp. (early/damaged)        |      | 1    |      |       |      |        |      | 4      |      |
| <i>Centroptilum</i> s.l. (damaged)       |      |      |      |       |      |        |      | 1      |      |
| Baetidae sp. (early)                     | 4    | 2    |      |       |      |        |      | 2      |      |
| Ephemerellidae                           |      |      |      |       |      |        |      |        |      |
| <i>Drunella longicornis</i>              |      |      |      |       |      |        |      | 3      | 1    |
| <i>Drunella tuberculata</i>              | 10   |      |      |       |      |        |      |        |      |
| <i>Ephemerella catawba</i>               |      |      |      |       |      | 29     | 2    | 4      | 10   |
| <i>Ephemerella rossi</i>                 |      |      |      |       |      |        |      | 8      | 14   |
| <i>Ephemerella hispida</i>               |      |      |      |       |      | 1      |      |        | 2    |
| <i>Ephemerella</i> sp. (early)           |      |      |      |       |      |        | 1    |        | 1    |
| Ephemerellidae sp. (early)               |      |      |      | 1     | 1    |        |      |        |      |
| Heptageniidae                            |      |      |      |       |      |        |      |        |      |
| <i>Cinygmula subaequalis</i>             |      |      |      |       |      | 6      |      | 4      | 1    |
| <i>Epeorus</i> sp. cf. <i>dispar</i>     | 5    | 5    | 6    | 13    | 15   | 37     | 1    | 26     | 7    |
| <i>Epeorus</i> sp. cf. <i>pleuralis</i>  |      |      |      |       |      |        | 2    |        | 9    |
| <i>Epeorus</i> sp. (early)               | 2    | 4    |      |       |      |        |      |        | 1    |
| <i>Leucrocuta thetis</i>                 | 7    | 5    | 7    | 11    | 5    |        |      | 2      | 3    |

Table A4. Continued.

| Season<br>Sampling date                        | Fall |      |      |       |      | Winter |      | Spring |      |
|------------------------------------------------|------|------|------|-------|------|--------|------|--------|------|
|                                                | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                    |      |      |      |       |      |        |      |        |      |
| <i>Leucrocuta</i> sp.                          |      | 4    |      |       | 1    |        | 1    | 9      |      |
| <i>Stenacron</i> sp. cf. <i>carolina</i>       | 1    | 1    | 5    | 2     |      |        |      | 6      | 18   |
| <i>Stenacron</i> sp. cf. <i>pallidum</i>       |      |      | 2    |       |      |        |      |        |      |
| <i>Stenonema merrivulatum</i>                  | 14   | 21   | 9    | 17    |      | 5      | 7    | 18     | 25   |
| <i>Stenonema pudicum</i>                       |      | 1    |      |       | 28   |        |      |        |      |
| <i>Stenonema</i> sp. (early)                   |      | 2    |      |       |      |        |      |        |      |
| Heptageniidae sp. (early)                      |      |      | 2    | 1     |      |        |      |        | 1    |
| Leptophlebiidae                                |      |      |      |       |      |        |      |        |      |
| <i>Habrophlebia vibrans</i>                    |      |      | 1    | 1     |      |        |      |        |      |
| <i>Paraleptophlebia adoptiva/mollis</i>        |      |      |      |       |      | 4      |      | 8      | 3    |
| <i>Paraleptophlebia</i> sp. cf. <i>guttata</i> |      |      |      |       | 7    |        |      |        | 6    |
| <i>Paraleptophlebia</i> sp. (early)            | 3    |      |      |       | 4    |        |      |        |      |
| Leptophlebiidae sp. (early/<br>damaged)        |      |      |      |       |      |        |      |        | 3    |
| Odonata                                        |      |      |      |       |      |        |      |        |      |
| Aeschnidae                                     |      |      |      |       |      |        |      |        |      |
| <i>Boyeria grafiana</i>                        |      |      |      |       |      |        | 1    |        |      |
| Cordulegastridae                               |      |      |      |       |      |        |      |        |      |
| <i>Cordulegaster erronea</i>                   | 1    |      |      | 1     |      |        |      |        |      |
| Gomphidae                                      |      |      |      |       |      |        |      |        |      |
| <i>Lanthus vernalis</i>                        | 2    | 4    | 3    | 8     | 9    | 5      |      | 17     | 10   |
| Heteroptera                                    |      |      |      |       |      |        |      |        |      |
| Gerridae                                       |      |      |      |       |      |        |      |        |      |
| <i>Aquarius remigis</i>                        | 3    | 2    | 1    | 3     | 2    |        |      | 3      |      |
| Trichoptera                                    |      |      |      |       |      |        |      |        |      |
| Apataniidae                                    |      |      |      |       |      |        |      |        |      |
| <i>Apatania</i> sp.                            |      |      |      |       |      |        |      | 1      |      |

Table A4. Continued.

| Season                                                | Fall |                |                |                |                | Winter |                | Spring |      |
|-------------------------------------------------------|------|----------------|----------------|----------------|----------------|--------|----------------|--------|------|
| Sampling date                                         | 9/96 | 9/00           | 9/01           | 10/01          | 9/02           | 2/97   | 2/02           | 6/96   | 6/02 |
| <b>TAXA</b>                                           |      |                |                |                |                |        |                |        |      |
| Brachycentridae                                       |      |                |                |                |                |        |                |        |      |
| <i>Micrasema burksi</i>                               | 1    | 1              | 2              | 4              | 1              | 10     |                | 1      |      |
| Glossosomatidae                                       |      |                |                |                |                |        |                |        |      |
| <i>Glossosoma nigrrior</i> (inc. pupae)               | 7    | 1              | 1              | 1              | 1              |        |                |        |      |
| Hydropsychidae                                        |      |                |                |                |                |        |                |        |      |
| <i>Ceratopsyche macleodi</i>                          | 18   | 3              | 8              | 13             |                | 8      | 2              |        |      |
| <i>Diplectrona modesta</i>                            | 7    | 8              | 17             | 8              | 14             | 6      | 5              | 25     | 11   |
| <i>Parapsyche apicalis</i>                            |      |                |                |                |                | 5      |                |        | 5    |
| <i>Parapsyche cardis</i>                              | 16   | 18             | 14             | 52             | 5              | 7      | 2              | 9      | 22   |
| Hydropsychidae sp. (early)                            | 2    | 1              |                |                | 1              |        |                | 1      |      |
| Lepidostomatidae                                      |      |                |                |                |                |        |                |        |      |
| <i>Lepidostoma griseum</i> ♂                          | 1    |                |                |                |                |        |                |        |      |
| <i>Lepidostoma</i> sp.                                | 1    |                | 5 <sup>1</sup> | 1 <sup>1</sup> | 5 <sup>1</sup> | 24     |                | 10     | 12   |
| Limnephilidae                                         |      |                |                |                |                |        |                |        |      |
| <i>Pycnopsyche flavata</i>                            |      |                |                |                |                | 3      | 1              |        |      |
| <i>Pycnopsyche flavata/gentilis</i>                   | 1    |                |                |                | 1 <sup>1</sup> | 8      | 2 <sup>1</sup> | 1      |      |
| <i>Pycnopsyche sonso</i>                              |      |                |                |                |                |        |                |        | 14   |
| <i>Pycnopsyche luculenta/sonso</i><br>(early instars) | 1    |                | 4 <sup>1</sup> | 2 <sup>1</sup> | 4 <sup>1</sup> | 30     |                | 14     |      |
| <i>Pycnopsyche</i> sp. (early)                        |      |                | 1 <sup>1</sup> | 1              |                |        |                |        |      |
| Molannidae                                            |      |                |                |                |                |        |                |        |      |
| <i>Molanna blenda</i>                                 | 1    |                | 2              |                | 4              | 3      |                | 3      | 1    |
| Odontoceridae                                         |      |                |                |                |                |        |                |        |      |
| <i>Psilotreta frontalis</i>                           |      | 1              | 1              |                | 3              | 7      |                | 9      |      |
| <i>Psilotreta</i> sp. (early)                         | 1    | 1 <sup>1</sup> |                |                |                |        |                |        |      |
| Philopotamidae                                        |      |                |                |                |                |        |                |        |      |
| <i>Dolophilodes distinctus</i>                        | 8    | 1              | 1              | 1              | 1              | 3      | 1              | 9      | 10   |

Table A4. Continued.

| Season<br>Sampling date                        | Fall           |      |                |       |                | Winter |      | Spring |      |
|------------------------------------------------|----------------|------|----------------|-------|----------------|--------|------|--------|------|
|                                                | 9/96           | 9/00 | 9/01           | 10/01 | 9/02           | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                    |                |      |                |       |                |        |      |        |      |
| <i>Wormaldia moesta</i>                        |                |      |                |       |                | 2      |      | 1      |      |
| <i>Wormaldia</i> sp.                           |                |      |                |       |                |        |      |        | 2    |
| Polycentropodidae                              |                |      |                |       |                |        |      |        |      |
| <i>Nyctiophylax</i> sp.                        | 4              | 3    | 10             | 3     | 2              |        |      | 3      | 10   |
| <i>Polycentropus</i> sp.                       | 1              | 1    | 2              | 4     | 6              |        |      | 1      | 8    |
| Psychomiidae                                   |                |      |                |       |                |        |      |        |      |
| <i>Lype diversa</i>                            |                | 2    |                |       |                |        | 6    | 1♂     |      |
| Rhyacophilidae                                 |                |      |                |       |                |        |      |        |      |
| <i>Rhyacophila appalachia/nigrita</i>          | 13             | 3    | 2              |       | 6              | 8      | 2    | 3      | 3    |
| <i>Rhyacophila carolina</i>                    | 4              | 2    |                | 1     |                |        |      | 3♂     |      |
| <i>Rhyacophila fuscula</i>                     | 1              | 2    |                |       |                | 2      |      | 4      | 5    |
| <i>Rhyacophila minor</i>                       |                |      | 2              | 9     | 1              |        |      |        |      |
| <i>Rhyacophila torva</i>                       | 1              |      |                | 2     |                |        |      | 4      |      |
| <i>Rhyacophila</i> sp. nov. cf. <i>nigrita</i> |                |      |                |       | 1              |        |      |        | 1    |
| <i>Rhyacophila</i> sp. (early)                 |                |      | 1              |       |                | 1      |      | 1      |      |
| Sericostomatidae                               |                |      |                |       |                |        |      |        |      |
| <i>Fattigia pele</i>                           | 2              | 2    | 2              | 1     | 2              | 4      |      | 3      |      |
| Uenoidae                                       |                |      |                |       |                |        |      |        |      |
| <i>Neophylax consimilis</i>                    |                |      | 2              | 1     |                | 12     |      |        |      |
| <i>Neophylax mitchelli</i>                     | 4 <sup>2</sup> | 3    | 5 <sup>2</sup> |       | 2 <sup>2</sup> |        |      | 21     | 23   |
| <i>Neophylax ornatus</i>                       |                | 5    | 9              | 25    | 4              | 2      |      |        |      |
| <i>Neophylax</i> sp. (early)                   | 12             | 1    |                |       |                |        |      |        |      |
| Coleoptera                                     |                |      |                |       |                |        |      |        |      |
| Eubriidae                                      |                |      |                |       |                |        |      |        |      |
| <i>Ectopria</i> sp.                            |                |      |                |       |                |        |      |        | 7    |
| Elmidae                                        |                |      |                |       |                |        |      |        |      |
| <i>Optioservus immunis</i> ♂♀                  | 1              |      |                |       |                |        |      |        |      |



Table A4. Continued.

| Season                       | Fall |      |      |       |      | Winter |      | Spring |      |
|------------------------------|------|------|------|-------|------|--------|------|--------|------|
| Sampling date                | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                  |      |      |      |       |      |        |      |        |      |
| <i>Optioservus</i> sp.       |      |      |      |       |      |        |      | 1      | 1    |
| Diptera                      |      |      |      |       |      |        |      |        |      |
| Blephariceridae              |      |      |      |       |      |        |      |        |      |
| <i>Blepharicera</i> sp.      |      |      |      |       |      | 3      |      | 5      | 6    |
| Ceratopogonidae              |      |      |      |       |      |        |      |        |      |
| <i>Bezzia/Palpomyia</i> sp.  | 3    |      |      | 2     | 1    | 2      |      | 6      |      |
| Chironomidae                 | 41   |      |      |       |      | 45     |      | 36     |      |
| Chironominae                 |      |      |      |       |      |        |      |        |      |
| Chironomini                  |      | 1    | 5    | 5     | 2    |        |      |        | 3    |
| Tanytarsini                  |      | 1    |      | 1     | 2    |        |      |        | 4    |
| Orthocladinae                |      | 6    | 5    | 4     | 5    |        | 3    |        | 15   |
| Tanypodinae                  |      |      |      |       |      |        | 2    |        |      |
| Chironomidae pupae           |      |      | 1    |       |      |        |      |        | 1    |
| Chironomidae sp. (damaged)   |      | 1    |      |       |      |        |      |        |      |
| Dixidae                      |      |      |      |       |      |        |      |        |      |
| <i>Dixa</i> sp.              | 2    |      | 2    |       |      |        |      |        |      |
| Dolichopodidae               |      |      |      |       |      |        |      |        |      |
| <i>Rhaphium</i> sp.?         |      |      |      |       |      | 1      |      |        |      |
| Muscidae                     |      |      |      |       |      |        |      |        |      |
| <i>Limnophora</i> sp.?       |      |      |      |       |      | 1      |      |        |      |
| Simuliidae (including pupae) | 5    |      |      | 1     |      | 6      |      | 11     | 1    |
| Tipulidae                    |      |      |      |       |      |        |      |        |      |
| <i>Antocha</i> sp.           | 1    |      |      |       |      |        |      | 1      |      |
| <i>Dicranota</i> sp.         | 3    |      |      |       |      | 1      |      | 5      | 6    |
| <i>Hexatoma</i> sp.          | 5    | 5    |      |       | 1    | 6      | 1    | 6      | 1    |
| <i>Limnophila</i> sp.        | 1    |      | 2    |       |      | 1      |      | 2      |      |
| <i>Ormosia</i> sp.           |      |      |      |       |      |        | 1    |        | 1    |

Table A4. Continued.

| Season                          | Fall |      |      |       |      | Winter |      | Spring |      |
|---------------------------------|------|------|------|-------|------|--------|------|--------|------|
| Sampling date                   | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |      |      |      |       |      |        |      |        |      |
| <i>Tipula</i> sp. "moss animal" |      |      |      | 1     |      | 1      |      |        |      |
| <i>Tipula</i> sp.               |      |      | 1    |       |      |        |      |        | 1    |
| Tipulidae sp. (early)           |      |      | 1    |       |      |        | 1    |        |      |

<sup>1</sup> cases only    <sup>2</sup> includes mature pupae and adults

Table A5. Taxa collected at site 4 by sampling date. The symbols ♂, ♀, or ♂♀, indicate some or all of the specimens were adult males, females or both. If the symbol is in the taxa column, it indicates all specimens were adults.

| Season                             | Fall |      |      |       |      | Winter |      | Spring |      |
|------------------------------------|------|------|------|-------|------|--------|------|--------|------|
| Sampling date                      | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                        |      |      |      |       |      |        |      |        |      |
| Nematomorpha                       |      |      |      |       |      |        |      |        |      |
| Horsehair worms                    | 1    |      |      |       |      |        |      |        |      |
| Annelida                           |      |      |      |       |      |        |      |        |      |
| Hirudinea                          |      |      |      |       |      |        |      |        |      |
| <i>Placobdella</i> sp.             |      | 1    |      |       |      |        |      |        |      |
| Oligochaeta                        | 2    | 4    |      |       | 4    | 3      | 6    |        |      |
| Arthropoda                         |      |      |      |       |      |        |      |        |      |
| Arachnida                          |      |      |      |       |      |        |      |        |      |
| Hydracarina                        |      | 1    |      |       | 1    |        |      | 1      | 1    |
| Crustacea                          |      |      |      |       |      |        |      |        |      |
| Decapoda                           |      |      |      |       |      |        |      |        |      |
| Astacidae                          |      |      |      |       |      |        |      |        |      |
| <i>Cambarus bartoni</i>            | 1    | 1    | 1    |       |      |        | 1    | 1      | 2    |
| <i>Cambarus</i> sp. (juveniles)    |      |      |      |       | 3    |        |      |        |      |
| Insecta                            |      |      |      |       |      |        |      |        |      |
| Plecoptera                         |      |      |      |       |      |        |      |        |      |
| Capniidae                          |      |      |      |       |      |        |      |        |      |
| <i>Paracapnia angulata</i>         |      |      |      |       |      | 4      |      |        |      |
| Capniidae sp. (early)              |      |      | 2    |       |      |        |      |        |      |
| Chloroperlidae                     |      |      |      |       |      |        |      |        |      |
| <i>Alloperla</i> sp.               | 5    |      | 3    | 2     | 2    | 5      | 2    | 9      | 9    |
| <i>Haploperla brevis</i>           |      |      |      |       |      |        |      | 6      | 3    |
| <i>Sweltsa lateralis/urticae</i> ♀ |      |      |      |       |      |        |      | 1      |      |
| <i>Sweltsa</i> sp.                 |      | 6    | 7    | 5     | 6    | 9      | 17   |        |      |
| Chloroperlidae sp. (early)         |      | 3    |      |       |      |        | 1    |        |      |

Table A5. Continued.

| Season                                 | Fall |      |                |                |      | Winter |      | Spring |      |
|----------------------------------------|------|------|----------------|----------------|------|--------|------|--------|------|
| Sampling date                          | 9/96 | 9/00 | 9/01           | 10/01          | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                            |      |      |                |                |      |        |      |        |      |
| Leuctridae                             |      |      |                |                |      |        |      |        |      |
| <i>Leuctra</i> sp.                     | 5    | 19♀♂ | 17♀♂           | 6♀♂            | 6    | 26     | 16♀♂ | 9      | 6♀♂  |
| <i>Paraleuctra sara</i>                |      |      |                |                |      |        |      |        | 1    |
| Nemouridae                             |      |      |                |                |      |        |      |        |      |
| <i>Amphinemura appalachia</i>          |      | 1    |                |                |      | 3      |      | 5      | 2    |
| <i>Amphinemura</i> sp. (early)         |      | 1    |                |                |      |        | 1    |        |      |
| Peltoperlidae                          |      |      |                |                |      |        |      |        |      |
| <i>Tallaperla elisa</i> ♂              |      |      |                |                |      |        |      | 1      |      |
| <i>Tallaperla</i> sp.                  | 54   | 24   | 27             | 20             | 9    | 17♀♂   | 18   | 3      | 6    |
| Perlidae                               |      |      |                |                |      |        |      |        |      |
| <i>Acroneuria abnormis</i>             | 4    | 4    | 5              | 4              | 2    | 1      | 4    | 1      | 7    |
| <i>Agnetina annulipes</i>              |      |      |                |                |      |        |      |        | 1?   |
| <i>Beloneuria</i> sp.                  |      | 2    | 1              |                |      |        | 1    |        | 1    |
| <i>Eccoptura xanthenes</i>             |      | 3    | 6              | 1              |      | 2      |      | 2      | 6    |
| <i>Perlesta</i> sp. cf. <i>frisoni</i> |      | 1    |                |                |      |        |      | 3      | 6    |
| Perlodidae                             |      |      |                |                |      |        |      |        |      |
| <i>Isoperla holochlora</i>             |      |      |                |                |      | 2      | 1    | 9      | 7    |
| <i>Isoperla similis</i>                |      | 1    | 4              | 3              | 3    | 9      | 9    | 1      | 2    |
| <i>Isoperla</i> sp. (early)            |      |      | 2 <sup>1</sup> | 1 <sup>1</sup> |      |        |      |        | 1    |
| <i>Malirekus hastatus</i>              | 17   | 9    | 6              | 5              |      | 4      | 2    | 13     | 1    |
| <i>Remenus bilobatus</i>               |      |      |                |                |      |        |      | 4      | 1    |
| <i>Yugus/Malirekus</i> (early)         |      |      |                |                |      | 15     |      |        |      |
| Perlodidae sp. (early)                 |      |      |                |                |      |        | 3    |        |      |
| Pteronarcyidae                         |      |      |                |                |      |        |      |        |      |
| <i>Pteronarcys scotti/proteus</i>      |      |      |                | 1              | 1    |        |      |        |      |
| Taeniopterygidae                       |      |      |                |                |      |        |      |        |      |
| <i>Bolotoperla rossi</i>               |      |      |                |                |      | 45     | 1    |        |      |

Table A5. Continued.

| Season<br>Sampling date                  | Fall |      |      |       |      | Winter |      | Spring |      |
|------------------------------------------|------|------|------|-------|------|--------|------|--------|------|
|                                          | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                              |      |      |      |       |      |        |      |        |      |
| <i>Strophopteryx limata</i>              |      |      |      |       |      | 3♂     |      |        |      |
| <i>Strophopteryx</i> sp.                 |      |      |      |       |      |        | 34   |        |      |
| <i>Taenionema atlanticum</i>             |      |      |      |       |      | 24     | 17   |        |      |
| Ephemeroptera                            |      |      |      |       |      |        |      |        |      |
| Ameletidae                               |      |      |      |       |      |        |      |        |      |
| <i>Ameletus cryptostimulus</i>           |      |      |      |       |      | 8      |      |        |      |
| <i>Ameletus</i> sp. (early)              |      |      |      | 1     |      |        |      |        |      |
| Baetidae                                 |      |      |      |       |      |        |      |        |      |
| <i>Baetis</i> sp. cf. <i>flavistriga</i> |      | 2    |      |       |      |        | 22   |        |      |
| <i>Baetis</i> sp. cf. <i>tricaudatus</i> | 5    | 1    | 20   | 4     |      | 28     | 6    | 15     | 9    |
| <i>Baetis</i> sp. (early/damaged)        |      | 1    |      |       | 1    |        |      | 3      | 5    |
| <i>Baetidae</i> sp. (early)              |      | 1    |      |       |      |        |      |        |      |
| Ephemerellidae                           |      |      |      |       |      |        |      |        |      |
| <i>Drunella longicornis</i>              |      |      |      |       |      |        |      | 6      | 22   |
| <i>Drunella tuberculata</i>              | 4    | 1    | 3    |       |      |        |      |        |      |
| <i>Drunella</i> sp. (early)              |      |      |      | 1     |      |        |      |        |      |
| <i>Ephemerella catawba</i>               |      |      |      |       |      | 75     | 39   | 3      | 11   |
| <i>Ephemerella rossi</i>                 |      |      |      |       |      |        |      | 23     | 30   |
| <i>Ephemerella hispida</i>               |      |      |      |       |      | 2      |      |        |      |
| <i>Ephemerella</i> sp. (early)           |      | 1    | 3    | 2     |      |        | 3    |        |      |
| <i>Eurylophella funeralis</i>            |      |      | 1    |       |      | 2      |      |        |      |
| <i>Ephemerellidae</i> sp. (early)        |      |      |      |       | 2    |        |      |        |      |
| Heptageniidae                            |      |      |      |       |      |        |      |        |      |
| <i>Cinygmula subaequalis</i>             |      |      |      |       |      | 12     |      | 10     |      |
| <i>Epeorus dispar</i>                    | 1    | 5    | 22   | 7     | 2    | 33     | 44   | 24     | 19   |
| <i>Epeorus pleuralis</i>                 |      |      |      |       |      |        |      |        | 34   |
| <i>Epeorus</i> sp. (early)               | 4    | 2    |      | 5     |      | 3      | 5    | 5      |      |

Table A5. Continued.

| Season                                         | Fall |      |      |                |      | Winter |      | Spring |      |
|------------------------------------------------|------|------|------|----------------|------|--------|------|--------|------|
| Sampling date                                  | 9/96 | 9/00 | 9/01 | 10/01          | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                    |      |      |      |                |      |        |      |        |      |
| <i>Heptagenia julia</i>                        |      |      | 2    |                |      |        |      |        |      |
| <i>Leucrocuta hebelaphrodite</i>               |      |      |      |                | 5    |        |      |        |      |
| <i>Leucrocuta maculipennis</i>                 |      |      |      |                |      |        |      |        | 4    |
| <i>Leucrocuta thetis</i>                       |      | 26   | 41   | 6              | 2    | 4      | 9    | 7      | 16   |
| <i>Leucrocuta</i> sp. not <i>thetis</i>        |      |      |      |                |      |        |      |        | 2    |
| <i>Leucrocuta</i> sp. 1 "harlequin"            |      |      |      |                |      |        |      |        | 2    |
| <i>Leucrocuta</i> sp.                          | 4    | 6    |      |                | 2    |        |      |        |      |
| <i>Rhithrogena</i> sp. (early)                 |      |      | 2    |                |      |        |      | 1      |      |
| <i>Stenacron carolina</i>                      |      |      |      |                |      | 1      |      | 3      | 1    |
| <i>Stenacron</i> sp. (early)                   |      |      |      |                | 1    |        |      |        |      |
| <i>Stenonema merrivulatum</i>                  | 5    | 9    | 21   | 7              | 22   | 6      | 12   | 13     | 21   |
| <i>Stenonema pudicum</i>                       |      |      |      |                | 1    |        |      |        |      |
| <i>Stenonema</i> sp. (early)                   |      | 9    |      |                | 4    |        |      |        |      |
| Heptageniidae sp. (early)                      |      | 1    |      |                |      |        | 4    |        |      |
| Leptophlebiidae                                |      |      |      |                |      |        |      |        |      |
| <i>Habrophlebia vibrans</i>                    |      |      | 3    |                |      |        | 2    | 1      |      |
| <i>Paraleptophlebia adoptiva/mollis</i>        |      | 1    |      |                |      | 10     |      | 14     | 3    |
| <i>Paraleptophlebia</i> sp. cf. <i>guttata</i> |      | 3    |      |                | 5    |        | 3    |        | 1    |
| <i>Paraleptophlebia</i> sp. (early)            | 2    | 2    | 6    | 2              | 4    |        |      |        |      |
| Leptophlebiidae sp. (early/<br>damaged)        |      | 1    |      |                |      |        |      |        |      |
| Odonata                                        |      |      |      |                |      |        |      |        |      |
| Gomphidae                                      |      |      |      |                |      |        |      |        |      |
| <i>Lanthus vernalis</i>                        | 3    | 6    | 11   | 4              | 4    | 9      | 5    | 12     | 14   |
| Heteroptera                                    |      |      |      |                |      |        |      |        |      |
| Gerridae                                       |      |      |      |                |      |        |      |        |      |
| <i>Aquarius remigis</i>                        | 2    | 4    | 5    | 0 <sup>2</sup> | 3    | 1      | 1    | 2      | 1    |

Table A5. Continued.

| Season<br>Sampling date                | Fall |                |                |       |                | Winter |      | Spring |                |
|----------------------------------------|------|----------------|----------------|-------|----------------|--------|------|--------|----------------|
|                                        | 9/96 | 9/00           | 9/01           | 10/01 | 9/02           | 2/97   | 2/02 | 6/96   | 6/02           |
| <b>TAXA</b>                            |      |                |                |       |                |        |      |        |                |
| Trichoptera                            |      |                |                |       |                |        |      |        |                |
| Apataniidae                            |      |                |                |       |                |        |      |        |                |
| <i>Apatania</i> sp.                    |      | 2              | 3              |       | 2 <sup>3</sup> | 2      | 1    |        | 1 <sup>3</sup> |
| Brachycentridae                        |      |                |                |       |                |        |      |        |                |
| <i>Micrasema burksi</i>                | 2    | 1              |                | 3     |                | 14     | 4    | 1      | 2 <sup>3</sup> |
| Glossosomatidae                        |      |                |                |       |                |        |      |        |                |
| <i>Glossosoma nigrior</i> (inc. pupae) | 8    | 4              | 5              | 1     |                | 1      |      | 6      |                |
| Hydropsychidae                         |      |                |                |       |                |        |      |        |                |
| <i>Arctopsyche irrorata</i>            | 3    |                | 5              | 1     |                | 1      |      |        |                |
| <i>Ceratopsyche macleodi</i>           | 41   | 18             | 27             | 12    | 7              | 18     | 8    | 1      |                |
| <i>Ceratopsyche</i> sp. (early)        |      | 1              |                |       |                |        |      |        |                |
| <i>Diplectrona modesta</i>             | 10   | 13             | 7              | 7     | 28             | 11     | 16   | 26     | 27             |
| <i>Parapsyche cardis</i>               | 15   | 7              | 30             | 14    | 3              | 2      | 3    | 2      | 3              |
| Hydropsychidae sp. (early)             |      | 1              | 16             | 2     | 1              |        | 1    | 1      |                |
| Lepidostomatidae                       |      |                |                |       |                |        |      |        |                |
| <i>Lepidostoma</i> sp.                 |      |                | 9 <sup>3</sup> | 3     | 4 <sup>3</sup> | 15     | 5    | 13     | 10             |
| Limnephilidae                          |      |                |                |       |                |        |      |        |                |
| <i>Pycnopsyche antica/conspersa</i>    |      |                |                |       |                | 1      |      |        |                |
| <i>Pycnopsyche gentilis</i>            |      |                |                |       |                | 3      |      |        |                |
| <i>Pycnopsyche sonso</i>               |      |                |                |       |                |        | 20   |        | 18             |
| <i>Pycnopsyche luculenta/sonso</i>     |      |                |                |       |                | 29     |      | 11     |                |
| (early instars)                        |      | 1 <sup>3</sup> | 5 <sup>3</sup> |       |                | 29     |      | 11     |                |
| <i>Pycnopsyche</i> sp. (early)         |      |                |                |       | 1              |        |      |        |                |
| Molannidae                             |      |                |                |       |                |        |      |        |                |
| <i>Molanna blenda</i>                  | 3    |                | 1              |       |                | 3      | 2    | 6      | 8              |
| Odontoceridae                          |      |                |                |       |                |        |      |        |                |
| <i>Psilotreta frontalis</i>            | 4    | 1              | 5              | 1     | 6              | 6      | 4    |        | 8              |



Table A5. Continued.

| Season                                         | Fall |                 |                 |                |                | Winter |      | Spring |      |
|------------------------------------------------|------|-----------------|-----------------|----------------|----------------|--------|------|--------|------|
| Sampling date                                  | 9/96 | 9/00            | 9/01            | 10/01          | 9/02           | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                    |      |                 |                 |                |                |        |      |        |      |
| Philopotamidae                                 |      |                 |                 |                |                |        |      |        |      |
| <i>Dolophilodes distinctus</i>                 | 3    | 4               | 3               |                | 5              | 1♂     | 1    | 7♂     |      |
| <i>Wormaldia moesta</i>                        |      |                 |                 |                |                | 6      |      |        |      |
| Polycentropodidae                              |      |                 |                 |                |                |        |      |        |      |
| <i>Nyctiophylax</i> sp.                        | 7    | 5               | 2               |                | 3              | 2      | 1    | 1      | 8    |
| <i>Polycentropus</i> sp.                       | 1    | 3               | 2               | 1              |                |        |      |        | 4    |
| Psychomiidae                                   |      |                 |                 |                |                |        |      |        |      |
| <i>Lype diversa</i>                            |      |                 |                 |                |                | 1      |      |        |      |
| Rhyacophilidae                                 |      |                 |                 |                |                |        |      |        |      |
| <i>Rhyacophila appalachia/nigrita</i>          | 5    | 15              | 11              | 6              | 4              | 7      | 10   | 6      | 5    |
| <i>Rhyacophila carolina</i>                    | 6    | 1               | 1♂              |                |                |        |      | 1      | 2    |
| <i>Rhyacophila fuscula</i>                     | 5    |                 | 2               |                |                | 2      | 6    | 12     | 4    |
| <i>Rhyacophila glaberrima</i>                  |      |                 |                 |                | 1              | 1      |      | 1      |      |
| <i>Rhyacophila torva</i>                       | 2    |                 |                 | 1              |                |        |      | 1      | 1    |
| <i>Rhyacophila</i> sp. nov. cf. <i>nigrita</i> |      | 1               |                 | 1              | 2              |        | 1    |        | 1    |
| <i>Rhyacophila</i> sp. (early)                 |      | 3               | 4               |                | 11             | 3      | 1    |        |      |
| <i>Rhyacophila</i> sp. (pupae)                 |      | 3               |                 |                |                |        |      |        | 1    |
| Sericostomatidae                               |      |                 |                 |                |                |        |      |        |      |
| <i>Fattigia pele</i>                           | 2    | 2               | 4               | 1              | 3              | 2      | 1    | 2      | 3    |
| Uenoidae                                       |      |                 |                 |                |                |        |      |        |      |
| <i>Neophylax consimilis</i>                    |      |                 |                 |                |                | 11     |      |        | 11   |
| <i>Neophylax mitchelli</i>                     | 2    | 13 <sup>4</sup> | 28 <sup>4</sup> | 1 <sup>4</sup> | 2 <sup>4</sup> |        | 7    | 19     | 18   |
| <i>Neophylax ornatus</i>                       |      | 15              | 12              | 4              |                | 4      | 1    |        |      |
| <i>Neophylax</i> sp. (early)                   | 6    | 2               |                 |                | 3 <sup>5</sup> |        |      |        |      |
| Coleoptera                                     |      |                 |                 |                |                |        |      |        |      |
| Eubriidae                                      |      |                 |                 |                |                |        |      |        |      |
| <i>Ectopria</i> sp.                            |      |                 |                 |                |                |        |      |        | 1    |



Table A5. Continued.

| Season<br>Sampling date         | Fall |      |      |       |      | Winter |      | Spring |      |
|---------------------------------|------|------|------|-------|------|--------|------|--------|------|
|                                 | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |      |      |      |       |      |        |      |        |      |
| Elmidae                         |      |      |      |       |      |        |      |        |      |
| <i>Hydrochus</i> sp.            |      |      |      |       |      |        | 1    |        |      |
| <i>Optioservus ovalis</i> ♂♀    |      |      |      |       | 1    |        |      |        |      |
| <i>Oulimnius latiusculus</i> ♂♀ |      | 1    |      | 1     |      | 1      |      |        |      |
| Diptera                         |      |      |      |       |      |        |      |        |      |
| Athericidae                     |      |      |      |       |      |        |      |        |      |
| <i>Atherix lantha</i>           |      |      |      | 1     |      |        | 1    | 1      |      |
| Blephariceridae                 |      |      |      |       |      |        |      |        |      |
| <i>Blepharicera</i> sp.         |      |      |      |       |      | 3      |      | 4      | 3    |
| Ceratopogonidae                 |      |      |      |       |      |        |      |        |      |
| <i>Bezzia</i> sp.               |      |      |      |       |      |        | 1    |        |      |
| <i>Bezzia/Palpomyia</i> sp.     |      |      |      |       |      | 5      |      |        | 1    |
| Chironomidae                    | 14   |      |      |       |      | 70     |      | 30     |      |
| Chironominae                    |      |      |      |       |      |        |      |        |      |
| Chironomini                     |      |      | 3    |       | 4    |        | 1    |        | 2    |
| Tanytarsini                     |      | 5    | 2    |       | 1    |        | 2    |        | 1    |
| Orthocladinae                   |      | 7    | 10   | 4     | 2    |        | 32   |        | 5    |
| Tanypodinae                     |      |      | 2    |       |      |        | 1    |        |      |
| Chironomidae pupae              |      |      |      |       | 2    |        |      |        |      |
| Dixidae                         |      |      |      |       |      |        |      |        |      |
| <i>Dixa</i> sp.                 | 4    |      | 2    |       |      |        |      |        | 2    |
| Empididae                       |      |      | 1    |       |      |        |      | 1      |      |
| Psychodidae                     |      |      |      |       |      |        |      |        |      |
| <i>Pericoma albitarsis</i>      |      |      |      |       |      |        | 1    |        |      |
| Simuliidae (including pupae)    |      |      | 5    |       | 1    | 9      | 6    | 1      |      |
| Tipulidae                       |      |      |      |       |      |        |      |        |      |
| <i>Antocha</i> sp.              |      | 1    |      | 1     |      | 1      |      |        |      |

Table A5. Continued.

| Season                          | Fall |      |      |       |      | Winter |      | Spring |      |
|---------------------------------|------|------|------|-------|------|--------|------|--------|------|
| Sampling date                   | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |      |      |      |       |      |        |      |        |      |
| <i>Dicranota</i> sp.            | 4    |      | 1    |       |      | 3      |      | 4      | 4    |
| <i>Hexatoma</i> sp.             | 2    |      | 4    | 1     | 1    | 5      | 3    | 3      | 2    |
| <i>Limnophila</i> sp.           | 1    |      |      |       |      |        |      | 2      |      |
| <i>Limonia</i> sp.              |      |      |      | 1     |      |        | 2    |        |      |
| <i>Ormosia</i> sp.              |      |      |      |       |      | 1      |      |        |      |
| <i>Tipula</i> "abdominalis"     |      |      |      |       | 1    | 1      |      |        |      |
| <i>Tipula</i> sp. "moss animal" |      |      |      |       |      | 1      |      |        |      |

<sup>1</sup> not *Isoperla similis*

<sup>2</sup> absence likely due to collector bias

<sup>3</sup> cases only

<sup>4</sup> includes mature pupae and adults

<sup>5</sup> not *Neophylax mitchelli*

Table A6. Continued.

| Season                                 | Fall |      |      |       |      | Winter |      | Spring |      |
|----------------------------------------|------|------|------|-------|------|--------|------|--------|------|
| Sampling date                          | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                            |      |      |      |       |      |        |      |        |      |
| <i>Haploperla brevis</i>               |      |      |      |       |      |        |      |        | 3    |
| <i>Sweltsa</i> sp.                     | 3    | 3    |      | 2     | 4    | 11     | 1    |        |      |
| Chloroperlidae sp. (early)             |      |      |      |       |      |        | 1    |        | 2    |
| Leuctridae                             |      |      |      |       |      |        |      |        |      |
| <i>Leuctra</i> sp.                     | 9    | 5    | 1    | 2     | 12   | 26     | 10   | 6      | 16   |
| Leuctridae sp. (early)                 |      |      |      | 2     |      |        |      |        | 1    |
| Nemouridae                             |      |      |      |       |      |        |      |        |      |
| <i>Amphinemura appalachia</i>          |      |      |      |       |      | 2      | 14   | 1      | 7    |
| <i>Amphinemura</i> sp. (early)         |      |      |      | 6     |      |        |      |        |      |
| Peltoperlidae                          |      |      |      |       |      |        |      |        |      |
| <i>Tallaperla</i> sp.                  | 13   | 18   | 11   | 23    | 29   | 6      | 36   | 6      | 8    |
| Perlidae                               |      |      |      |       |      |        |      |        |      |
| <i>Acroneuria abnormis</i>             | 2    | 1    | 2    | 6     | 2    |        | 2    | 1      | 3    |
| <i>Beloneuria</i> sp.                  |      | 1    | 1    | 3     |      |        |      |        |      |
| <i>Eccoptura xanthenes</i>             | 4    | 1    | 1    | 1     | 2    |        | 1    | 6      | 4    |
| <i>Perlesta</i> sp. cf. <i>frisoni</i> |      |      |      |       |      |        |      | 1      | 3    |
| Perlidae sp. (early)                   |      |      |      |       |      | 1      |      | 1      |      |
| Perlodidae                             |      |      |      |       |      |        |      |        |      |
| <i>Isoperla holochlora</i>             | 14   | 1    | 1    |       | 1    |        |      | 9      | 1    |
| <i>Isoperla</i> sp. cf. <i>dicala</i>  |      |      |      |       |      |        |      |        | 4    |
| <i>Isoperla similis</i>                |      | 2    | 2    | 4     | 5    | 4      | 6    |        | 4    |
| <i>Isoperla</i> sp. (early)            |      |      |      |       |      | 1      | 5    |        |      |
| <i>Malirekus hastatus</i>              | 11   | 4    | 7    | 10    | 1    | 8      | 8    | 5      | 4    |
| <i>Remenus bilobatus</i>               |      |      |      |       |      |        | 1    | 5      | 2    |
| Perlodidae sp. (early)                 |      | 1    |      |       |      |        |      |        |      |
| Pteronarcyidae                         |      |      |      |       |      |        |      |        |      |
| <i>Pteronarcys scotti/proteus</i>      |      |      |      |       |      |        |      | 1      |      |

Table A6. Continued.

| Season                                                                                                            | Fall |      |      |       |      | Winter |      | Spring |      |
|-------------------------------------------------------------------------------------------------------------------|------|------|------|-------|------|--------|------|--------|------|
| Sampling date                                                                                                     | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                                                                                       |      |      |      |       |      |        |      |        |      |
| Taeniopterygidae                                                                                                  |      |      |      |       |      |        |      |        |      |
| <i>Bolotoperla rossi</i>                                                                                          |      |      |      |       |      | 23     |      |        |      |
| <i>Oemopteryx contorta</i>                                                                                        |      |      |      |       |      |        | 4    |        |      |
| <i>Strophopteryx</i> sp.                                                                                          |      |      |      |       |      |        | 1    |        |      |
| <i>Taenionema atlanticum</i>                                                                                      |      |      |      |       |      | 7      |      |        |      |
| Ephemeroptera                                                                                                     |      |      |      |       |      |        |      |        |      |
| Ameletidae                                                                                                        |      |      |      |       |      |        |      |        |      |
| <i>Ameletus cryptostimulus</i>                                                                                    |      |      |      |       |      | 17     | 14   |        |      |
| Baetidae                                                                                                          |      |      |      |       |      |        |      |        |      |
| <i>Baetis</i> sp. cf. <i>flavistriga</i>                                                                          | 5    |      |      |       |      |        |      |        | 1    |
| <i>Baetis</i> sp. cf. <i>tricaudatus</i>                                                                          | 6    |      | 1    | 4     |      | 11     | 1    | 16     | 16   |
| <i>Baetis</i> sp. (early/damaged)                                                                                 |      |      |      |       |      |        |      |        | 1    |
| <i>Baetidae</i> sp. (early)                                                                                       |      |      |      |       |      |        |      | 2      |      |
| Ephemerellidae                                                                                                    |      |      |      |       |      |        |      |        |      |
| <i>Drunella tuberculata</i>                                                                                       | 1    |      |      |       |      |        |      |        |      |
| <i>Ephemerella catawba</i>                                                                                        |      |      |      |       |      |        |      | 4      | 8    |
| <i>Ephemerella</i> sp. cf. <i>catawba</i>                                                                         |      |      |      |       |      | 20     | 16*  |        | 2    |
| <i>Ephemerella rossi</i>                                                                                          |      |      |      |       |      |        |      | 36     | 40   |
| <i>Ephemerella hispida</i>                                                                                        |      |      |      |       |      | 11     |      |        |      |
| <i>Ephemerella</i> sp. 1 (like <i>catawba</i> ,<br>but spicules only at pale spots,<br>5-7 denticles/tarsal claw) |      |      |      |       |      |        | 10   |        | 2    |
| <i>Ephemerella</i> sp. (early)                                                                                    |      |      |      |       |      |        | 13   |        |      |
| <i>Eurylophella funeralis</i>                                                                                     |      |      |      |       |      | 2      | 1    |        |      |
| <i>Eurylophella</i> sp. (early)                                                                                   |      |      |      |       |      | 1      |      |        |      |
| <i>Ephemerellidae</i> sp. (early)                                                                                 |      |      | 6    | 3     |      | 1      |      |        | 1    |
| Heptageniidae                                                                                                     |      |      |      |       |      |        |      |        |      |

Table A6. Continued.

| Season                                         | Fall |      |      |       |      | Winter |      | Spring |      |
|------------------------------------------------|------|------|------|-------|------|--------|------|--------|------|
| Sampling date                                  | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                    |      |      |      |       |      |        |      |        |      |
| <i>Cinygmula subaequalis</i>                   |      |      |      |       |      |        |      | 1      | 1    |
| <i>Epeorus</i> sp. cf. <i>dispar</i>           | 4    | 3    | 2    | 27    | 7    | 32     | 15   | 19     | 23   |
| <i>Epeorus</i> sp. cf. <i>pleuralis</i>        |      |      |      |       |      |        | 1    |        | 3    |
| <i>Epeorus</i> sp. (early)                     | 5    |      | 8    |       | 1    |        | 3    | 8      |      |
| <i>Heptagenia</i> sp.                          | 8    |      |      |       |      |        |      |        |      |
| <i>Leucrocuta thetis</i>                       | 2    | 3    | 6    | 9     | 18   | 14     | 5    | 2      | 2    |
| <i>Leucrocuta</i> sp.                          |      |      |      |       |      |        |      |        | 1    |
| <i>Rhithrogena</i> sp.                         |      |      |      |       |      | 1      |      |        |      |
| <i>Stenacron</i> sp. cf. <i>carolina</i>       | 1    |      |      |       | 1    |        |      |        |      |
| <i>Stenacron</i> sp. cf. <i>pallidum</i>       |      |      |      |       |      |        |      | 4      |      |
| <i>Stenonema merrivulatum</i>                  | 7    | 2    | 11   | 15    |      | 6      | 16   | 3      |      |
| <i>Stenonema pudicum</i>                       |      |      |      |       | 23   | 1      | 1    |        | 5    |
| <i>Stenonema</i> sp. (early)                   |      | 2    |      |       |      |        |      |        | 1    |
| Heptageniidae sp. (early)                      | 1    | 1    |      |       |      | 2      | 3    |        |      |
| Leptophlebiidae                                |      |      |      |       |      |        |      |        |      |
| <i>Habrophlebia vibrans</i>                    |      | 1    |      | 1     | 4    |        |      |        |      |
| <i>Habrophlebiodes</i> sp.                     |      | 4    |      |       |      |        |      | 1      | 4    |
| <i>Paraleptophlebia adoptiva/mollis</i>        |      |      |      | 3     |      | 8      | 6    | 8      | 14   |
| <i>Paraleptophlebia</i> sp. cf. <i>guttata</i> |      |      |      | 1     | 9    |        | 1    |        | 6    |
| <i>Paraleptophlebia</i> sp. (early)            |      |      |      |       |      |        | 5    |        | 1    |
| Leptophlebiidae sp. (early/<br>damaged)        | 2    |      | 1    |       | 3    | 1      | 1    |        |      |
| Odonata                                        |      |      |      |       |      |        |      |        |      |
| Cordulegastridae                               |      |      |      |       |      |        |      |        |      |
| <i>Cordulegaster erronea</i>                   | 4    |      | 3    |       | 1    | 6      |      |        | 3    |
| Gomphidae                                      |      |      |      |       |      |        |      |        |      |
| <i>Lanthus vernalis</i>                        | 5    | 4    |      | 8     | 5    | 3      | 9    | 5      |      |

Table A6. Continued.

| Season                                  | Fall |      |      |                |      | Winter |      | Spring |      |
|-----------------------------------------|------|------|------|----------------|------|--------|------|--------|------|
| Sampling date                           | 9/96 | 9/00 | 9/01 | 10/01          | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                             |      |      |      |                |      |        |      |        |      |
| Heteroptera                             |      |      |      |                |      |        |      |        |      |
| Gerridae                                |      |      |      |                |      |        |      |        |      |
| <i>Aquarius remigis</i>                 | 4    | 1    |      | 2              |      |        |      | 3      |      |
| Veliidae                                |      |      |      |                |      |        |      |        |      |
| <i>Rhagovelia obesa</i>                 | 2    |      |      | 8              |      |        |      |        |      |
| Megaloptera                             |      |      |      |                |      |        |      |        |      |
| Sialidae                                |      |      |      |                |      |        |      |        |      |
| <i>Sialis</i> sp.                       | 2    |      |      |                |      |        |      |        |      |
| Trichoptera                             |      |      |      |                |      |        |      |        |      |
| Brachycentridae                         |      |      |      |                |      |        |      |        |      |
| <i>Micrasema burksi</i>                 |      |      |      |                |      | 2      |      |        |      |
| Glossosomatidae                         |      |      |      |                |      |        |      |        |      |
| <i>Glossosoma nigrrior</i> (inc. pupae) | 10   | 1    | 1    |                |      |        |      | 4      |      |
| Goeridae                                |      |      |      |                |      |        |      |        |      |
| Hydropsychidae                          |      |      |      |                |      |        |      |        |      |
| <i>Arctopsyche irrorata</i>             | 1    | 1    |      |                |      |        |      |        |      |
| <i>Ceratopsyche macleodi</i>            | 13   |      | 3    | 12             |      |        | 7    |        |      |
| <i>Ceratopsyche</i> sp. (early)         |      | 1    |      |                |      |        |      |        |      |
| <i>Diplectrona modesta</i>              | 17   | 6    | 21   | 48             | 57   | 30     | 21   | 16     | 84   |
| <i>Parapsyche apicalis</i>              |      |      | 16   | 72             |      |        |      |        |      |
| <i>Parapsyche cardis</i>                | 41   | 8    |      |                | 8    | 5      | 3    | 2      | 6    |
| Hydropsychidae sp. (early)              | 8    |      |      |                | 3    |        | 1    | 1      |      |
| Lepidostomatidae                        |      |      |      |                |      |        |      |        |      |
| <i>Lepidostoma</i> sp.                  |      |      |      | 3 <sup>1</sup> |      | 12     |      | 7      | 1    |
| Leptoceridae                            |      |      |      |                |      |        |      |        |      |
| Leptoceridae sp. not <i>Ceraclea</i>    |      | 1    |      |                |      |        |      |        |      |
| Limnephilidae                           |      |      |      |                |      |        |      |        |      |

Table A6. Continued.

| Season                                | Fall |                  |      |                |      | Winter |                | Spring |      |
|---------------------------------------|------|------------------|------|----------------|------|--------|----------------|--------|------|
| Sampling date                         | 9/96 | 9/00             | 9/01 | 10/01          | 9/02 | 2/97   | 2/02           | 6/96   | 6/02 |
| <b>TAXA</b>                           |      |                  |      |                |      |        |                |        |      |
| <i>Pycnopsyche flavata</i>            |      |                  |      |                |      |        | 6              | 2      |      |
| <i>Pycnopsyche gentilis</i>           |      |                  |      |                |      | 2      |                |        |      |
| <i>Pycnopsyche flavata/gentilis</i>   |      | 1 <sup>1</sup>   |      |                |      |        |                |        |      |
| <i>Pycnopsyche sonso</i>              |      |                  |      |                |      |        | 20             |        | 2    |
| <i>Pycnopsyche luculenta/sonso</i>    |      |                  |      |                |      |        |                |        |      |
| (early instars)                       | 1    |                  |      | 2 <sup>1</sup> |      | 12     |                | 7      |      |
| <i>Pycnopsyche</i> sp. (early)        |      |                  |      |                |      |        | 3              |        |      |
| Molannidae                            |      |                  |      |                |      |        |                |        |      |
| <i>Molanna blenda</i>                 | 5    | 1                | 3    |                | 2    | 2      |                | 1      | 1    |
| Odontoceridae                         |      |                  |      |                |      |        |                |        |      |
| <i>Psilotreta frontalis</i>           | 1    |                  | 1    | 8              |      | 2      |                | 1      | 2    |
| <i>Psilotreta rufa</i>                |      | 1                |      |                |      |        |                |        |      |
| <i>Psilotreta</i> sp.                 |      | 2 <sup>2</sup> ♀ |      |                |      |        | 2 <sup>1</sup> |        |      |
| Philopotamidae                        |      |                  |      |                |      |        |                |        |      |
| <i>Dolophilodes distinctus</i>        | 7    | 1                | 2    | 17             | 4    | 3      |                | 4      | 3♂   |
| <i>Wormaldia moesta</i>               |      |                  |      |                |      |        | 2              |        |      |
| <i>Wormaldia</i> sp.                  |      |                  |      | 4              |      |        |                |        |      |
| Polycentropodidae                     |      |                  |      |                |      |        |                |        |      |
| <i>Nyctiophylax</i> sp.               | 4    |                  | 1    | 8              | 2    | 2      |                |        | 1    |
| <i>Polycentropus</i> sp.              | 1    |                  |      | 2              | 1    |        |                | 4      | 1    |
| Psychomyiidae                         |      |                  |      |                |      |        |                |        |      |
| <i>Lype diversa</i>                   |      |                  |      | 1              |      | 3      |                |        |      |
| Rhyacophilidae                        |      |                  |      |                |      |        |                |        |      |
| <i>Rhyacophila appalachia/nigrita</i> | 2    | 6                | 2    | 3              | 6    | 2      | 7              | 8      | 14   |
| <i>Rhyacophila carolina</i>           |      | 1                |      | 1              |      |        |                |        |      |
| <i>Rhyacophila fuscula</i>            |      |                  |      |                |      | 1      |                | 1      | 1    |
| <i>Rhyacophila glaberrima</i>         |      | 1                |      |                |      | 2      |                | 1      |      |

Table A6. Continued.

| Season                          | Fall            |                 |      |                |                | Winter |      | Spring |      |
|---------------------------------|-----------------|-----------------|------|----------------|----------------|--------|------|--------|------|
| Sampling date                   | 9/96            | 9/00            | 9/01 | 10/01          | 9/02           | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |                 |                 |      |                |                |        |      |        |      |
| <i>Rhyacophila minor</i>        |                 |                 |      | 2              |                |        |      |        |      |
| <i>Rhyacophila nigrita</i> ♂    |                 |                 |      |                |                |        |      | 4      |      |
| <i>Rhyacophila parantra</i> ?   | 7               |                 |      |                |                |        |      |        |      |
| <i>Rhyacophila torva</i>        |                 |                 |      | 2              |                | 1      |      |        |      |
| <i>Rhyacophila</i> sp. (early)  |                 | 1               |      | 2 <sup>3</sup> |                | 1      | 2    |        |      |
| Sericostomatidae                |                 |                 |      |                |                |        |      |        |      |
| <i>Fattigia pele</i>            | 4               | 2               | 1    | 1              |                | 1      | 1    |        | 1    |
| Uenoidae                        |                 |                 |      |                |                |        |      |        |      |
| <i>Neophylax aniqua</i> ?       |                 |                 |      |                |                | 9      |      |        |      |
| <i>Neophylax consimilis</i>     | 1               | 17 <sup>4</sup> | 4    | 2              |                |        |      |        |      |
| <i>Neophylax mitchelli</i>      | 10 <sup>4</sup> |                 |      |                | 1 <sup>4</sup> | 7      |      | 18     | 9    |
| <i>Neophylax ornatus</i>        |                 | 1               | 4    | 16             | 1              | 5      | 2    | 2      | 2    |
| <i>Neophylax</i> sp. (early)    |                 |                 |      |                |                | 1      |      |        |      |
| Coleoptera                      |                 |                 |      |                |                |        |      |        |      |
| Eubriidae                       |                 |                 |      |                |                |        |      |        |      |
| <i>Ectopria</i> sp.             | 3               | 1               | 1    | 1              |                |        |      |        |      |
| Elmidae                         |                 |                 |      |                |                |        |      |        |      |
| <i>Optioservus immunis</i> ♂♀   |                 |                 | 3    | 2              | 1              |        | 1    |        | 2    |
| <i>Optioservus ovalis</i> ♂♀    |                 |                 |      |                | 1              |        |      |        |      |
| <i>Optioservus</i> sp.          |                 |                 | 1    |                |                |        |      |        | 3    |
| <i>Oulimnius latiusculus</i> ♂♀ |                 |                 | 2    | 3              |                |        |      | 1      |      |
| <i>Promoresia tardella</i> ♂♀   |                 | 1 <sup>4</sup>  |      |                |                |        |      |        |      |
| Ptilodactylidae                 |                 |                 |      |                |                |        |      |        |      |
| <i>Anchytarsus bicolor</i>      |                 |                 |      |                |                |        |      |        | 2    |
| Diptera                         |                 |                 |      |                |                |        |      |        |      |
| Athericidae                     |                 |                 |      |                |                |        |      |        |      |
| <i>Atherix lantha</i>           |                 |                 |      |                | 2              |        |      |        |      |



Table A6. Continued.

| Season                       | Fall |      |      |       |      | Winter |      | Spring |      |
|------------------------------|------|------|------|-------|------|--------|------|--------|------|
| Sampling date                | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                  |      |      |      |       |      |        |      |        |      |
| Blephariceridae              |      |      |      |       |      |        |      |        |      |
| <i>Blepharicera</i> sp.      |      |      |      |       |      | 3      |      | 2      |      |
| Ceratopogonidae              |      |      |      |       |      |        |      |        |      |
| <i>Bezzia/Palpomyia</i> sp.  | 2    |      | 1    | 1     | 2    | 3      | 1    | 2      | 4    |
| Chironomidae                 | 25   |      |      |       |      | 36     |      | 31     |      |
| Chironominae                 |      |      |      |       |      |        |      |        |      |
| Chironomini                  |      | 2    | 2    | 2     | 2    |        |      |        | 3    |
| Tanytarsini                  |      | 1    | 2    |       | 1    |        |      |        | 1    |
| Orthocladinae                |      | 3    | 6    | 6     | 3    |        | 1    |        | 3    |
| Tanypodinae                  |      |      |      | 1     |      |        |      |        |      |
| Chironomidae pupae           |      |      |      |       |      |        |      |        | 1    |
| Dixidae                      |      |      |      |       |      |        |      |        |      |
| <i>Dixa</i> sp.              | 4    | 1    | 3    |       |      | 1      |      | 1      |      |
| Dolichopodidae               |      |      |      |       |      |        |      |        |      |
| Dolichopodidae sp.           |      |      |      |       |      | 1      |      |        |      |
| Psychodidae                  |      |      |      |       |      |        |      |        |      |
| <i>Pericoma albitarsis</i>   |      | 1    |      |       |      |        |      |        |      |
| Simuliidae (including pupae) | 1    |      | 1    |       |      | 9      | 1    |        | 1    |
| Tabanidae                    |      |      |      |       |      |        |      |        |      |
| <i>Tabanus</i> sp.           |      |      |      |       |      | 1      |      |        |      |
| Tipulidae                    |      |      |      |       |      |        |      |        |      |
| <i>Antocha</i> sp.           |      |      |      |       |      |        |      | 1      |      |
| <i>Dicranota</i> sp.         | 1    |      | 1    |       |      | 2      | 2    | 1      | 3    |
| <i>Hexatoma</i> sp.          | 3    | 2    |      | 3     | 2    | 1      | 2    | 6      | 6    |
| <i>Longurio</i> sp.          |      |      |      |       |      |        |      |        | 1    |
| <i>Limnophila</i> sp.        |      |      |      |       |      | 1      |      |        |      |
| <i>Limonia</i> sp.           |      | 1    |      |       |      |        |      |        |      |

Table A6. Continued.

| Season                          | Fall |      |      |       |      | Winter |      | Spring |      |
|---------------------------------|------|------|------|-------|------|--------|------|--------|------|
| Sampling date                   | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| TAXA                            |      |      |      |       |      |        |      |        |      |
| <i>Pedicia</i> sp.              |      |      |      |       |      | 1      |      |        |      |
| <i>Tipula</i> "abdominalis"     |      |      |      | 2     |      | 1      | 3    |        | 1    |
| <i>Tipula</i> sp. "moss animal" |      |      |      | 1     | 1    |        |      |        |      |
| <i>Tipula</i> sp cf. fig. 11.3  |      |      |      |       |      | 1      | 8    |        |      |

<sup>1</sup> cases only

<sup>2</sup> pupae

<sup>3</sup> none of the above

<sup>4</sup> includes mature pupae and/or adults

Table A7. Taxa collected at site 6 by sampling date. Site was not sampled in fall of 1996 because it was dry. The symbols ♂, ♀, or ♂♀, indicate some or all of the specimens were adult males, females or both. If the symbol is in the taxa column, it indicates all specimens were adults

| Season                          | Fall |      |       |       | Winter |      | Spring |      |
|---------------------------------|------|------|-------|-------|--------|------|--------|------|
| Sampling date                   | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |      |      |       |       |        |      |        |      |
| Annelida                        |      |      |       |       |        |      |        |      |
| Hirudinea                       |      |      |       |       |        |      |        |      |
| <i>Placobdella</i> sp.          |      |      |       |       | 9      | 2    | 1      |      |
| Oligochaeta                     |      |      | 1     | 1     |        | 8    |        | 1    |
| Arthropoda                      |      |      |       |       |        |      |        |      |
| Arachnida                       |      |      |       |       |        |      |        |      |
| Hydracarina                     |      |      | 1     |       |        |      |        |      |
| Crustacea                       |      |      |       |       |        |      |        |      |
| Decapoda                        |      |      |       |       |        |      |        |      |
| Astacidae                       |      |      |       |       |        |      |        |      |
| <i>Cambarus bartoni</i>         |      | 2    |       |       |        |      |        |      |
| <i>Cambarus</i> sp. (juveniles) | 1    |      |       | 1     |        |      | 1      | 1    |
| Isopoda                         |      |      |       |       |        |      |        |      |
| Asellidae                       |      |      |       |       |        |      |        |      |
| <i>Lirceus</i> sp.              | 9    |      | 4     | 4     | 26     |      | 14     | 2    |
| Insecta                         |      |      |       |       |        |      |        |      |
| Plecoptera                      |      |      |       |       |        |      |        |      |
| Capniidae                       |      |      |       |       |        |      |        |      |
| <i>Allocapnia</i> sp.           |      |      |       |       |        | 1    |        |      |
| <i>Paracapnia</i> sp.           |      |      |       |       | 45♂♀   | 2    |        |      |
| Capniidae sp. (early)           |      | 1    | 2     |       | 6      | 2    |        |      |
| Chloroperlidae                  |      |      |       |       |        |      |        |      |
| <i>Sweltsa</i> sp.              |      | 1    |       |       | 5      | 8    |        |      |

Table A7. Continued.

| Season<br>Sampling date                   | Fall |      |       |       | Winter |      | Spring |      |
|-------------------------------------------|------|------|-------|-------|--------|------|--------|------|
|                                           | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                               |      |      |       |       |        |      |        |      |
| Leuctridae                                |      |      |       |       |        |      |        |      |
| <i>Leuctra</i> sp.                        | 1♀♂  | 1    | 2♀♂   | 4     | 6      | 2    | 31     | 23   |
| Nemouridae                                |      |      |       |       |        |      |        |      |
| <i>Amphinemura appalachia</i>             |      |      |       |       | 7      |      | 73     | 20   |
| <i>Amphinemura</i> sp. (early)            |      |      | 4     |       |        |      |        |      |
| <i>Nemoura?</i> sp.                       | 1    |      |       |       |        |      |        |      |
| Nemouridae sp. (early)                    |      |      |       |       | 2      |      |        |      |
| Peltoperlidae                             |      |      |       |       |        |      |        |      |
| <i>Tallaperla</i> sp.                     | 2    | 5    | 6     | 8     | 39     | 22   | 1      | 2    |
| <i>Viehopera</i> ? sp.                    |      | 2    |       |       |        | 2    |        |      |
| Peltoperlidae sp. (early)                 |      |      |       |       |        |      | 8      |      |
| Perlidae                                  |      |      |       |       |        |      |        |      |
| <i>Beloneuria</i> sp.                     | 6    | 5    | 4     |       | 11     | 16   | 7      | 9    |
| <i>Eccopectura xanthenes</i>              |      |      |       | 3     |        |      |        |      |
| Perlidae sp. (early)                      |      |      |       |       |        |      |        | 1    |
| Perlodidae                                |      |      |       |       |        |      |        |      |
| <i>Isoperla similis</i>                   | 3    |      | 5     | 3     | 32     | 4    |        |      |
| <i>Isoperla</i> sp. (early)               |      |      |       |       |        | 1    |        |      |
| <i>Malirekus hastatus</i>                 |      |      | 1     |       |        | 1    |        |      |
| Perlodidae sp. (early)                    |      |      |       |       |        |      | 3      | 1    |
| Taeniopterygidae                          |      |      |       |       |        |      |        |      |
| <i>Strophopteryx</i> sp.                  |      |      |       |       | 109    | 1    |        |      |
| Ephemeroptera                             |      |      |       |       |        |      |        |      |
| Ameletidae                                |      |      |       |       |        |      |        |      |
| <i>Ameletus cryptostimulus</i>            |      |      |       |       | 11     | 11   |        |      |
| Ephemerellidae                            |      |      |       |       |        |      |        |      |
| <i>Ephemerella</i> sp. cf. <i>catawba</i> |      |      |       |       | 1      |      |        |      |

Table A7. Continued.

| Season<br>Sampling date                                                                                           | Fall |      |       |       | Winter |      | Spring |      |
|-------------------------------------------------------------------------------------------------------------------|------|------|-------|-------|--------|------|--------|------|
|                                                                                                                   | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                                                                                       |      |      |       |       |        |      |        |      |
| <i>Ephemerella</i> sp. 1 (like <i>catawba</i> ,<br>but spicules only at pale spots,<br>5-7 denticles/tarsal claw) |      |      |       |       |        | 1    |        |      |
| Heptageniidae                                                                                                     |      |      |       |       |        |      |        |      |
| <i>Epeorus</i> sp. cf. <i>dispar</i>                                                                              |      |      |       |       | 1      | 2    |        |      |
| <i>Epeorus</i> sp. (early)                                                                                        |      |      | 2     |       |        |      |        |      |
| <i>Leucrocuta</i> sp.                                                                                             |      |      |       |       |        |      |        | 1    |
| <i>Stenacron</i> sp. cf. <i>carolina</i>                                                                          |      | 1    |       | 1     | 2      |      |        | 2    |
| <i>Stenonema merrivulvum</i>                                                                                      | 1    | 7    | 4     |       | 29     | 9    | 1      | 2    |
| <i>Stenonema pudicum</i>                                                                                          |      |      |       | 2     |        |      |        |      |
| Leptophlebiidae                                                                                                   |      |      |       |       |        |      |        |      |
| <i>Habrophlebia vibrans</i>                                                                                       |      |      |       | 1     |        |      |        |      |
| <i>Habrophlebiodes</i> sp.                                                                                        |      |      |       |       |        | 1    |        |      |
| <i>Paraleptophlebia adoptiva/mollis</i>                                                                           | 1    |      |       |       |        |      |        |      |
| Leptophlebiidae sp. (early/<br>damaged)                                                                           |      |      |       | 1     |        |      |        |      |
| Odonata                                                                                                           |      |      |       |       |        |      |        |      |
| Cordulegastridae                                                                                                  |      |      |       |       |        |      |        |      |
| <i>Cordulegaster erronea</i>                                                                                      |      | 2    |       |       |        |      |        |      |
| Gomphidae                                                                                                         |      |      |       |       |        |      |        |      |
| <i>Lanthus vernalis</i>                                                                                           | 1    | 4    | 1     | 2     | 2      | 1    |        |      |
| Heteroptera                                                                                                       |      |      |       |       |        |      |        |      |
| Gerridae                                                                                                          |      |      |       |       |        |      |        |      |
| <i>Aquarius remigis</i>                                                                                           |      | 1    |       |       |        |      |        |      |
| Sialidae                                                                                                          |      |      |       |       |        |      |        |      |
| <i>Sialis</i> sp.                                                                                                 |      |      |       |       |        |      | 1      |      |
| Trichoptera                                                                                                       |      |      |       |       |        |      |        |      |

Table A7. Continued.

| Season<br>Sampling date                       | Fall           |      |                |                | Winter |                | Spring |      |
|-----------------------------------------------|----------------|------|----------------|----------------|--------|----------------|--------|------|
|                                               | 9/00           | 9/01 | 10/01          | 10/02          | 2/97   | 2/02           | 6/96   | 6/02 |
| <b>TAXA</b>                                   |                |      |                |                |        |                |        |      |
| Brachycentridae                               |                |      |                |                |        |                |        |      |
| <i>Micrasema burksi</i>                       |                |      |                |                |        |                | 1      |      |
| Glossosomatidae                               |                |      |                |                |        |                |        |      |
| <i>Glossosoma nigror</i> (inc. pupae)         |                |      | 1              |                |        |                |        |      |
| Hydropsychidae                                |                |      |                |                |        |                |        |      |
| <i>Arctopsyche irrorata</i>                   |                |      |                |                |        |                |        | 1    |
| <i>Diplectrona metaqui</i>                    |                | 6    | 2              |                |        |                |        |      |
| <i>Diplectrona modesta</i>                    |                |      | 1              |                | 4      | 20             | 1      | 17   |
| <i>Parapsyche apicalis</i>                    |                | 1    | 1              |                | 9      |                |        | 1    |
| <i>Parapsyche cardis</i>                      |                |      | 2              |                | 10     |                | 2      | 2    |
| <i>Parapsyche</i> sp. pupa ( <i>cardis</i> ?) |                |      |                |                |        | 1              |        |      |
| Hydropsychidae sp. (pupae)                    |                |      |                | 2              |        |                |        |      |
| Lepidostomatidae                              |                |      |                |                |        |                |        |      |
| <i>Lepidostoma</i> sp.                        | 1 <sup>1</sup> | 1    | 3 <sup>1</sup> |                | 2      |                | 10     | 3    |
| Limnephilidae                                 |                |      |                |                |        |                |        |      |
| <i>Pycnopsyche flavata</i>                    |                | 43   | 17             |                |        | 15?            |        | 7    |
| <i>Pycnopsyche gentilis</i>                   |                | 1    |                |                | 4      |                | 2      |      |
| <i>Pycnopsyche flavata/gentilis</i>           |                |      |                |                |        |                |        |      |
| (early instars)                               | 1              |      |                | 4 <sup>1</sup> |        |                |        |      |
| <i>Pycnopsyche sonso</i>                      | 1              | 13   | 6              | 1              |        |                |        | 1    |
| <i>Pycnopsyche luculenta/sonso</i>            |                |      |                |                |        |                |        |      |
| (early instars)                               |                |      |                |                | 7      |                | 3      |      |
| <i>Pycnopsyche</i> sp. (early instars)        |                |      |                | 1              |        |                |        |      |
| <i>Pycnopsyche</i> sp.                        |                |      |                |                |        | 1 <sup>2</sup> |        |      |
| Molannidae                                    |                |      |                |                |        |                |        |      |
| <i>Molanna blenda</i>                         |                |      | 3              |                | 1      |                |        |      |
| Odontoceridae                                 |                |      |                |                |        |                |        |      |

Table A7. Continued.

| Season                                         | Fall           |                |                |       | Winter         |      | Spring |      |
|------------------------------------------------|----------------|----------------|----------------|-------|----------------|------|--------|------|
| Sampling date                                  | 9/00           | 9/01           | 10/01          | 10/02 | 2/97           | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                    |                |                |                |       |                |      |        |      |
| <i>Psilotreta amera</i>                        |                |                |                | 2     |                |      | 3♂♀    |      |
| <i>Psilotreta frontalis</i>                    | 1              | 1 <sup>1</sup> |                |       | 1 <sup>1</sup> |      |        |      |
| <i>Psilotreta rossi</i>                        |                |                |                |       |                | 1    |        |      |
| <i>Psilotreta</i> sp. (pupae)                  |                |                |                |       |                |      |        | 3    |
| Philopotamidae                                 |                |                |                |       |                |      |        |      |
| <i>Chimarra</i> sp.                            |                |                |                |       |                | 1    |        |      |
| <i>Dolophilodes distinctus</i>                 |                |                |                |       |                | 1    |        | 2♂   |
| <i>Wormaldia moesta</i>                        |                |                |                |       |                | 1    |        |      |
| <i>Wormaldia moesta</i> ♂                      |                |                |                |       | 2              |      |        |      |
| <i>Wormaldia</i> sp.                           |                |                |                |       | 14             |      | 2      |      |
| Polycentropodidae                              |                |                |                |       |                |      |        |      |
| <i>Polycentropus cinereus</i>                  |                |                |                |       |                |      |        | 1♂   |
| <i>Polycentropus</i> sp.                       |                | 2              |                |       | 1              | 2    | 1      |      |
| Rhyacophilidae                                 |                |                |                |       |                |      |        |      |
| <i>Rhyacophila appalachia/nigrita</i>          |                |                |                | 2     | 8              | 5    | 2      |      |
| <i>Rhyacophila carolina</i>                    |                |                |                |       | 1              |      |        |      |
| <i>Rhyacophila glaberrima</i>                  |                | 2?             | 1              |       | 7              | 1    | 2      |      |
| <i>Rhyacophila nigrita</i> ♂                   |                |                |                |       |                |      | 2      |      |
| <i>Rhyacophila torva</i>                       |                |                |                |       | 1              |      |        |      |
| <i>Rhyacophila</i> sp. nov. cf. <i>nigrita</i> |                |                |                |       | 2              |      |        |      |
| <i>Rhyacophila</i> sp. (early)                 | 1              |                |                |       |                |      |        |      |
| Uenoidae                                       |                |                |                |       |                |      |        |      |
| <i>Neophylax mitchelli</i>                     | 2 <sup>3</sup> | 6 <sup>3</sup> |                | 2     | 16             |      | 13     | 16   |
| <i>Neophylax ornatus</i>                       |                |                |                |       | 3              |      |        |      |
| <i>Neophylax</i> sp. (early)                   |                |                | 1 <sup>1</sup> |       | 32             |      |        |      |
| Coleoptera                                     |                |                |                |       |                |      |        |      |

Table A7. Continued.

| Season                       | Fall |      |       |       | Winter |      | Spring |      |
|------------------------------|------|------|-------|-------|--------|------|--------|------|
| Sampling date                | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                  |      |      |       |       |        |      |        |      |
| Dytiscidae                   |      |      |       |       |        |      |        |      |
| <i>Hydaticus</i> sp.         |      |      |       |       |        |      | 1      |      |
| Diptera                      |      |      |       |       |        |      |        |      |
| Athericidae                  |      |      |       |       |        |      |        |      |
| <i>Atherix lantha</i>        |      |      |       |       |        | 1    |        |      |
| Blephariceridae              |      |      |       |       |        |      |        |      |
| <i>Blepharicera</i> sp.      |      |      |       |       |        |      | 2      |      |
| Chironomidae                 |      |      |       |       | 23     |      | 5      |      |
| Chironominae                 |      |      |       |       |        |      |        |      |
| Chironomini                  |      |      |       |       |        | 1    |        | 2    |
| Tanytarsini                  |      | 1    |       |       |        | 2    |        |      |
| Orthocladinae                |      | 6    | 12    | 1     |        | 14   |        | 5    |
| Tanypodinae                  |      |      |       |       |        | 1    |        | 1    |
| Chironomidae pupae           |      | 4    |       | 1     |        |      |        |      |
| Dixidae                      |      |      |       |       |        |      |        |      |
| <i>Dixa</i> sp.              | 1    |      | 1     |       |        | 5    | 1      |      |
| Simuliidae (including pupae) |      |      |       |       | 23     | 7    | 17     |      |
| Syrphidae                    |      |      |       |       |        |      |        |      |
| <i>Chrysogaster</i> sp.      |      |      |       |       | 1      |      |        |      |
| Thaumaecidae                 |      |      |       |       |        |      |        |      |
| <i>Thaumalia</i> sp.         |      |      |       |       | 1      |      |        |      |
| Tipulidae                    |      |      |       |       |        |      |        |      |
| <i>Dicranota</i> sp.         |      |      |       |       | 4      | 2    | 3      | 3    |
| <i>Erioptera</i> sp.         |      |      |       |       | 1      |      |        |      |
| <i>Hexatoma</i> sp.          |      |      |       |       | 1      | 1    | 1      |      |
| <i>Limnophila</i> sp.        |      |      |       |       |        |      | 1      |      |
| <i>Lipsothrix</i> sp.        |      |      |       |       | 1      |      |        |      |



Table A7. Continued.

| Season                          | Fall |      |       |       | Winter |      | Spring |      |
|---------------------------------|------|------|-------|-------|--------|------|--------|------|
| Sampling date                   | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| TAXA                            |      |      |       |       |        |      |        |      |
| <i>Ormosia</i> sp.              |      |      |       |       |        | 2    |        |      |
| <i>Pilaria</i> sp.              |      |      | 1     |       |        |      |        |      |
| <i>Pedicia</i> sp.              |      |      |       |       |        | 6    |        |      |
| <i>Tipula abdominalis</i>       |      |      |       | 3     |        |      |        |      |
| <i>Tipula</i> sp. "moss animal" |      | 1    |       |       | 2      |      |        |      |
| <i>Tipula</i> sp cf. fig. 11.3  | 1    |      |       |       | 3      | 2    |        |      |
| Tipulidae sp. (early)           | 1    |      |       |       |        |      |        |      |

<sup>1</sup> cases only

<sup>2</sup> early, not *Pycnopsyche flavata*

<sup>3</sup> includes mature pupae and adults

Table A8. Taxa collected at site 7 by sampling date. October 2000 sample was in Sams Creek ca. 200 m below the mouth of Starkey Creek, above site 7. The symbols ♂, ♀, or ♂♀, indicate some or all of the specimens were adult males, females or both. If the symbol is in the taxa column, it indicates all specimens were adults.

| Season                                | Fall |      |       |       |      |       |      | Winter |      |      | Spring |      |
|---------------------------------------|------|------|-------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                         | 9/96 | 9/00 | 11/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                           |      |      |       |       |      |       |      |        |      |      |        |      |
| Nematomorpha                          |      |      |       |       |      |       |      |        |      |      |        |      |
| Horsehair worms                       |      |      |       |       | 1    | 1     | 1    |        |      |      |        |      |
| Annelida                              |      |      |       |       |      |       |      |        |      |      |        |      |
| Hirudinea                             |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Placobdella</i> sp.                |      |      |       |       |      |       | 1    |        |      |      |        |      |
| Oligochaeta                           | 4    | 6    | 3     | 2     | 6    | 4     | 21   | 5      | 3    | 11   | 2      | 6    |
| Arthropoda                            |      |      |       |       |      |       |      |        |      |      |        |      |
| Arachnida                             |      |      |       |       |      |       |      |        |      |      |        |      |
| Hydracarina                           | 1    | 1    | 1     | 1     | 1    |       |      |        |      | 2    |        |      |
| Crustacea                             |      |      |       |       |      |       |      |        |      |      |        |      |
| Decapoda                              |      |      |       |       |      |       |      |        |      |      |        |      |
| Astacidae                             |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Cambarus bartoni</i>               |      |      | 2     |       | 3    | 4     |      |        |      | 1    | 1      | 3    |
| <i>Cambarus</i> sp. (juveniles)       |      |      |       |       |      |       | 7    |        |      |      |        |      |
| Insecta                               |      |      |       |       |      |       |      |        |      |      |        |      |
| Plecoptera                            |      |      |       |       |      |       |      |        |      |      |        |      |
| Capniidae                             |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Allocaupnia/Paracupnia</i> (early) |      |      | 14    | 1     |      |       |      |        |      |      |        |      |
| <i>Paracupnia angulata</i>            |      |      |       |       |      |       |      | 1♂     | 2♀♂  |      |        |      |
| <i>Paracupnia</i> sp.                 |      |      |       |       |      |       |      | 2      |      |      |        |      |
| Chloroperlidae                        |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Alloperla</i> sp.                  |      | 3    | 1     | 3     | 1    | 7     |      | 1      |      | 5    |        | 4    |
| <i>Haploperla brevis</i>              |      |      |       |       |      |       |      |        |      |      | 7♀     | 1    |
| <i>Sweltsa lateralis/urticae</i> ♀    |      |      |       |       |      |       |      |        |      |      | 3      |      |

Table A8. Continued.

| Season                                 | Fall |      |       |       |      |       |      | Winter |      |      | Spring |      |
|----------------------------------------|------|------|-------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                          | 9/96 | 9/00 | 11/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                            |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Sweltsa</i> sp.                     | 16   | 9    | 12    | 2     | 11   | 1     | 5    | 30     | 9    | 25   | 4      |      |
| Chloroperlidae sp. (early)             |      | 2    | 1     | 2     | 3    | 1     |      |        |      | 1    |        |      |
| Leuctridae                             |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Leuctra triloba</i> ♂               | 1    |      |       |       |      |       |      |        |      |      |        |      |
| <i>Leuctra truncata</i> ♂♀             | 3    |      |       |       |      |       |      |        |      |      |        |      |
| <i>Leuctra</i> sp.                     | 17   |      | 6     | 2     | 11♂♀ |       | 21♀♂ | 19     | 7    | 14♀♂ | 5      | 7    |
| Leuctridae sp.                         |      |      |       |       |      |       |      |        |      |      |        | 1    |
| Nemouridae                             |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Amphinemura appalachia</i>          |      |      |       |       | 1    |       |      | 3      | 1    |      | 8      | 7    |
| <i>Amphinemura wui</i> ♀♂              |      |      |       |       |      |       |      |        |      |      | 1      |      |
| <i>Soyedina kondratieffi</i>           |      |      |       |       |      |       |      | 1      |      |      |        |      |
| Peltoperlidae                          |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Tallaperla</i> sp.                  |      | 21   | 11    | 21    | 18   | 13    | 19   | 22     | 21   | 21   |        | 8    |
| Peltoperlidae sp. (early)              | 17   |      |       |       |      |       |      |        |      |      |        |      |
| Perlidae                               |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Acroneuria abnormis</i>             | 21   | 2    | 8     | 13    | 45   | 6     | 21   | 9      | 17   | 16   | 15     | 11   |
| <i>Beloneuria</i> sp.                  |      | 1    |       | 1     |      |       |      |        |      |      |        |      |
| <i>Eccoptura xanthenes</i>             | 1    | 1    | 2     | 7     | 4    | 2     |      |        | 1    | 4    |        | 1    |
| <i>Perlesta</i> sp. cf. <i>frisoni</i> | 7    |      |       |       |      |       |      |        |      |      | 20     | 22   |
| Perlidae sp. (early)                   |      | 3    | 2     |       |      |       |      |        |      |      |        |      |
| Perlodidae                             |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Isoperla holochlora</i>             |      |      |       |       |      |       |      |        | 9    |      | 21     | 43   |
| <i>Isoperla similis</i>                |      |      | 3     |       | 2    |       |      | 10     | 2    | 8    |        |      |
| <i>Isoperla</i> sp. (early)            | 4    |      |       |       | 3    |       |      | 18     |      | 1    |        |      |
| <i>Malirekus hastatus</i>              | 6    |      | 2     | 7     | 8    | 4     | 1    | 26     | 7    | 1    |        |      |
| <i>Remenus bilobatus</i>               |      |      |       |       |      |       |      |        |      |      | 5      | 4    |
| <i>Yugus arinus</i>                    |      |      |       |       |      |       |      | 1      | 1    |      |        |      |

Table A8. Continued.

| Season                                          | Fall |      |       |       |      |       |      | Winter |      |      | Spring |      |
|-------------------------------------------------|------|------|-------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                                   | 9/96 | 9/00 | 11/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                     |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Yugus/Malirekus</i> (early)                  |      |      |       |       |      |       |      | 18     |      |      |        |      |
| Perlodidae sp. (early)                          |      |      | 8     |       | 1    |       |      |        |      |      |        |      |
| Pteronarcyidae                                  |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Pteronarcys scotti/proteus</i>               | 6    | 8    | 4     | 1     | 12   | 7     | 8    | 2      | 1    | 5    | 4      | 8    |
| Taeniopterygidae                                |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Bolotoperla rossi</i>                        |      |      |       |       |      |       |      | 22     |      |      |        |      |
| <i>Oemopteryx contorta</i>                      |      |      |       |       |      |       |      |        | 1♀♂  |      |        |      |
| <i>Oemopteryx/Taenionema</i> sp.                |      |      |       |       |      |       |      | 4      |      |      |        |      |
| <i>Strophopteryx</i> sp.                        |      |      |       |       |      |       |      |        | 4    | 60   |        |      |
| <i>Taenionema atlanticum</i>                    |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Taeniopteryx</i> sp. cf. <i>burksi</i>       |      |      |       |       |      |       |      | 1♀     |      |      |        |      |
| <i>Taeniopteryx</i> sp.                         |      |      | 12    |       |      |       |      | 1      |      |      |        |      |
| Taeniopterygidae sp. (not <i>Taeniopteryx</i> ) |      |      | 4     |       |      |       |      |        |      |      |        |      |
| Ephemeroptera                                   |      |      |       |       |      |       |      |        |      |      |        |      |
| Ameletidae                                      |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Ameletus cryptostimulus</i>                  |      |      |       |       |      |       |      | 14     | 17   |      |        | 1    |
| <i>Ameletus</i> sp. (early)                     |      |      | 4     | 1     |      |       |      |        |      |      |        |      |
| Baetidae                                        |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Acentrella</i> sp.                           | 2    |      |       |       |      |       |      |        |      |      |        |      |
| <i>Baetis</i> sp. cf. <i>flavistriga</i>        | 6    |      |       |       |      | 1     | 4    |        |      | 28   | 11     | 2    |
| <i>Baetis</i> sp. cf. <i>tricaudatus</i>        | 7    |      |       |       | 5    | 2     | 1    | 36     | 3    | 29   | 2      | 27   |
| <i>Baetis</i> sp. (early/damaged)               |      |      |       |       |      |       | 6    |        |      | 8    |        | 7    |
| Ephemerellidae                                  |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Drunella longicornis</i>                     |      |      |       |       |      |       |      |        |      |      | 26     | 23   |
| <i>Drunella tuberculata</i>                     | 7    |      |       |       | 2    | 2     | 4    |        |      |      |        |      |
| <i>Drunella</i> sp. (in molt)                   |      |      |       |       |      |       | 1    |        |      |      |        |      |

Table A8. Continued.

| Season                                   | Fall |      |       |       |      |       |      | Winter |      |      | Spring |      |
|------------------------------------------|------|------|-------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                            | 9/96 | 9/00 | 11/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                              |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Ephemerella catawba</i>               |      |      |       |       |      |       |      | 53     | 31   | 64   | 22     | 63   |
| <i>Ephemerella rossi</i>                 |      |      |       |       |      |       |      |        |      |      | 100    | 52   |
| <i>Ephemerella hispida</i>               |      |      |       |       |      |       |      | 25     |      |      |        |      |
| <i>Ephemerella</i> sp. (early)           |      |      |       |       |      |       | 1    | 6      |      |      |        |      |
| <i>Eurylophella funeralis</i>            | 2    | 3    |       |       |      |       |      | 5      | 2    | 4    | 2      |      |
| <i>Eurylophella</i> sp. (early)          |      |      |       |       | 1    | 2     | 4    |        |      |      |        |      |
| Ephemerellidae sp. (early)               |      |      | 33    | 40    | 3    |       |      |        |      | 4    |        | 1    |
| Heptageniidae                            |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Cinygmula subaequalis</i>             | 2    |      |       |       |      |       |      | 5      | 12   |      |        |      |
| <i>Epeorus</i> sp. cf. <i>dispar</i>     |      |      | 12    | 5     | 34   | 7     | 7    | 69     | 55   | 24   | 9      | 12   |
| <i>Epeorus</i> sp. cf. <i>pleuralis</i>  |      |      |       |       |      |       |      |        |      |      |        | 87   |
| <i>Epeorus</i> sp. (early)               | 4    | 3    | 22    | 5     | 1    | 1     |      | 7      | 3    | 7    | 3      |      |
| <i>Heptagenia pulla</i>                  |      | 1    |       |       |      |       |      |        |      |      |        |      |
| <i>Heptagenia</i> sp.                    | 8    |      |       |       |      |       |      |        |      |      |        |      |
| <i>Leucrocuta hebe/aphrodite</i>         |      |      |       |       |      |       | 18   |        |      |      |        |      |
| <i>Leucrocuta maculipennis</i>           |      |      |       |       |      |       | 7    |        |      |      |        | 2    |
| <i>Leucrocuta thetis</i>                 |      |      |       |       |      |       | 23   |        |      |      |        |      |
| <i>Leucrocuta</i> sp. cf. <i>thetis</i>  | 3    | 18   | 14    | 14    | 30   | 18    |      | 8      | 21   | 41   | 8      | 20   |
| <i>Leucrocuta</i> sp. (other)            |      |      |       |       |      |       |      |        |      |      |        | 11   |
| <i>Leucrocuta/Heptagenia</i>             |      |      |       |       |      |       |      |        |      | 2    |        |      |
| <i>Rhithrogena</i> sp. cf. <i>amica</i>  |      |      |       |       |      |       |      | 15     | 1    |      |        |      |
| <i>Rhithrogena</i> sp. (early)           |      |      | 2     |       | 2    | 1     |      |        |      |      | 8      |      |
| <i>Stenacron</i> sp. cf. <i>carolina</i> |      |      |       |       |      |       | 2    |        |      |      |        | 2    |
| <i>Stenacron</i> sp. cf. <i>pallidum</i> |      |      | 1     |       | 1    |       |      | 2      |      | 2    |        |      |
| <i>Stenonema merrivulvanum</i>           | 12   | 5    | 5     | 10    | 8    | 6     | 9    | 9      | 3    | 31   | 2      | 16   |
| <i>Stenonema pudicum</i>                 | 30   |      | 18    | 4     | 26   | 5     | 7    | 28     | 33   | 4    | 2      | 33   |
| <i>Stenonema</i> sp. (early)             | 16   | 9    | 3     | 3     | 7    | 5     | 29   |        |      | 4    |        |      |

Table A8. Continued.

| Season                                  | Fall |      |       |       |      |       |      | Winter |      |      | Spring |      |
|-----------------------------------------|------|------|-------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                           | 9/96 | 9/00 | 11/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                             |      |      |       |       |      |       |      |        |      |      |        |      |
| Heptageniidae sp. (early)               |      |      |       |       | 1    |       |      |        |      | 3    |        |      |
| Leptophlebiidae                         |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Habrophlebia vibrans</i>             |      | 3    | 2     |       |      |       | 4    |        | 1    | 4    | 2      | 14   |
| <i>Habrophlebiodes</i> sp.              |      |      |       |       | 1    |       |      |        |      |      | 3      | 4    |
| <i>Paraleptophlebia</i>                 |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>adoptiva/mollis</i>                  |      |      | 9     | 15    |      |       |      | 13     | 13   |      | 20     | 11   |
| <i>Paraleptophlebia</i> sp. cf.         |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>guttata</i>                          |      |      | 2     | 2     | 12   |       |      |        |      | 12   |        | 1    |
| <i>Paraleptophlebia</i> sp. (early)     | 2    | 3    |       |       |      |       |      |        |      |      |        |      |
| Leptophlebiidae sp. (early/<br>damaged) |      |      |       |       |      |       | 1    |        |      |      | 17     |      |
| Odonata                                 |      |      |       |       |      |       |      |        |      |      |        |      |
| Cordulegastridae                        |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Cordulegaster erronea</i>            |      |      |       | 1     |      |       |      | 1      |      |      |        | 1    |
| <i>Cordulegaster maculata</i>           |      |      |       |       |      |       |      |        | 1    | 2    |        |      |
| Gomphidae                               |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Lanthus vernalis</i>                 | 7    | 7    | 4     | 3     | 7    | 8     | 16   | 12     | 14   | 16   | 7      | 13   |
| Heteroptera                             |      |      |       |       |      |       |      |        |      |      |        |      |
| Gerridae                                |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Aquarius remigis</i>                 | 6    | 1    | 2     | 1     | 3    | 6     | 8    |        | 4    | 3    | 8      | 7    |
| Veliidae                                |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Rhagovelia obesa</i>                 |      |      | 2     |       |      |       |      |        |      |      |        |      |
| Megaloptera                             |      |      |       |       |      |       |      |        |      |      |        |      |
| Sialidae                                |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Sialis</i> sp.                       |      |      |       |       |      |       | 1    | 2      |      | 1    |        |      |
| Trichoptera                             |      |      |       |       |      |       |      |        |      |      |        |      |
| Apataniidae                             |      | 2    | 32    | 3     |      |       |      |        |      |      |        |      |

Table A8. Continued.

| Season                                 | Fall |                 |       |       |      |       |                 | Winter |      |                  | Spring         |                 |
|----------------------------------------|------|-----------------|-------|-------|------|-------|-----------------|--------|------|------------------|----------------|-----------------|
| Sampling date                          | 9/96 | 9/00            | 11/00 | 10/00 | 9/01 | 10/01 | 9/02            | 2/97   | 2/01 | 2/02             | 6/96           | 6/02            |
| <b>TAXA</b>                            |      |                 |       |       |      |       |                 |        |      |                  |                |                 |
| <i>Apatania</i> sp.                    | 2    |                 |       |       | 19   | 5     | 21 <sup>1</sup> | 12     | 5    | 33               | 1 <sup>1</sup> | 18 <sup>1</sup> |
| Brachycentridae                        |      |                 |       |       |      |       |                 |        |      |                  |                |                 |
| <i>Micrasema burksi</i>                |      |                 | 1     | 1     | 5    | 1     |                 | 1      | 3    | 4                | 1              | 1 <sup>1</sup>  |
| Glossosomatidae                        |      |                 |       |       |      |       |                 |        |      |                  |                |                 |
| <i>Glossosoma nigror</i> (inc. pupae)  | 14   | 2               | 1     | 11    | 10   | 1     | 8               | 1      |      |                  | 5              | 2               |
| Hydropsychidae                         |      |                 |       |       |      |       |                 |        |      |                  |                |                 |
| <i>Arctopsyche irrorata</i>            | 18   | 1               | 8     | 2     | 48   | 3     | 2               | 3      |      |                  |                |                 |
| <i>Ceratopsyche macleodi</i>           | 37   | 9               | 39    | 76    | 55   | 16    | 25              | 39     | 19   | 4                |                | 1♂              |
| <i>Diplectrona modesta</i>             | 10   |                 | 4     | 3     | 14   |       | 18              | 16     | 1    | 8                | 27             | 54              |
| <i>Hydropsyche francelemonti</i>       |      |                 |       |       | 1    |       |                 |        |      |                  |                |                 |
| <i>Parapsyche cardis</i>               |      |                 |       | 8     | 4    |       | 2               |        | 3    | 6                |                |                 |
| Hydropsychidae sp. (early)             |      |                 |       |       | 4    |       | 5               |        |      | 1                |                |                 |
| Lepidostomatidae                       |      |                 |       |       |      |       |                 |        |      |                  |                |                 |
| <i>Lepidostoma</i> sp.                 | 1    |                 | 3     | 1     |      | 4     | 1               | 25     | 5    | 5                | 12             | 14              |
| Leptoceridae                           |      |                 |       |       |      |       |                 |        |      |                  |                |                 |
| <i>Ceraclea</i> sp. cf. <i>ancylus</i> |      |                 |       |       |      | 2     |                 |        |      |                  |                | 1               |
| Limnephilidae                          |      |                 |       |       |      |       |                 |        |      |                  |                |                 |
| <i>Pycnopsyche flavata</i>             |      |                 |       |       |      |       |                 | 1      | 1    |                  |                |                 |
| <i>Pycnopsyche gentilis</i>            |      |                 |       |       |      |       |                 | 3      | 2    |                  |                |                 |
| <i>Pycnopsyche flavata/gentilis</i>    |      |                 |       |       |      |       | 1               |        |      | 1 <sup>1</sup>   | 1 <sup>1</sup> |                 |
| <i>Pycnopsyche sonso</i>               | 1♂   |                 |       |       |      |       |                 |        |      |                  |                |                 |
| <i>Pycnopsyche luculenta/sonso</i>     |      |                 |       |       |      |       |                 |        |      |                  |                |                 |
| (early instars)                        | 1    |                 |       |       |      |       | 1 <sup>1</sup>  | 23     | 18   | 100 <sup>2</sup> | 5              | 39              |
| <i>Pycnopsyche</i> sp. (early)         |      | 12 <sup>1</sup> | 17    | 8     | 5    | 2     | 3               |        | 1    |                  |                |                 |
| Molannidae                             |      |                 |       |       |      |       |                 |        |      |                  |                |                 |
| <i>Molanna blenda</i>                  | 2    | 5               |       | 1     | 6    |       | 5               | 7      | 2    | 3                | 14             | 9               |

Table A8. Continued.

| Season                                     | Fall     |      |       |       |      |       |      | Winter |      |      | Spring |      |
|--------------------------------------------|----------|------|-------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                              | 9/96     | 9/00 | 11/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                |          |      |       |       |      |       |      |        |      |      |        |      |
| Odontoceridae                              |          |      |       |       |      |       |      |        |      |      |        |      |
| <i>Psilotreta amera</i>                    |          |      |       |       | 1    |       |      |        |      |      |        | 1    |
| <i>Psilotreta amera/rufa</i>               |          | 1    |       |       |      |       |      | 1      |      |      |        |      |
| <i>Psilotreta frontalis</i>                | 9        | 10   | 8     | 13    | 16   | 8     | 5    | 20     | 1    | 19   | 5      | 9    |
| <i>Psilotreta rossi</i>                    |          |      |       |       | 1    |       |      |        |      |      |        |      |
| <i>Psilotreta rufa</i>                     |          |      |       |       |      |       |      |        |      |      |        |      |
| <i>Psilotreta</i> sp. (early)              | 3        |      |       |       |      |       | 2    |        |      |      | 4      |      |
| Philopotamidae                             |          |      |       |       |      |       |      |        |      |      |        |      |
| <i>Dolophilodes distinctus</i>             | 7        |      | 7     |       | 9    |       | 1    | 8♀♂    | 2♀♂  | 5    | 2      |      |
| <i>Wormaldia moesta</i>                    |          |      |       |       |      |       |      | 8♂     |      |      |        |      |
| <i>Wormaldia</i> sp.                       |          |      | 1     |       |      |       |      |        |      |      | 1      |      |
| Polycentropodidae                          |          |      |       |       |      |       |      |        |      |      |        |      |
| <i>Nyctiophylax</i> sp.                    | 2        | 2    | 14    | 8     | 17   | 6     | 8    | 4      | 2    | 6    |        | 1    |
| <i>Polycentropus</i> sp.                   | 2        |      | 5     | 3     | 3    |       | 3    | 4      |      |      |        | 1    |
| Psychomiidae                               |          |      |       |       |      |       |      |        |      |      |        |      |
| <i>Lype diversa</i>                        |          |      |       |       |      |       | 2    |        |      | 1    |        |      |
| Rhyacophilidae                             |          |      |       |       |      |       |      |        |      |      |        |      |
| <i>Rhyacophila</i>                         |          |      |       |       |      |       |      |        |      |      |        |      |
| <i>appalachia/nigrita</i>                  | 3        | 2    | 5     | 4     | 2    | 3     | 2    | 2      | 4    | 12   | 2      | 2    |
| <i>Rhyacophila carolina</i>                | 27♀<br>♂ | 4    |       | 2     |      |       |      |        |      |      | 2      | 1    |
| <i>Rhyacophila fuscula</i>                 | 9        | 2    | 2     | 3     | 1    |       | 2    | 10     | 1    | 9    | 5♀     | 16   |
| <i>Rhyacophila glaberrima</i>              |          |      |       |       |      |       |      |        |      | 2    | 3      | 3    |
| <i>Rhyacophila minor</i>                   | 9        | 4    | 2     | 5     | 8    | 15    | 1    | 1      |      |      |        |      |
| <i>Rhyacophila</i> sp. cf. <i>parantra</i> |          |      |       |       |      |       |      |        |      |      |        |      |
| <i>Rhyacophila torva</i>                   | 5♂       |      | 1     |       | 7    | 1     | 1    | 3♂     |      | 1    |        | 3    |
| <i>Rhyacophila</i> sp. nov. cf.            |          |      |       |       |      |       |      |        |      |      |        |      |



Table A8. Continued.

| Season                                             | Fall           |                |                |                |                 |                |                 | Winter |      |                 | Spring |      |
|----------------------------------------------------|----------------|----------------|----------------|----------------|-----------------|----------------|-----------------|--------|------|-----------------|--------|------|
| Sampling date                                      | 9/96           | 9/00           | 11/00          | 10/00          | 9/01            | 10/01          | 9/02            | 2/97   | 2/01 | 2/02            | 6/96   | 6/02 |
| <b>TAXA</b>                                        |                |                |                |                |                 |                |                 |        |      |                 |        |      |
| <i>nigrita</i>                                     |                |                | 1              | 1              | 4               | 3              | 1               | 5      | 2    |                 |        | 4    |
| <i>Rhyacophila</i> sp. (early)                     |                |                |                |                |                 |                | 5               |        | 1    | 1               |        |      |
| Sericostomatidae                                   |                |                |                |                |                 |                |                 |        |      |                 |        |      |
| <i>Fattigia pele</i>                               | 1              |                |                | 2              | 1               | 1              | 2               | 5      |      | 1               | 1      | 5    |
| Uenoidae                                           |                |                |                |                |                 |                |                 |        |      |                 |        |      |
| <i>Neophylax consimilis</i>                        |                |                | 2 <sup>1</sup> |                |                 |                | 6 <sup>3</sup>  | 1      | 22   | 35 <sup>3</sup> | 1      | 4    |
| <i>Neophylax mitchelli</i>                         | 2 <sup>3</sup> | 2 <sup>3</sup> | 1 <sup>3</sup> | 1 <sup>3</sup> | 27 <sup>3</sup> | 3 <sup>3</sup> | 17 <sup>3</sup> | 7      | 25   | 3               | 10     | 8    |
| <i>Neophylax ornatus</i>                           |                | 1              | 26             | 3              | 2               |                |                 |        | 1    |                 |        |      |
| <i>Neophylax</i> sp. (early, dark head with spine) |                |                |                |                |                 |                |                 | 1      |      |                 |        |      |
| <i>Neophylax</i> sp. (early)                       | 4              |                |                |                | 3               | 28             |                 |        | 2    | 1               |        |      |
| Coleoptera                                         |                |                |                |                |                 |                |                 |        |      |                 |        |      |
| Elmidae                                            |                |                |                |                |                 |                |                 |        |      |                 |        |      |
| <i>Optioservus immunis</i> ♂♀                      | 1              |                | 1              |                |                 |                |                 |        |      |                 |        |      |
| <i>Optioservus ovalis</i> ♂♀                       | 1              |                |                | 5              |                 | 1              | 2               | 1      |      | 1               | 1      | 1    |
| <i>Optioservus trivitattus</i> ♂♀                  |                |                |                |                |                 |                |                 | 1      |      |                 |        |      |
| <i>Optioservus</i> sp.                             |                |                | 3              | 1              |                 | 1              |                 |        | 2    |                 |        |      |
| <i>Oulimnius latiusculus</i> ♂♀                    | 1              |                |                |                |                 |                | 5               |        |      |                 |        | 2    |
| <i>Promoresia elegans</i>                          |                |                |                |                |                 |                | 1               |        |      | 1               |        |      |
| <i>Promoresia tardella</i>                         | 8              |                | 3              |                | 6               |                |                 |        |      |                 |        | 3♂♀  |
| Hydrophilidae                                      |                |                |                |                |                 |                |                 |        |      |                 |        |      |
| <i>Helophorous</i> sp.??                           |                |                |                |                |                 |                | 2               |        |      |                 |        |      |
| Ptilodactylidae                                    |                |                |                |                |                 |                |                 |        |      |                 |        |      |
| <i>Anchytarsus</i> sp.                             |                |                |                |                |                 | 1              |                 |        |      |                 |        |      |
| Diptera                                            |                |                |                |                |                 |                |                 |        |      |                 |        |      |
| Athericidae                                        |                |                |                |                |                 |                |                 |        |      |                 |        |      |
| <i>Atherix lantha</i>                              | 7              |                | 5              | 2              | 7               | 7              | 17              |        | 1    | 8               |        |      |

Table A8. Continued.

| Season                                       | Fall |      |       |       |      |       |      | Winter |      |      | Spring |      |
|----------------------------------------------|------|------|-------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                                | 9/96 | 9/00 | 11/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                  |      |      |       |       |      |       |      |        |      |      |        |      |
| Blephariceridae                              |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Blepharicera</i> sp.                      | 2    |      |       |       |      |       |      | 13     |      | 33   | 2      | 4    |
| Ceratopogonidae                              |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Bezzia</i> sp.                            |      |      |       |       | 1    | 1     |      |        |      |      |        |      |
| <i>Bezzia/Palpomyia</i> sp.                  | 4    |      |       |       |      |       |      |        | 1    |      | 1      | 9    |
| <i>Probezzia</i> sp.                         |      |      |       |       |      | 1     |      |        |      |      |        |      |
| Chironomidae                                 | 35   |      |       |       |      |       |      | 125    |      |      | 37     |      |
| Chironominae                                 |      |      |       |       |      |       |      |        |      |      |        |      |
| Chironomini                                  |      | 4    | 4     |       | 3    | 19    | 6    |        | 2    | 6    |        | 16   |
| Tanytarsini                                  |      | 6    |       | 2     | 27   | 1     | 13   |        | 1    | 9    |        | 5    |
| Orthocladinae                                |      | 6    | 14    | 4     | 17   | 9     | 4    |        | 11   | 23   |        | 16   |
| Tanypodinae                                  |      |      |       |       |      |       | 4    |        |      | 2    |        | 2    |
| Chironomidae pupae                           |      |      |       |       |      | 2     |      |        |      | 2    |        | 2    |
| Dixidae                                      |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Dixa</i> sp.                              |      | 1    | 1     |       | 7    | 3     | 1    |        |      |      |        |      |
| Empididae                                    |      |      |       |       |      |       |      |        |      |      |        |      |
| Empididae sp.                                |      |      |       | 1     |      |       |      |        |      |      |        | 1    |
| Simuliidae (including pupae)                 | 7    | 2    |       |       | 9    |       | 6    | 12     | 14   | 27   | 4      | 12   |
| Tipulidae                                    |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Antocha</i> sp.                           |      | 1    |       |       |      |       |      |        |      |      | 2      |      |
| <i>Dactylolabis</i> sp.?                     |      |      |       |       |      |       |      |        | 1    |      |        |      |
| <i>Dicranota</i> sp.                         | 5    |      |       |       |      |       |      | 2      |      |      | 1      | 7    |
| <i>Hexatoma</i> sp.                          | 7    | 2    | 1     | 3     | 12   | 1     | 8    | 8      | 12   | 14   | 3      | 6    |
| <i>Longurio</i> sp.                          |      |      |       |       |      |       |      |        | 1    |      |        |      |
| <i>Limnophila</i> sp. (M&C <sup>4</sup> figs |      |      |       |       |      |       |      |        |      |      |        |      |
| 22.5, 22.8, toothed mandible)                |      |      | 1     |       |      |       |      | 1      |      | 1    |        |      |
| <i>Limonia</i> sp.                           |      |      |       |       |      | 1     |      | 2      |      |      |        |      |

Table A8. Continued.

| Season                                       | Fall |      |       |       |      |       |      | Winter |      |      | Spring |      |
|----------------------------------------------|------|------|-------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                                | 9/96 | 9/00 | 11/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                  |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Lipsothrix</i> sp.                        |      |      |       |       |      |       |      | 1      |      |      |        |      |
| <i>Ormosia</i> sp.                           |      |      |       |       |      |       |      |        |      |      |        | 1    |
| <i>Pilaria</i> sp.                           |      |      |       |       |      |       |      |        |      | 3    |        |      |
| <i>Tipula abdominalis</i>                    |      | 3    | 5     |       |      |       | 2    |        | 4    | 6    |        |      |
| <i>Tipula</i> sp. "moss animal"              |      |      |       |       |      | 1     | 5    |        | 2    |      |        |      |
| <i>Tipula</i> sp. cf. fig. 11.3 <sup>5</sup> |      |      |       |       |      |       |      | 1      |      |      |        |      |
| <i>Tipula</i> sp.                            |      |      |       |       |      |       |      |        |      |      | 1      |      |

<sup>1</sup> cases only

<sup>2</sup> one worker collected 72 specimens

<sup>3</sup> includes mature pupae

<sup>4</sup> Merritt and Cummins (1986)

<sup>5</sup> Brigham, et al. (1982)

Table A9. Taxa collected at site 8 by sampling date. The symbols ♂, ♀, or ♂♀, indicate some or all of the specimens were adult males, females or both. If the symbol is in the taxa column, it indicates all specimens were adults.

| Season                          | Fall |      |      |       |       | Winter |      | Spring |      |
|---------------------------------|------|------|------|-------|-------|--------|------|--------|------|
| Sampling date                   | 9/96 | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |      |      |      |       |       |        |      |        |      |
| Nematomorpha                    |      |      |      |       |       |        |      |        |      |
| Horsehair worms                 |      |      | 1    |       |       |        |      |        |      |
| Annelida                        |      |      |      |       |       |        |      |        |      |
| Hirudinea                       |      |      |      |       |       |        |      |        |      |
| <i>Placobdella</i> sp.          |      | 10   |      |       | 15    |        |      |        | 1    |
| Oligochaeta                     | 5    | 16   | 2    |       | 3     | 2      | 8    | 2      | 1    |
| Arthropoda                      |      |      |      |       |       |        |      |        |      |
| Arachnida                       |      |      |      |       |       |        |      |        |      |
| Hydracarina                     | 1    |      |      |       |       |        |      |        |      |
| Crustacea                       |      |      |      |       |       |        |      |        |      |
| Decapoda                        |      |      |      |       |       |        |      |        |      |
| Astacidae                       |      |      |      |       |       |        |      |        |      |
| <i>Cambarus bartoni</i>         | 1    |      |      |       |       | 1      |      |        |      |
| <i>Cambarus</i> sp. (juveniles) |      | 2    |      |       | 2     |        |      |        | 3    |
| Insecta                         |      |      |      |       |       |        |      |        |      |
| Plecoptera                      |      |      |      |       |       |        |      |        |      |
| Capniidae                       |      |      |      |       |       |        |      |        |      |
| <i>Allocapnia</i> sp.           |      |      |      |       |       | 1♀     |      |        |      |
| <i>Paracapnia</i> sp.           |      |      |      |       |       |        | 1    |        |      |
| Chloroperlidae                  |      |      |      |       |       |        |      |        |      |
| <i>Alloperla</i> sp.            | 3    | 2    | 1    | 2     | 9     |        | 10   | 1      | 4    |
| <i>Haploperla brevis</i>        |      |      |      |       |       |        |      | 4      |      |
| <i>Sweltsa</i> sp.              | 8    | 10   | 4    | 2     | 4     | 32     | 11   |        |      |
| Chloroperlidae sp. (early)      |      |      | 5    | 3     |       |        |      |        |      |

Table A9. Continued.

| Season                                 | Fall |      |      |       |       | Winter |      | Spring |      |
|----------------------------------------|------|------|------|-------|-------|--------|------|--------|------|
| Sampling date                          | 9/96 | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                            |      |      |      |       |       |        |      |        |      |
| Leuctridae                             |      |      |      |       |       |        |      |        |      |
| <i>Leuctra ferruginea</i> ♀♂           | 3    |      |      |       |       |        |      |        |      |
| <i>Leuctra</i> sp.                     | 7    | 4♀   | 2♀♂  | 3♀♂   | 20♂   | 4      | 5    | 4      | 16♀  |
| <i>Paraleuctra sara</i>                |      |      |      |       |       |        | 1    |        |      |
| Nemouridae                             |      |      |      |       |       |        |      |        |      |
| <i>Amphinemura appalachia</i>          | 1    |      |      |       |       | 4      | 1    | 2      | 3    |
| Peltoperlidae                          |      |      |      |       |       |        |      |        |      |
| <i>Tallaperla</i> sp.                  | 9    | 5    | 14   | 8     | 4     | 6      | 8    | 2      | 30   |
| Perlidae                               |      |      |      |       |       |        |      |        |      |
| <i>Acroneuria abnormis</i>             | 15   | 11   | 18   | 5     | 22    | 7      | 16   | 9      | 35   |
| <i>Beloneuria</i> sp.                  |      |      |      |       |       |        | 1    |        |      |
| <i>Eccopectura xanthenes</i>           |      |      | 3    |       |       |        | 4    | 1      | 4    |
| <i>Paragnetina immarginata</i>         | 1    |      |      |       |       |        |      |        |      |
| <i>Perlesta</i> sp. cf. <i>frisoni</i> |      |      |      |       |       |        |      | 4      | 30   |
| Perlidae sp. (early)                   |      |      | 1    |       |       |        |      |        |      |
| Perlodidae                             |      |      |      |       |       |        |      |        |      |
| <i>Isoperla holochlora</i>             | 56   |      | 3    | 3     |       |        | 11   | 2      | 37   |
| <i>Isoperla</i> sp. cf. <i>dicala</i>  |      |      |      |       |       |        | 1    |        |      |
| <i>Isoperla similis</i>                |      | 3    |      |       | 5     | 6      | 12   |        |      |
| <i>Isoperla</i> sp. (early)            |      | 1    | 2    | 2     |       |        |      |        |      |
| <i>Malirekus hastatus</i>              | 9    | 1    |      |       | 1     | 16     | 4    | 1      | 1    |
| <i>Remenus bilobatus</i>               |      |      |      |       |       |        |      | 3      |      |
| <i>Yugus arimis</i>                    |      |      |      |       |       | 6      | 4    |        |      |
| <i>Yugus</i> sp. (early)               |      |      |      |       |       |        | 1    |        |      |
| Perlodidae sp. (early)                 |      | 1    |      | 1     | 2     |        | 2    |        |      |
| Pteronarcyidae                         |      |      |      |       |       |        |      |        |      |
| <i>Pteronarcys scotti/proteus</i>      | 9    | 10   | 18   | 11    | 6     | 7      | 11   | 3      |      |

Table A9. Continued.

| Season<br>Sampling date                  | Fall |      |      |       |       | Winter |      | Spring |      |
|------------------------------------------|------|------|------|-------|-------|--------|------|--------|------|
|                                          | 9/96 | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                              |      |      |      |       |       |        |      |        |      |
| Taeniopterygidae                         |      |      |      |       |       |        |      |        |      |
| <i>Bolotoperla rossi</i>                 |      |      |      |       |       | 2      |      |        |      |
| <i>Oemopteryx contorta</i>               |      |      |      |       |       |        | 1    |        |      |
| <i>Strophopteryx</i> sp.                 |      |      |      |       |       |        | 1    |        |      |
| <i>Taeniopteryx</i> sp.                  |      |      |      |       |       | 7      | 1♀   |        |      |
| Ephemeroptera                            |      |      |      |       |       |        |      |        |      |
| Ameletidae                               |      |      |      |       |       |        |      |        |      |
| <i>Ameletus cryptostimulus</i>           |      |      |      |       |       | 8      | 31   |        |      |
| <i>Ameletus</i> sp. (early)              |      |      |      |       |       |        | 4    |        |      |
| Baetidae                                 |      |      |      |       |       |        |      |        |      |
| <i>Acentrella</i> sp. cf. <i>amplus</i>  | 4    |      |      |       |       |        |      |        |      |
| <i>Baetis</i> sp. cf. <i>flavistriga</i> | 5    | 5    | 1    | 2     | 3     |        | 2    |        | 17   |
| <i>Baetis</i> sp. cf. <i>tricaudatus</i> | 16   | 6    | 15   | 11    | 11    | 45     | 44   | 7      | 25   |
| <i>Baetis</i> sp. (early/damaged)        |      | 3    | 4    | 1     | 3     |        | 2    |        | 7    |
| <i>Centroptilum</i> s.l. (damaged)       |      |      |      |       |       |        |      | 1      |      |
| <i>Baetidae</i> sp. (early)              | 4    |      | 1    |       |       |        |      |        |      |
| Ephemerellidae                           |      |      |      |       |       |        |      |        |      |
| <i>Drunella longicornis</i>              |      |      |      |       |       |        |      | 4      | 12   |
| <i>Drunella tuberculata</i>              | 6    | 1    | 10   | 2     | 3     |        |      | 1      | 13   |
| <i>Drunella</i> sp. (early)              |      |      |      |       |       |        |      |        | 1    |
| <i>Ephemerella catawba</i>               | 1    |      |      |       |       | 5      | 6    |        | 3    |
| <i>Ephemerella rossi</i>                 |      |      |      |       |       | 5      | 32   | 22     | 206  |
| <i>Ephemerella hispida</i>               |      |      |      |       |       | 30     | 23   |        | 21   |
| <i>Ephemerella</i> sp. (early)           |      | 1    |      |       |       |        | 46   |        | 5    |
| <i>Eurylophella funeralis</i>            | 1    |      |      |       | 1     | 7      | 2    |        | 3    |
| <i>Eurylophella</i> sp. (early)          |      |      |      | 3     |       |        |      |        |      |
| <i>Ephemerellidae</i> sp. (early)        |      |      | 1    | 2     |       | 3      |      | 1      |      |

Table A9. Continued.

| TAXA                                           | Season        | Fall |      |      |       | Winter |      | Spring |      |      |
|------------------------------------------------|---------------|------|------|------|-------|--------|------|--------|------|------|
|                                                | Sampling date | 9/96 | 9/00 | 9/01 | 10/01 | 10/02  | 2/97 | 2/02   | 6/96 | 6/02 |
| Heptageniidae                                  |               |      |      |      |       |        |      |        |      |      |
| <i>Cinygmula subaequalis</i>                   |               |      |      |      |       | 1      |      |        |      | 1    |
| <i>Epeorus "dispar"</i>                        |               | 7    | 2    | 16   | 2     | 5      | 55   | 10     | 11   | 48   |
| <i>Epeorus "pleuralis"</i>                     |               |      |      |      |       |        |      | 86     |      | 8    |
| <i>Epeorus</i> sp. (early)                     |               |      | 2    | 5    | 2     |        |      | 3      | 3    |      |
| <i>Heptagenia julia</i>                        |               | 3    |      | 1    |       |        |      |        |      |      |
| <i>Heptagenia</i> sp.                          |               | 3    |      | 3    |       |        | 1    |        | 2    |      |
| <i>Leucrocuta thetis</i>                       |               | 2    | 15   | 17   | 11    | 14     | 3    | 93     | 1    | 11   |
| <i>Leucrocuta</i> sp.                          |               |      | 1    |      |       | 8      |      | 22     |      | 2    |
| <i>Rhithrogena</i> sp. cf. <i>amica</i>        |               |      |      |      |       |        | 5    |        |      |      |
| <i>Rhithrogena</i> sp. cf. <i>fuscifrons</i>   |               | 4    |      |      |       |        |      |        | 5    |      |
| <i>Rhithrogena</i> sp. (early)                 |               |      | 1    | 3    | 6     |        |      | 12     |      | 3    |
| <i>Stenacron</i> sp. cf. <i>pallidum</i>       |               |      |      |      |       |        | 1    |        |      |      |
| <i>Stenacron</i> sp. (early)                   |               |      |      |      |       | 1      |      | 1      |      |      |
| <i>Stenonema merrivulatum</i>                  |               | 2    |      | 11   | 7     | 13     | 1    |        |      | 79   |
| <i>Stenonema pudicum</i>                       |               | 37   |      | 8    | 13    | 10     | 42   | 49     | 6    | 2    |
| <i>Stenonema</i> sp. (early)                   |               |      | 26   | 26   | 32    | 21     |      | 26     | 5    | 5    |
| Heptageniidae sp. (early)                      |               |      | 1    |      |       | 8      |      | 1      |      | 1    |
| Leptophlebiidae                                |               |      |      |      |       |        |      |        |      |      |
| <i>Habrophlebia vibrans</i>                    |               |      | 1    | 2    |       |        |      |        |      |      |
| <i>Habrophlebiodes</i> sp.                     |               |      |      |      |       |        |      |        | 1    |      |
| <i>Paraleptophlebia adoptiva/mollis</i>        |               | 2    |      | 1    |       | 1      | 13   | 21     | 9    | 5    |
| <i>Paraleptophlebia</i> sp. cf. <i>guttata</i> |               |      | 3    | 2    |       | 1      |      | 9      |      | 19   |
| <i>Paraleptophlebia</i> sp. (early)            |               |      | 1    |      | 3     | 1      |      |        |      |      |
| Leptophlebiidae sp. (early/<br>damaged)        |               |      | 1    | 2    | 1     | 8      | 4    |        |      | 9    |
| Odonata                                        |               |      |      |      |       |        |      |        |      |      |



Table A9. Continued.

| Season<br>Sampling date                | Fall |      |                |                |       | Winter |      | Spring |                 |
|----------------------------------------|------|------|----------------|----------------|-------|--------|------|--------|-----------------|
|                                        | 9/96 | 9/00 | 9/01           | 10/01          | 10/02 | 2/97   | 2/02 | 6/96   | 6/02            |
| <b>TAXA</b>                            |      |      |                |                |       |        |      |        |                 |
| Aeschnidae                             |      |      |                |                |       |        |      |        |                 |
| <i>Boyeria vinosa</i>                  | 1    |      |                |                |       |        |      |        |                 |
| <i>Boyeria grafiana</i>                |      | 1    |                |                |       |        |      |        |                 |
| Cordulegastridae                       |      |      |                |                |       |        |      |        |                 |
| <i>Cordulegaster erronea</i>           | 1    | 1    |                |                |       |        |      |        | 1               |
| <i>Cordulegaster maculata</i>          | 1    | 1    |                |                |       |        |      |        |                 |
| Gomphidae                              |      |      |                |                |       |        |      |        |                 |
| <i>Lanthus vernalis</i>                | 7    | 5    | 6              | 13             | 8     | 14     | 13   | 9      | 14              |
| Heteroptera                            |      |      |                |                |       |        |      |        |                 |
| Gerridae                               |      |      |                |                |       |        |      |        |                 |
| <i>Aquarius remigis</i>                | 1    |      | 3              | 3              | 3     |        | 1    | 3      | 6               |
| Trichoptera                            |      |      |                |                |       |        |      | 65♀    |                 |
| Apataniidae                            |      |      |                |                |       |        |      |        |                 |
| <i>Apatania</i> sp.                    | 3    | 5    | 2              | 4              | 1     | 15     | 41   | 1      | 16 <sup>1</sup> |
| Brachycentridae                        |      |      |                |                |       |        |      |        |                 |
| <i>Micrasema burksi</i>                |      |      |                | 1 <sup>1</sup> |       | 2      | 1    |        |                 |
| Glossosomatidae                        |      |      |                |                |       |        |      |        |                 |
| <i>Glossosoma nigrior</i> (inc. pupae) | 12   | 11   | 8              | 2              | 9     |        |      | 12     | 23              |
| Goeridae                               |      |      |                |                |       |        |      |        |                 |
| <i>Goera</i> sp. cf. <i>fuscata</i>    |      |      | 1 <sup>1</sup> | 1              | 4     |        |      |        |                 |
| Hydropsychidae                         |      |      |                |                |       |        |      |        |                 |
| <i>Arctopsyche irrorata</i>            | 5    | 2    | 37             | 15             | 10    |        | 8    | 1      |                 |
| <i>Ceratopsyche macleodi</i>           | 13   | 43   | 34             | 20             | 3     | 20     | 28   |        |                 |
| <i>Ceratopsyche slosonae</i>           |      |      |                |                |       |        |      | 1      | 2               |
| <i>Diplectrona modesta</i>             | 12   | 5    | 3              | 8              | 26    | 8      | 3    | 19     | 80              |
| <i>Hydropsyche franelemonti</i>        |      |      |                | 1              |       |        |      |        |                 |
| <i>Parapsyche cardis</i>               |      |      | 3              |                | 8     |        |      |        |                 |



Table A9. Continued.

| Season<br>Sampling date                               | Fall |                |                |                |       | Winter |      | Spring |      |
|-------------------------------------------------------|------|----------------|----------------|----------------|-------|--------|------|--------|------|
|                                                       | 9/96 | 9/00           | 9/01           | 10/01          | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                           |      |                |                |                |       |        |      |        |      |
| Hydropsychidae sp. (pupae)                            |      |                |                |                |       |        |      |        | 7    |
| Hydropsychidae sp. (early)                            |      | 1              | 6              |                |       |        | 2    |        | 1    |
| Lepidostomatidae                                      |      |                |                |                |       |        |      |        |      |
| <i>Lepidostoma</i> sp.                                | 1    | 6 <sup>1</sup> | 2              | 1 <sup>1</sup> | 4     | 21     | 3    | 7      | 11   |
| Leptoceridae                                          |      |                |                |                |       |        |      |        |      |
| <i>Ceraclea</i> sp. cf. <i>ancylus</i>                |      | 2              |                |                |       |        |      |        | 1    |
| Limnephilidae                                         |      |                |                |                |       |        |      |        |      |
| <i>Pycnopsyche gentilis</i>                           |      |                |                | 1              |       | 3      |      |        |      |
| <i>Pycnopsyche sonso</i>                              |      |                |                |                |       |        | 56   |        | 22   |
| <i>Pycnopsyche luculenta/sonso</i><br>(early instars) | 1    | 3 <sup>1</sup> | 8 <sup>1</sup> | 5 <sup>1</sup> | 11    | 22     |      | 7      |      |
| <i>Pycnopsyche</i> sp. (early)                        |      |                |                |                |       |        | 3    |        |      |
| Molannidae                                            |      |                |                |                |       |        |      |        |      |
| <i>Molanna blenda</i>                                 | 6    | 2              | 6              | 3              | 11    | 2      | 8    | 1      | 11   |
| Odontoceridae                                         |      |                |                |                |       |        |      |        |      |
| <i>Psilotreta amera</i> (pupae)                       |      |                |                |                |       |        |      |        | 5    |
| <i>Psilotreta frontalis</i>                           | 9    |                | 16             | 11             | 10    | 4      | 12   | 3      | 8    |
| <i>Psilotreta rossi</i>                               |      |                |                | 1              |       |        |      |        |      |
| <i>Psilotreta</i> sp. (early)                         | 1    | 3              |                | 1              |       |        | 1    |        |      |
| Philopotamidae                                        |      |                |                |                |       |        |      |        |      |
| <i>Dolophilodes distinctus</i>                        | 4    | 4              | 3              |                | 2     | 8      | 1    | 6♂♀    | 36♂  |
| <i>Wormaldia</i> sp.                                  |      |                |                |                |       | 1      |      |        |      |
| Polycentropodidae                                     |      |                |                |                |       |        |      |        |      |
| <i>Nyctiophylax</i> sp.                               | 1    | 4              | 1              | 4              | 1     | 1      |      |        | 4    |
| <i>Polycentropus</i> sp.                              | 3    |                |                |                | 1     | 3      | 1    | 3      | 2    |
| Psychomiidae                                          |      |                |                |                |       |        |      |        |      |
| <i>Lype diversa</i>                                   |      | 7              | 2              | 1              |       |        |      | 3♂♀    |      |

Table A9. Continued.

| Season<br>Sampling date                                                | Fall           |                 |                |                 |                | Winter |      | Spring |      |
|------------------------------------------------------------------------|----------------|-----------------|----------------|-----------------|----------------|--------|------|--------|------|
|                                                                        | 9/96           | 9/00            | 9/01           | 10/01           | 10/02          | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                                            |                |                 |                |                 |                |        |      |        |      |
| Rhyacophiladae                                                         |                |                 |                |                 |                |        |      |        |      |
| <i>Rhyacophila appalachia/nigrita</i>                                  | 5              | 4               |                |                 | 2              |        | 2    | 1      | 3    |
| <i>Rhyacophila atrata</i> (concolorous head, golden brown)             |                |                 |                |                 |                |        | 4    | 10♂♀   |      |
| <i>Rhyacophila atrata</i>                                              |                |                 |                |                 |                |        |      |        |      |
| <i>Rhyacophila carolina</i>                                            | 14♂            |                 | 1              |                 |                |        |      | 21♂    | 7    |
| <i>Rhyacophila fuscula</i>                                             | 20♂♀           |                 | 1              |                 | 3              | 14     | 8    | 13♂♀   | 20   |
| <i>Rhyacophila glaberrima</i>                                          |                |                 |                |                 |                | 1      |      |        |      |
| <i>Rhyacophila minor</i>                                               |                | 15              | 27             | 6               | 10             |        | 1    |        |      |
| <i>Rhyacophila nigrita</i> ♂                                           |                |                 |                |                 |                |        |      | 4      |      |
| <i>Rhyacophila</i> sp. cf. <i>parantra</i> ?                           | 3              |                 |                |                 |                |        |      |        |      |
| <i>Rhyacophila teddyi</i> ♂                                            |                |                 |                |                 |                |        |      | 3      |      |
| <i>Rhyacophila torva</i>                                               | 1              |                 | 5              | 9               |                | 1      | 2    |        |      |
| <i>Rhyacophila</i> sp. nov. cf. <i>nigrita</i>                         |                |                 | 1              |                 |                |        | 2    |        |      |
| <i>Rhyacophila</i> sp. (early)                                         | 1              |                 |                | 2               | 1              | 4      |      |        |      |
| <i>Rhyacophila</i> sp. (pupae)                                         |                |                 |                |                 |                |        | 1    |        |      |
| Sericostomatidae                                                       |                |                 |                |                 |                |        |      |        |      |
| <i>Fattigia pele</i>                                                   | 3              | 1               | 4              | 1               |                | 6      | 6    | 1      | 8    |
| Uenoidae                                                               |                |                 |                |                 |                |        |      |        |      |
| <i>Neophylax consimilis</i>                                            |                | 1?              |                |                 |                | 11     | 29   | 3      | 9    |
| <i>Neophylax consimilis</i> (mature pupae)                             | 1              |                 | 5              | 10 <sup>1</sup> |                |        |      |        |      |
| <i>Neophylax mitchelli</i>                                             | 1 <sup>2</sup> | 12 <sup>2</sup> | 1 <sup>2</sup> | 5 <sup>2</sup>  | 9 <sup>2</sup> | 2      | 2    |        | 13   |
| <i>Neophylax ornatus</i>                                               |                |                 |                |                 |                | 1      |      |        | 1    |
| <i>Neophylax oligius</i>                                               |                |                 |                |                 |                | 1      |      |        |      |
| <i>Neophylax securis</i> ? (early;black head;lat. gills pres; pronotal |                |                 |                |                 |                |        |      |        |      |

Table A9. Continued.

| Season<br>Sampling date             | Fall |      |      |       |       | Winter |      | Spring |      |
|-------------------------------------|------|------|------|-------|-------|--------|------|--------|------|
|                                     | 9/96 | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                         |      |      |      |       |       |        |      |        |      |
| setae mostly posteriad)             |      |      |      |       |       |        | 1    |        |      |
| <i>Neophylax</i> sp. (cases, other) |      | 4    |      |       | 2     |        |      |        |      |
| <i>Neophylax</i> sp. (early)        |      |      | 2    | 1     |       |        |      |        |      |
| Coleoptera                          |      |      |      |       |       |        |      |        |      |
| Eubriidae                           |      |      |      |       |       |        |      |        |      |
| <i>Ectopria</i> sp.                 |      |      |      |       |       |        | 1    |        |      |
| Elmidae                             |      |      |      |       |       |        |      |        |      |
| <i>Optioservus immunis</i> ♂♀       |      |      |      | 1     |       |        |      |        |      |
| <i>Optioservus ovalis</i> ♂♀        |      |      |      |       |       |        | 1    |        |      |
| <i>Optioservus</i> sp.              | 1    | 1    |      | 1     | 1     |        |      | 1      |      |
| <i>Oulimnius latiusculus</i> ♂♀     |      |      |      | 1     |       |        |      |        |      |
| <i>Promoresia tardella</i>          | 4♂♀  |      | 2    | 5     |       |        |      | 1♂♀    |      |
| Elmidae sp. (damaged)               |      |      |      |       | 1     |        |      |        |      |
| Ptilodactylidae                     |      |      |      |       |       |        |      |        |      |
| <i>Anchytarsus</i> sp.              |      |      |      |       |       |        | 2    |        |      |
| Diptera                             |      |      |      |       |       |        |      |        |      |
| Athericidae                         |      |      |      |       |       |        |      |        |      |
| <i>Atherix lantha</i>               | 6    | 11   | 21   | 20    | 11    | 2      | 14   |        | 5    |
| Blephariceridae                     |      |      |      |       |       |        |      |        |      |
| <i>Blepharicera</i> sp.             |      |      |      |       |       | 8      | 4    | 3      |      |
| Ceratopogonidae                     |      |      |      |       |       |        |      |        |      |
| <i>Bezzia</i> sp.                   |      |      |      | 1     |       |        |      |        |      |
| <i>Bezzia/Palpomyia</i> sp.         | 4    | 3    |      |       | 1     |        |      | 4      | 1    |
| Chironomidae                        | 37   |      |      |       |       | 63     |      | 33     |      |
| Chironominae                        |      |      |      |       |       |        |      |        |      |
| Chironomini                         |      | 3    | 3    | 7     | 4     |        | 3    |        | 5    |
| Tanytarsini                         |      | 6    | 3    | 2     | 6     |        | 21   |        |      |

Table A9. Continued.

| Season<br>Sampling date                                          | Fall |      |      |       |       | Winter |      | Spring |      |
|------------------------------------------------------------------|------|------|------|-------|-------|--------|------|--------|------|
|                                                                  | 9/96 | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                                      |      |      |      |       |       |        |      |        |      |
| Orthocladinae                                                    |      | 10   | 6    |       | 4     |        | 25   |        | 27   |
| Tanypodinae                                                      |      | 2    |      |       |       |        | 7    |        | 1    |
| Chironomidae pupae                                               |      | 1    |      |       |       |        |      |        | 1    |
| Dixidae                                                          |      |      |      |       |       |        |      |        |      |
| <i>Dixa</i> sp.                                                  |      | 2    | 2    | 2     | 2     |        |      |        | 1    |
| Simuliidae (including pupae)                                     | 11   | 10   | 14   | 3     | 11    | 11     |      | 11     | 10   |
| Tipulidae                                                        |      |      |      |       |       |        |      |        |      |
| <i>Antocha</i> sp.                                               | 1    |      |      |       |       |        |      | 1      | 2    |
| <i>Dicranota</i> sp.                                             | 9    |      |      |       |       | 1      | 1    | 10     |      |
| <i>Hexatoma</i> sp.                                              | 6    | 7    | 4    | 1     | 13    | 9      | 8    | 6      | 1    |
| <i>Limnophila</i> sp. (M&C figs 22.5,<br>22.8, toothed mandible) |      |      |      | 4     |       |        |      |        |      |
| <i>Limonia</i> sp.                                               |      | 2    |      |       |       |        |      |        |      |
| <i>Ormosia</i> sp.                                               |      |      |      |       |       | 1      |      |        |      |
| <i>Tipula</i> "abdominalis"                                      |      |      | 1    |       | 1     |        | 4    |        | 1    |
| <i>Tipula</i> sp. "moss animal"                                  |      | 1    |      | 1     | 1     |        |      |        |      |
| Tipulidae sp. (early)                                            |      | 1    |      |       |       |        |      |        |      |

<sup>1</sup> cases only<sup>2</sup> includes mature pupae

Table A10. Taxa collected at site 9 by sampling date. The symbols ♂, ♀, or ♂♀, indicate some or all of the specimens were adult males, females, or both. If the symbol is in the taxa column, it indicates all specimens were adults.

| Season                          | Fall |      |      |       |       | Winter |      | Spring |      |
|---------------------------------|------|------|------|-------|-------|--------|------|--------|------|
| Sampling date                   | 9/96 | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |      |      |      |       |       |        |      |        |      |
| Nematomorpha                    |      |      |      |       |       |        |      |        |      |
| Horsehair worms                 |      |      | 1    |       | 2     |        |      |        |      |
| Annelida                        |      |      |      |       |       |        |      |        |      |
| Hirudinea                       |      |      |      |       |       |        |      |        |      |
| <i>Placobdella</i> sp.          |      | 3    |      |       | 4     |        |      |        |      |
| Oligochaeta                     | 4    | 23   | 4    | 5     | 9     | 5      | 2    | 3      | 12   |
| Mollusca                        |      |      |      |       |       |        |      |        |      |
| Pelcypoda                       |      |      |      |       |       |        |      |        |      |
| <i>Sphaerium</i> sp.            |      |      |      |       |       | 1      |      |        |      |
| Arthropoda                      |      |      |      |       |       |        |      |        |      |
| Arachnida                       |      |      |      |       |       |        |      |        |      |
| Hydracarina                     | 2    | 2    | 1    | 2     | 2     |        | 1    |        | 1    |
| Crustacea                       |      |      |      |       |       |        |      |        |      |
| Decapoda                        |      |      |      |       |       |        |      |        |      |
| Astacidae                       |      |      |      |       |       |        |      |        |      |
| <i>Cambarus bartoni</i>         |      |      | 2    | 2     |       |        | 1    | 1      | 2    |
| <i>Cambarus</i> sp. (juveniles) |      | 3    |      |       | 5     |        |      |        |      |
| Insecta                         |      |      |      |       |       |        |      |        |      |
| Plecoptera                      |      |      |      |       |       |        |      |        |      |
| Capniidae                       |      |      |      |       |       |        |      |        |      |
| <i>Paracapnia angulata</i> ♂♀   |      |      |      |       |       |        | 3    |        |      |
| Chloroperlidae                  |      |      |      |       |       |        |      |        |      |
| <i>Alloperla neglecta</i> ♂♀    |      |      |      |       |       |        |      | 6      |      |
| <i>Alloperla</i> sp.            | 1    |      |      |       | 2     | 1      |      | 5      |      |
| <i>Haploperla brevis</i>        |      |      |      |       |       |        |      | 1      | 1    |

Table A10. Continued.

| Season                                 | Fall |      |      |       |       | Winter |      | Spring |      |
|----------------------------------------|------|------|------|-------|-------|--------|------|--------|------|
| Sampling date                          | 9/96 | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <i>Sweltsa mediana</i> ♂♀              |      |      |      |       |       |        |      | 1      |      |
| <i>Sweltsa</i> sp.                     | 8    | 9    | 5    | 3     | 5     | 24     | 11   |        | 3    |
| Leuctridae                             |      |      |      |       |       |        |      |        |      |
| <i>Leuctra biloba/grandis</i> ♀♂       |      |      |      |       |       |        |      | 2      |      |
| <i>Leuctra carolinensis</i> ♂          |      |      |      |       |       |        |      | 1      |      |
| <i>Leuctra</i> sp.                     | 18♀  | 7♀   | 4♀♂  | 8♀♂   | 3♀♂   |        |      | 5      | 15♀♂ |
| Nemouridae                             |      |      |      |       |       |        |      |        |      |
| <i>Amphinemura appalachia</i>          |      |      |      |       |       |        |      | 2      | 2    |
| <i>Amphinemura wui</i> ♀♂              |      |      |      |       |       |        |      | 3      |      |
| <i>Amphinemura</i> sp. (early)         |      |      |      |       |       |        | 1    |        |      |
| Peltoperlidae                          |      |      |      |       |       |        |      |        |      |
| <i>Tallaperla elisa</i> ♀♂             |      |      |      |       |       |        |      | 1      |      |
| <i>Tallaperla</i> sp.                  | 9    | 11   | 17   | 1     | 3     | 10     | 11   | 7      | 8    |
| Perlidae                               |      |      |      |       |       |        |      |        |      |
| <i>Acroneuria abnormis</i>             | 18   | 26   | 19   | 16    | 19    | 10     | 6    | 11     | 6    |
| <i>Agnetina</i> sp. (early instars)    | 1    |      |      |       |       |        |      | 1      |      |
| <i>Eccopectura xanthenes</i>           | 1    | 2    | 1    |       |       |        |      | 4      | 2    |
| <i>Hansonoperla appalachia</i>         |      |      |      | 1     |       |        |      |        |      |
| <i>Paragnetina immarginata</i>         | 2    |      | 1    |       | 1     |        |      |        |      |
| <i>Perlesta</i> sp. cf. <i>frisoni</i> | 1    |      | 1    |       |       |        |      | 15     | 14   |
| Perlidae sp. (early)                   |      |      |      |       |       |        |      | 1      | 1    |
| Perlodidae                             |      |      |      |       |       |        |      |        |      |
| <i>Isoperla holochlora</i>             | 1♀♂  |      |      |       |       | 44     | 30   | 42     | 28   |
| <i>Isoperla</i> sp. cf. <i>lata</i>    |      |      |      |       |       | 1      |      |        |      |
| <i>Isoperla similis</i>                | 1    | 3    |      |       |       | 3      | 6    | 1      | 3    |
| <i>Isoperla</i> sp. (early)            | 1    |      |      | 1     |       |        |      | 4      | 1    |
| <i>Malirekus hastatus</i>              | 9    |      | 2    |       |       | 2      | 3    |        | 1    |
| <i>Remenus bilobatus</i>               |      |      |      |       |       |        |      | 2      |      |

Table A10. Continued.

| Season                                   | Fall |      |      |       |       | Winter |      | Spring |      |
|------------------------------------------|------|------|------|-------|-------|--------|------|--------|------|
| Sampling date                            | 9/96 | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <i>Yugus arinus</i>                      |      |      |      |       |       | 5      | 2    |        |      |
| <i>Yugus/Malirekus</i> (early)           |      |      |      |       |       | 5      |      |        |      |
| Perlodidae sp. (early)                   |      | 2    | 1    |       | 1     |        |      |        |      |
| Pteronarcyidae                           |      |      |      |       |       |        |      |        |      |
| <i>Pteronarcys scotti/proteus</i>        | 9    | 10   | 15   | 16    | 1     | 5      | 5    | 11     | 6    |
| Taeniopterygidae                         |      |      |      |       |       |        |      |        |      |
| <i>Bolotoperla rossi</i>                 |      |      |      |       |       | 1      |      |        |      |
| <i>Strophopteryx limata</i>              |      |      |      |       |       |        | 1    |        |      |
| <i>Taenionema atlanticum</i>             |      |      |      |       |       | 4      | 1    |        |      |
| <i>Taeniopteryx</i> sp. ♂                |      |      |      |       |       |        | 4    |        |      |
| Ephemeroptera                            |      |      |      |       |       |        |      |        |      |
| Ameletidae                               |      |      |      |       |       |        |      |        |      |
| <i>Ameletus cryptostimulus</i>           |      |      |      |       |       | 13     | 10   |        |      |
| Baetidae                                 |      |      |      |       |       |        |      |        |      |
| <i>Acentrella</i> sp cf. <i>carolina</i> | 9    |      | 2    |       |       |        |      |        |      |
| <i>Baetis</i> sp. cf. <i>flavistriga</i> | 6    | 6    | 3    |       |       |        |      |        | 6    |
| <i>Baetis</i> sp. cf. <i>tricaudatus</i> | 5    | 4    | 9    |       | 4     | 34     | 21   | 9      | 23   |
| <i>Baetis</i> sp. (other)                |      |      | 6    |       |       | 1      |      |        |      |
| <i>Baetis</i> sp. (early/damaged)        |      | 3    | 2    |       | 1     |        |      |        |      |
| Baetidae sp. (early)                     | 4    |      |      |       |       |        |      | 1      | 7    |
| Ephemerellidae                           |      |      |      |       |       |        |      |        |      |
| <i>Drunella longicornis</i>              |      |      |      |       |       |        |      | 9      | 7    |
| <i>Drunella tuberculata</i>              | 8    | 1    | 4    |       |       |        |      | 19     | 35   |
| <i>Drunella</i> sp. (early)              |      |      |      |       | 1     |        |      | 1      | 1    |
| <i>Ephemerella catawba</i>               |      |      |      |       |       | 20     | 72   | 36     | 35   |
| <i>Ephemerella rossi</i>                 |      |      |      |       |       |        | 5    | 68     | 67   |
| <i>Ephemerella hispida</i>               |      |      |      |       |       | 46     | 26   |        |      |
| <i>Ephemerella rotunda</i>               |      |      |      |       |       | 5      |      |        |      |



Table A10. Continued.

| Season                                     | Fall |      |      |       |       | Winter |      | Spring |      |
|--------------------------------------------|------|------|------|-------|-------|--------|------|--------|------|
| Sampling date                              | 9/96 | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <i>Ephemerella</i> sp. (early)             |      | 3    |      |       |       |        | 4    | 10     | 2    |
| <i>Eurylophella funeralis</i>              | 4    |      | 1    |       |       | 5      | 2    |        | 10   |
| <i>Eurylophella</i> sp. (early)            |      |      |      | 1     |       |        |      |        |      |
| <i>Serratella</i> sp. cf. <i>deficiens</i> |      |      | 4    |       |       |        |      |        |      |
| <i>Serratella spiculosa</i> ?              | 4    |      |      |       |       |        |      |        |      |
| <i>Timpanago</i> (= <i>Danella</i> ) sp.   |      |      |      |       |       |        |      | 4      |      |
| Ephemerellidae sp.                         |      |      |      |       |       |        |      |        | 1 ♀  |
| Heptageniidae                              |      |      |      |       |       |        |      |        |      |
| <i>Cinygmula subaequalis</i>               |      |      |      |       |       | 2      | 8    | 1      |      |
| <i>Epeorus</i> sp. cf. <i>dispar</i>       | 7    |      | 1    |       | 4     | 7      | 7    | 14     | 14   |
| <i>Epeorus</i> sp. cf. <i>pleuralis</i>    |      |      |      |       |       | 40     | 39   |        |      |
| <i>Epeorus rubidus/subpallidus</i>         | 3    |      |      |       |       |        |      | 1      |      |
| <i>Epeorus</i> sp. (early)                 |      | 1    |      |       |       |        |      | 2      |      |
| <i>Heptagenia marginalis</i>               |      |      |      |       |       |        |      |        | 1    |
| <i>Heptagenia pulla</i>                    |      |      | 1    |       |       |        |      |        |      |
| <i>Heptagenia</i> sp.                      |      |      | 3    |       |       |        |      |        | 11   |
| <i>Leucrocuta hebe/aphrodite</i>           |      |      |      |       | 4     |        |      |        |      |
| <i>Leucrocuta thetis</i>                   | 5    | 28   | 5    |       | 12    | 8      | 18   |        | 5    |
| <i>Leucrocuta</i> sp. cf. <i>thetis</i>    |      |      |      |       |       |        |      |        |      |
| <i>Leucrocuta</i> sp.                      |      |      |      |       | 1     |        |      | 10     |      |
| <i>Rhithrogena</i> sp. cf. <i>amica</i>    |      |      |      |       |       | 16     | 4    |        |      |
| <i>Rhithrogena</i> sp. (early)             |      | 4    | 2    |       | 2     |        |      | 6      | 8    |
| <i>Stenacron</i> sp. cf. <i>pallidum</i>   |      | 1    | 5    |       | 1     | 1      |      | 3      | 1    |
| <i>Stenonema femoratum</i>                 |      |      |      |       | 4     |        |      |        |      |
| <i>Stenonema merririvulatum</i>            | 1    |      | 27   |       | 1     | 1      | 1    |        | 12   |
| <i>Stenonema modestum</i>                  |      |      |      |       |       |        |      |        |      |
| <i>Stenonema pudicum</i>                   | 17   | 12   | 1    |       | 36    | 25     | 27   | 23     | 37   |
| <i>Stenonema</i> sp. (early)               | 5    | 20   | 13   |       | 21    |        | 8    | 13     |      |



Table A10. Continued.

| Season                                         | Fall |      |      |       |       | Winter         |                 | Spring |      |
|------------------------------------------------|------|------|------|-------|-------|----------------|-----------------|--------|------|
| Sampling date                                  | 9/96 | 9/00 | 9/01 | 10/01 | 10/02 | 2/97           | 2/02            | 6/96   | 6/02 |
| Leptophlebiidae                                |      |      |      |       |       |                |                 |        |      |
| <i>Habrophlebia vibrans</i>                    | 2    | 1    | 1    |       | 1     |                |                 | 9      | 7    |
| <i>Paraleptophlebia</i> sp. cf.                |      |      |      |       |       |                |                 |        |      |
| <i>adoptiva/mollis</i>                         | 1    | 1    |      |       | 1     | 6 <sup>1</sup> | 23 <sup>1</sup> | 11     | 7    |
| <i>Paraleptophlebia</i> sp. cf. <i>guttata</i> |      | 3    | 2    |       |       |                |                 | 3      |      |
| <i>Paraleptophlebia</i> sp. (early)            |      |      |      |       | 2     |                |                 |        |      |
| Leptophlebiidae sp. (early/<br>damaged)        | 1    |      | 8    |       | 3     |                |                 | 18     | 7    |
| Odonata                                        |      |      |      |       |       |                |                 |        |      |
| Aeschnidae                                     |      |      |      |       |       |                |                 |        |      |
| <i>Boyeria grafiana</i>                        |      | 1    |      |       |       |                |                 |        |      |
| Calopterygidae                                 |      |      |      |       |       |                |                 |        |      |
| <i>Calopteryx maculata/dimidiata</i>           | 5    |      |      |       |       | 1              |                 |        |      |
| Cordulegastridae                               |      |      |      |       |       |                |                 |        |      |
| <i>Cordulegaster erronea</i>                   |      |      |      |       |       | 1              |                 | 1      |      |
| Gomphidae                                      |      |      |      |       |       |                |                 |        |      |
| <i>Lanthus vernalis</i>                        | 7    | 13   | 5    | 5     | 10    | 3              | 10              | 15     | 14   |
| Heteroptera                                    |      |      |      |       |       |                |                 |        |      |
| Gerridae                                       |      |      |      |       |       |                |                 |        |      |
| <i>Aquarius remigis</i>                        | 2    | 6    | 4    | 3     | 8     |                | 2               | 3      | 3    |
| Veliidae                                       |      |      |      |       |       |                |                 |        |      |
| <i>Rhagovelia obesa</i>                        |      |      |      |       |       |                |                 |        | 3    |
| Megaloptera                                    |      |      |      |       |       |                |                 |        |      |
| Corydalidae                                    |      |      |      |       |       |                |                 |        |      |
| <i>Nigrionia serricornis</i>                   | 1    | 3    | 1    |       | 2     |                |                 |        | 1    |
| Sialidae                                       |      |      |      |       |       |                |                 |        |      |
| <i>Sialis</i> sp.                              |      |      |      |       |       | 1              |                 |        |      |
| Trichoptera                                    |      |      |      |       |       |                |                 |        |      |

Table A10. Continued.

| Season                                      | Fall |      |      |       |                | Winter |      | Spring |      |
|---------------------------------------------|------|------|------|-------|----------------|--------|------|--------|------|
| Sampling date                               | 9/96 | 9/00 | 9/01 | 10/01 | 10/02          | 2/97   | 2/02 | 6/96   | 6/02 |
| Apataniidae                                 |      |      |      |       |                |        |      |        |      |
| <i>Apatania</i> sp.                         | 3    | 4    | 10   | 5     | 3              | 19     | 12   | 2      | 11   |
| Brachycentridae                             |      |      |      |       |                |        |      |        |      |
| <i>Micrasema burksi</i>                     | 1    |      |      | 1     |                | 2      | 2    |        |      |
| <i>Micrasema charonis</i> ♂                 |      |      |      |       |                |        |      | 1      |      |
| <i>Micrasema</i> sp. <sup>2</sup>           |      |      |      |       |                |        |      |        | 1    |
| Glossosomatidae                             |      |      |      |       |                |        |      |        |      |
| <i>Glossosoma nigrior</i> (inc. pupae)      | 8    | 15   | 2    | 2     | 13             |        | 2    | 17     | 24   |
| Goeridae                                    |      |      |      |       |                |        |      |        |      |
| <i>Goera fuscula</i>                        |      |      | 1    |       |                |        |      |        |      |
| Hydropsychidae                              |      |      |      |       |                |        |      |        |      |
| <i>Arctopsyche irrorata</i>                 | 16   | 9    | 21   | 23    | 5              | 3      | 4    |        |      |
| <i>Ceratopsyche macleodi</i>                | 24   | 39   | 25   | 47    | 23             | 23     | 8    |        |      |
| <i>Ceratopsyche slosonae</i>                | 1    |      |      | 5     | 2              | 1      |      | 30♂    | 4    |
| <i>Ceratopsyche sparna</i> (male pupa)      | 1    |      |      |       |                |        |      |        |      |
| <i>Cheumatopsyche</i> sp.                   |      |      |      |       |                |        |      |        | 1    |
| <i>Diplectrona modesta</i>                  | 5    | 6    | 2    | 20    | 30             | 8      | 9    | 35     | 41   |
| <i>Hydropsyche francelemonti</i>            |      |      |      | 1     |                |        |      |        |      |
| <i>Hydropsyche</i> sp. cf. <i>venularis</i> | 1    |      |      |       |                |        |      |        |      |
| <i>Parapsyche cardis</i>                    |      |      | 1    | 6     | 1              |        |      |        |      |
| Hydropsychidae sp. (early)                  | 1    | 7    | 6    | 7     | 5              |        |      |        |      |
| Lepidostomatidae                            |      |      |      |       |                |        |      |        |      |
| <i>Lepidostoma lydia</i> ♂                  |      |      |      |       |                |        |      | 2      |      |
| <i>Lepidostoma</i> sp.                      | 1    | 6    |      | 1     | 2 <sup>3</sup> | 11     | 17   | 14     | 24   |
| Leptoceridae                                |      |      |      |       |                |        |      |        |      |
| <i>Ceraclea</i> sp. cf. <i>ancylus</i>      | 2    | 3    |      |       | 1              |        |      |        | 1    |
| <i>Triaenodes</i> sp. (empty cases)         | 1    |      |      |       |                |        |      |        |      |
| Limnephilidae                               |      |      |      |       |                |        |      |        |      |

Table A10. Continued.

| Season                                                | Fall |                |      |       |                | Winter |      | Spring |      |
|-------------------------------------------------------|------|----------------|------|-------|----------------|--------|------|--------|------|
| Sampling date                                         | 9/96 | 9/00           | 9/01 | 10/01 | 10/02          | 2/97   | 2/02 | 6/96   | 6/02 |
| <i>Pycnopsyche sonso</i>                              |      |                |      |       |                |        | 24   |        | 14   |
| <i>Pycnopsyche luculenta/sonso</i><br>(early instars) | 1    | 5 <sup>3</sup> |      |       | 3 <sup>3</sup> | 23     |      | 11     |      |
| <i>Pycnopsyche</i> sp. (early)                        |      |                |      | 3     |                |        |      |        |      |
| Limnephilidae sp. (early)                             |      | 1              |      |       |                |        |      |        |      |
| Molannidae                                            |      |                |      |       |                |        |      |        |      |
| <i>Molanna blenda</i>                                 | 6    | 1              |      | 11    | 8              | 1      | 6    | 5      | 7    |
| Odontoceridae                                         |      |                |      |       |                |        |      |        |      |
| <i>Psilotreta frontalis</i>                           | 15   | 35             | 26   | 14    | 18             | 9      | 12   | 36     | 43   |
| <i>Psilotreta</i> sp. (early)                         |      | 1              |      | 3     |                |        |      |        | 1    |
| <i>Psilotreta</i> sp. (pupae)                         |      |                |      |       |                |        |      |        | 2    |
| Philopotamidae                                        |      |                |      |       |                |        |      |        |      |
| <i>Chimarra</i> sp.                                   |      |                |      |       | 1              |        |      |        |      |
| <i>Dolophilodes distinctus</i>                        | 5    | 2              |      | 1     | 5              | 1♂     | 1    | 8♂     | 6    |
| <i>Wormaldia moesta</i>                               | 1    |                |      |       |                |        | 2    | 2♂     |      |
| Polycentropodidae                                     |      |                |      |       |                |        |      |        |      |
| <i>Nyctiophylax nephophilus</i> ♂                     |      |                |      |       |                |        |      | 1      |      |
| <i>Nyctiophylax</i> sp.                               |      | 1              | 2    | 2     | 2              | 1      | 4    | 10     | 9    |
| <i>Phylocentropus</i> sp. (empty tubes)               |      |                |      |       |                |        |      | 1      |      |
| <i>Polycentropus carolinensis</i> ♂                   |      |                |      |       |                |        |      | 1      |      |
| <i>Polycentropus</i> sp.                              | 4    | 1              | 1    | 1     |                | 2      |      | 2      | 4    |
| Psychomiidae                                          |      |                |      |       |                |        |      |        |      |
| <i>Lype diversa</i>                                   |      | 3              |      |       |                |        | 1    | 8♂     |      |
| Rhyacophilidae                                        |      |                |      |       |                |        |      |        |      |
| <i>Rhyacophila appalachia</i> ♂                       |      |                |      |       |                |        |      | 3      |      |
| <i>Rhyacophila appalachia/nigrita</i>                 | 1    | 3              | 3    | 1     | 3              | 1      | 1    | 3      | 5    |
| <i>Rhyacophila carolina</i>                           | 2♂♀  |                |      |       | 5              |        |      | 23♂♀   | 5    |
| <i>Rhyacophila fuscula</i>                            | 12   | 1              | 7    | 20    | 2              | 11     | 9    | 17     | 9    |

Table A2. Continued.

| Season                                 | Fall |      |       |      |       |      | Winter |      |      | Spring |      |
|----------------------------------------|------|------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                          | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                            |      |      |       |      |       |      |        |      |      |        |      |
| <i>Sweltsa</i> sp.                     |      |      | 7     | 8    | 6     | 2    | 5      | 3    | 5    |        |      |
| Chloroperlidae sp. (early)             |      |      |       | 5    |       |      |        |      |      |        |      |
| Leuctridae                             |      |      |       |      |       |      |        |      |      |        |      |
| <i>Leuctra</i> sp.                     | 4♀♂  | 1    | 1     | 15   | 9     | 17   | 14     | 11   | 24   | 20     | 15   |
| <i>Paraleuctra sara</i>                |      |      |       |      | 1     |      |        |      |      |        |      |
| <i>Zealuctra</i> ? (long pronotum)     |      |      |       |      |       |      |        | 1    |      |        |      |
| Nemouridae                             |      |      |       |      |       |      |        |      |      |        |      |
| <i>Amphinemura appalachia</i>          |      |      |       |      |       | 2    | 1      | 1    | 1    | 9      | 7    |
| Peltoperlidae                          |      |      |       |      |       |      |        |      |      |        |      |
| <i>Tallaperla</i> sp.                  | 6    | 13   | 27    | 8    | 8     | 26   | 20     | 28   | 31   | 19     | 23   |
| Perlidae                               |      |      |       |      |       |      |        |      |      |        |      |
| <i>Acroneuria abnormis</i>             |      | 1    | 1     | 3    | 3     | 2    |        | 2    |      |        | 8    |
| <i>Beloneuria</i> sp.                  |      |      | 2     |      |       |      |        |      | 1    | 1      |      |
| <i>Eccoptura xanthenes</i>             | 2    | 5    | 2     | 2    | 6     | 6    | 4      | 5    | 2    |        | 5    |
| <i>Perlesta</i> sp. cf. <i>frisoni</i> | 1    |      |       |      |       |      |        |      |      | 2      | 3    |
| Perlidae sp. (early)                   |      |      | 4     |      | 1     |      |        |      |      |        |      |
| Perlodidae                             |      |      |       |      |       |      |        |      |      |        |      |
| <i>Helopicus subvarians</i>            |      |      |       |      |       |      |        |      |      | 3      |      |
| <i>Isoperla holochlora</i>             |      |      |       |      |       |      | 16     |      | 10   | 39     | 2    |
| <i>Isoperla</i> sp. cf. <i>dicala</i>  |      |      |       |      |       |      | 12     |      |      |        | 27   |
| <i>Isoperla similis</i>                | 3    | 4    |       |      | 2     | 24   | 7      | 2    | 11   |        |      |
| <i>Isoperla</i> sp. (early)            |      |      |       | 3    |       |      |        | 1    | 2    | 6      |      |
| <i>Malirekus hastatus</i>              | 23   | 7    | 3     | 19   | 7     | 6    | 19     | 11   | 16   |        |      |
| <i>Remenus bilobatus</i>               |      |      |       |      |       |      |        |      |      | 2      | 2    |
| <i>Yugus arinus</i>                    |      |      |       |      |       |      |        |      | 1    |        |      |
| <i>Yugus/Malirekus</i> (early)         |      |      |       |      |       |      | 13     |      |      |        | 1    |
| Perlodidae sp. (early)                 | 1    |      |       | 4    |       |      |        |      |      |        |      |

Table A2. Continued.

| Season<br>Sampling date                  | Fall |      |       |      |       |      | Winter |      |      | Spring |      |
|------------------------------------------|------|------|-------|------|-------|------|--------|------|------|--------|------|
|                                          | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                              |      |      |       |      |       |      |        |      |      |        |      |
| Pteronarcyidae                           |      |      |       |      |       |      |        |      |      |        |      |
| <i>Pteronarcys scotti/proteus</i>        |      | 1    |       | 1    |       |      |        |      |      |        |      |
| Taeniopterygidae                         |      |      |       |      |       |      |        |      |      |        |      |
| <i>Bolotoperla rossi</i>                 |      |      |       |      |       |      | 21     |      |      |        |      |
| <i>Oemopteryx contorta</i>               |      |      |       |      |       |      |        | 1    | 10   |        |      |
| <i>Oemopteryx/Taenionema</i> sp.         |      |      |       |      |       |      | 13     | 21   | 2    |        |      |
| <i>Strophopteryx</i> sp.                 |      |      |       |      |       |      |        | 2    | 7    |        |      |
| Ephemeroptera                            |      |      |       |      |       |      |        |      |      |        |      |
| Ameletidae                               |      |      |       |      |       |      |        |      |      |        |      |
| <i>Ameletus cryptostimulus</i>           |      |      |       |      |       |      | 12     | 16   | 36   | 2      | 3    |
| <i>Ameletus</i> sp. (early)              |      |      | 2     |      |       |      |        |      | 1    |        |      |
| Baetidae                                 |      |      |       |      |       |      |        |      |      |        |      |
| <i>Baetis</i> sp. cf. <i>flavistriga</i> |      |      |       |      |       | 1    |        |      |      |        | 29   |
| <i>Baetis</i> sp. cf. <i>tricaudatus</i> | 1    | 4    |       | 9    | 1     |      | 6      |      | 2    |        | 15   |
| <i>Baetis</i> sp. (other)                |      |      |       | 3    |       |      |        |      |      |        |      |
| <i>Baetis</i> sp. (early/damaged)        |      |      |       | 1    |       |      |        |      | 1    |        | 2    |
| Baetidae sp. (early)                     | 1    |      |       |      |       |      |        |      |      |        |      |
| Ephemerellidae                           |      |      |       |      |       |      |        |      |      |        |      |
| <i>Drunella longicornis</i>              |      |      |       |      |       |      |        |      |      | 1      | 10   |
| <i>Drunella tuberculata</i>              | 5    |      |       | 2    |       |      |        |      |      |        |      |
| <i>Ephemerella catawba</i>               |      |      |       |      |       |      | 158    | 31   | 112  | 13     | 40   |
| <i>Ephemerella rossi</i>                 |      |      |       |      |       |      |        |      | 1    | 42     | 30   |
| <i>Ephemerella hispida</i>               |      |      |       |      |       |      | 13     |      | 12   |        | 54   |
| <i>Ephemerella</i> sp. (early)           |      | 4    | 29    | 9    | 34    | 23   | 19     |      | 21   |        |      |
| Ephemerellidae sp. (early)               |      |      |       | 1    |       |      |        |      |      |        |      |
| Heptageniidae                            |      |      |       |      |       |      |        |      |      |        |      |
| <i>Cinygmula subaequalis</i>             |      |      |       |      |       |      | 7      | 11   |      |        | 1    |

Table A2. Continued.

| Season<br>Sampling date                        | Fall |      |       |      |       |      | Winter |      |      | Spring |      |
|------------------------------------------------|------|------|-------|------|-------|------|--------|------|------|--------|------|
|                                                | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                    |      |      |       |      |       |      |        |      |      |        |      |
| <i>Epeorus</i> sp. cf. <i>dispar</i>           | 5    | 7    | 1     | 8    | 12    | 3    | 21     | 42   |      | 37     | 40   |
| <i>Epeorus</i> sp. cf. <i>pleuralis</i>        |      |      |       |      |       |      |        | 1    |      |        | 38   |
| <i>Epeorus</i> sp. (early)                     | 1    |      |       |      |       |      | 4      |      |      | 5      |      |
| <i>Heptagenia</i> sp.                          |      | 2    |       |      |       |      |        |      |      |        |      |
| <i>Leucrocuta thetis</i>                       |      |      | 1     | 15   | 5     | 7    | 1      | 1    |      |        | 9    |
| <i>Leucrocuta</i> sp.                          |      |      |       |      |       | 1    |        |      |      |        |      |
| <i>Rhithrogena amica</i>                       |      |      |       |      |       |      | 4      |      |      |        |      |
| <i>Rhithrogena</i> sp. (early)                 |      |      | 1     |      |       |      |        |      |      |        |      |
| <i>Stenacron</i> sp. cf. <i>carolina</i>       |      | 1    |       | 1    | 2     | 3    |        |      | 1    | 1      | 6    |
| <i>Stenacron</i> sp. cf. <i>pallidum</i>       |      |      |       |      |       |      |        |      |      | 1      |      |
| <i>Stenonema merrivulatum</i>                  |      | 8    | 24    | 28   | 30    |      | 8      |      | 6    | 15     | 9    |
| <i>Stenonema pudicum</i>                       |      | 1    |       |      |       | 33   |        |      |      |        | 1    |
| <i>Stenonema</i> sp. (early)                   |      |      |       |      |       | 4    |        |      | 1    |        |      |
| Heptageniidae sp. (early)                      |      |      |       | 1    | 5     | 2    |        |      |      |        | 1    |
| Leptophlebiidae                                |      |      |       |      |       |      |        |      |      |        |      |
| <i>Habrophlebia vibrans</i>                    |      |      |       |      | 1     |      |        | 1    |      | 3      |      |
| <i>Habrophlebiodes</i> sp.                     |      |      |       |      |       |      |        |      |      |        | 1    |
| <i>Paraleptophlebia adoptiva/mollis</i>        |      | 1    | 1     |      |       |      | 4      | 1    | 9    | 7      | 1    |
| <i>Paraleptophlebia</i> sp. cf. <i>guttata</i> |      |      |       | 3    |       |      |        |      | 6    |        | 5    |
| <i>Paraleptophlebia</i> sp. (early)            |      |      |       | 8    | 5     | 7    |        |      | 2    |        |      |
| Leptophlebiidae sp. (early/ damaged)           |      |      |       |      |       |      |        | 1    |      |        | 1    |
| Odonata                                        |      |      |       |      |       |      |        |      |      |        |      |
| Cordulegastridae                               |      |      |       |      |       |      |        |      |      |        |      |
| <i>Cordulegaster erronea</i>                   |      |      |       |      | 2     |      |        |      |      |        |      |
| Gomphidae                                      |      |      |       |      |       |      |        |      |      |        |      |
| <i>Lanthus vernalis</i>                        | 14   | 5    | 3     | 2    | 7     | 2    | 13     | 32   | 2    | 19     | 27   |
| Heteroptera                                    |      |      |       |      |       |      |        |      |      |        |      |

Table A2. Continued.

| Season<br>Sampling date                | Fall |      |       |      |       |      | Winter |      |      | Spring |      |
|----------------------------------------|------|------|-------|------|-------|------|--------|------|------|--------|------|
|                                        | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                            |      |      |       |      |       |      |        |      |      |        |      |
| Gerridae                               |      |      |       |      |       |      |        |      |      |        |      |
| <i>Aquarius remigis</i>                | 1    | 1    | 5     | 3    | 3     | 2    |        | 1    |      | 2      | 4    |
| Veliidae                               |      |      |       |      |       |      |        |      |      |        |      |
| <i>Microvelia</i> sp.                  |      |      |       |      |       |      |        |      |      | 1      |      |
| Trichoptera                            |      |      |       |      |       |      |        |      |      |        |      |
| Apataniidae                            |      |      |       |      |       |      |        |      |      |        |      |
| <i>Apatania</i> sp.                    |      |      |       |      |       |      | 1      | 1    |      |        | 3    |
| Brachycentridae                        |      |      |       |      |       |      |        |      |      |        |      |
| <i>Micrasema burksi</i>                | 2    | 4    | 2     | 1    | 5     | 1    | 36     | 8    | 15   | 3      | 1    |
| <i>Micrasema</i> sp. <sup>1</sup>      |      |      |       |      |       |      |        |      |      | 1      |      |
| Glossosomatidae                        |      |      |       |      |       |      |        |      |      |        |      |
| <i>Glossosoma nigrior</i> (inc. pupae) | 5    | 8    | 3     | 7    | 4     | 1    | 1      |      | 3    |        | 2    |
| Hydropsychidae                         |      |      |       |      |       |      |        |      |      |        |      |
| <i>Arctopsyche irrorata</i>            | 1    | 3    |       | 2    |       | 1    | 1      |      |      |        |      |
| <i>Ceratopsyche macleodi</i>           |      | 33   | 10    | 44   | 35    | 7    | 47     | 2    | 22   |        |      |
| <i>Diplectrona modesta</i>             |      | 7    | 10    | 30   | 32    | 33   | 5      | 2    | 11   | 30     | 28   |
| <i>Parapsyche apicalis</i>             |      |      |       |      |       |      | 2      |      |      |        | 1    |
| <i>Parapsyche cardis</i>               | 44   | 23   | 28    | 77   | 29    | 2    | 29     | 9    | 18   | 6      | 16   |
| Hydropsychidae sp. (early)             |      |      |       |      |       | 20   |        |      | 2    |        | 3    |
| Lepidostomatidae                       |      |      |       |      |       |      |        |      |      |        |      |
| <i>Lepidostoma</i> sp.                 |      | 1    | 3     | 1    | 1     |      | 9      | 19   | 1    | 31     | 29   |
| Limnephilidae                          |      |      |       |      |       |      |        |      |      |        |      |
| <i>Pseudostenophylax uniformis</i>     |      |      |       |      |       |      | 1      |      |      |        |      |
| <i>Pycnopsyche flavata</i>             |      |      |       |      | 1     |      |        |      |      |        |      |
| <i>Pycnopsyche gentilis</i>            |      |      |       |      |       |      | 5      |      |      |        |      |
| <i>Pycnopsyche flavata/gentilis</i>    |      | 1    | 2     |      |       |      |        |      | 1    |        |      |
| <i>Pycnopsyche guttifer</i> ?          |      |      |       |      |       |      |        |      | 2    |        |      |



Table A2. Continued.

| Season<br>Sampling date               | Fall |      |       |      |       |                | Winter |      |      | Spring |      |
|---------------------------------------|------|------|-------|------|-------|----------------|--------|------|------|--------|------|
|                                       | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02           | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                           |      |      |       |      |       |                |        |      |      |        |      |
| <i>Pycnopsyche sonso</i>              |      |      |       |      |       |                |        |      | 23   |        | 19   |
| <i>Pycnopsyche luculenta/sonso</i>    | 1    | 2    |       | 1    |       | 6 <sup>1</sup> | 11     | 6    |      | 7      |      |
| (early instars)                       |      |      |       |      |       |                |        |      |      |        |      |
| <i>Pycnopsyche/Hydatophylax</i> sp.   |      |      |       |      |       |                |        | 1    |      |        |      |
| (early instars)                       |      |      |       |      |       |                |        |      |      |        |      |
| <i>Pycnopsyche</i> sp. (early)        |      |      | 20    |      |       |                |        |      | 2    |        |      |
| Limnephilidae sp. (early)             |      |      |       |      |       |                |        | 1    |      |        |      |
| Molannidae                            |      |      |       |      |       |                |        |      |      |        |      |
| <i>Molanna blenda</i>                 | 1    |      | 1     | 2    | 5     | 3              | 1      | 4    |      | 4      | 13   |
| Odontoceridae                         |      |      |       |      |       |                |        |      |      |        |      |
| <i>Psilotreta amera?</i> (pupa)       |      |      |       |      |       |                |        |      |      |        | 1    |
| <i>Psilotreta frontalis</i>           | 30   | 17   | 7     | 9    | 12    | 4              | 8      | 9    | 3    | 13     | 33   |
| Philopotamidae                        |      |      |       |      |       |                |        |      |      |        |      |
| <i>Dolophilodes distinctus</i>        | 8    | 3    |       | 12   | 1     | 4              | 2      |      | 4    | 8      | 1?   |
| <i>Wormaldia</i> sp.                  |      | 1    |       |      |       |                |        |      |      |        | 1    |
| Polycentropodidae                     |      |      |       |      |       |                |        |      |      |        |      |
| <i>Nyctiophylax</i> sp.               |      | 5    | 3     | 4    | 4     | 6              | 5      | 1    | 10   |        | 3    |
| <i>Polycentropus</i> sp.              | 2    |      | 3     | 1    | 3     | 1              | 1      | 2    |      |        | 3    |
| Psychomiidae                          |      |      |       |      |       |                |        |      |      |        |      |
| <i>Lype diversa</i>                   |      |      |       |      | 1     | 1              |        |      |      |        |      |
| Rhyacophilidae                        |      |      |       |      |       |                |        |      |      |        |      |
| <i>Rhyacophila appalachia/nigrita</i> | 3    | 6    |       | 3    | 9     | 5              | 1      | 4    | 8    | 5      | 6    |
| <i>Rhyacophila carolina</i>           | 2♂   | 1    | 1     |      |       |                |        |      |      | 1      | 1?   |
| <i>Rhyacophila fuscula</i>            | 1    | 3    | 3     |      |       | 2              |        |      | 2    |        | 14   |
| <i>Rhyacophila glaberrima</i>         |      |      | 1     | 1    | 1     |                | 1      |      |      | 2      |      |
| <i>Rhyacophila minor</i>              |      | 8    | 3     | 23   | 8     | 14             |        |      | 1    |        |      |
| <i>Rhyacophila nigrita</i>            |      |      |       |      |       |                |        |      |      | 5♂     | 1♂   |



Table A2. Continued.

| Season<br>Sampling date                        | Fall           |                 |                |      |       |      | Winter |      |      | Spring |      |
|------------------------------------------------|----------------|-----------------|----------------|------|-------|------|--------|------|------|--------|------|
|                                                | 9/96           | 9/00            | 10/00          | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                    |                |                 |                |      |       |      |        |      |      |        |      |
| <i>Rhyacophila torva</i>                       |                | 1               | 2              | 2    |       |      | 2      |      | 1    | 2      | 3    |
| <i>Rhyacophila</i> sp. nov. cf. <i>nigrita</i> |                |                 | 1              | 3    | 1     |      | 7      |      | 2    |        | 1    |
| <i>Rhyacophila</i> sp. (early)                 |                |                 |                | 1    |       |      |        |      |      |        |      |
| Sericostomatidae                               |                |                 |                |      |       |      |        |      |      |        |      |
| <i>Fattigia pele</i>                           | 14             | 6               | 4              | 4    | 1     | 3    | 8      | 16   | 2    |        | 6    |
| Uenoidae                                       |                |                 |                |      |       |      |        |      |      |        |      |
| <i>Neophylax consimilis</i>                    |                |                 |                |      |       |      | 3      | 2    | 11   |        |      |
| <i>Neophylax mitchelli</i>                     | 5 <sup>2</sup> | 12 <sup>2</sup> | 5 <sup>2</sup> | 6    |       | 1    |        | 14   | 1    | 10     | 20   |
| <i>Neophylax ornatus</i>                       |                | 12              | 3              | 1    | 4     | 15   | 3      | 1    | 4    |        | 2    |
| <i>Neophylax</i> sp. cf. <i>aniqua</i>         |                |                 |                |      |       |      | 4      | 3    |      |        |      |
| <i>Neophylax</i> sp. (early)                   | 5              |                 |                |      |       | 2    |        | 8    |      | 5      |      |
| Coleoptera                                     |                |                 |                |      |       |      |        |      |      |        |      |
| Elmidae                                        |                |                 |                |      |       |      |        |      |      |        |      |
| <i>Optioservus immunis</i> ♂♀                  | 2              | 2               |                | 2    | 1     | 3    |        | 1    |      |        | 1    |
| <i>Optioservus ovalis</i> ♂♀                   |                | 2               |                | 1    | 2     |      |        |      |      | 1      | 2    |
| <i>Optioservus</i> sp.                         |                |                 | 2              |      |       |      |        | 3    | 1    |        | 4    |
| <i>Oulimnius latiusculus</i> ♂♀                |                |                 |                |      | 1     |      |        |      |      |        |      |
| Diptera                                        |                |                 |                |      |       |      |        |      |      |        |      |
| Athericidae                                    |                |                 |                |      |       |      |        |      |      |        |      |
| <i>Atherix lantha</i>                          |                |                 |                |      |       | 1    | 1      |      |      |        | 3    |
| Blephariceridae                                |                |                 |                |      |       |      |        |      |      |        |      |
| <i>Blepharicera</i> sp.                        |                |                 |                |      |       |      | 2      |      |      |        | 1    |
| Ceratopogonidae                                |                |                 |                |      |       |      |        |      |      |        |      |
| <i>Bezzia</i> sp.                              |                |                 |                | 1    |       |      |        |      |      |        |      |
| <i>Bezzia</i> /Palpomyia sp.                   |                |                 | 1              |      |       | 2    |        |      | 1    | 3      | 3    |
| <i>Probezzia</i> sp.                           |                |                 |                | 1    |       |      |        |      |      |        |      |
| Chironomidae                                   | 21             |                 |                |      |       |      | 45     | 1    |      | 37     |      |

Table A2. Continued.

| Season<br>Sampling date         | Fall |      |       |      |       |      | Winter |      |      | Spring |      |
|---------------------------------|------|------|-------|------|-------|------|--------|------|------|--------|------|
|                                 | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |      |      |       |      |       |      |        |      |      |        |      |
| Chironominae                    |      |      |       |      |       |      |        |      |      |        |      |
| Chironomini                     |      | 2    | 1     | 5    | 2     | 2    |        | 1    | 4    |        | 11   |
| Tanytarsini                     |      | 2    | 5     | 25   |       | 3    |        | 2    |      |        | 4    |
| Orthocladinae                   |      | 2    | 2     | 12   | 7     | 9    |        | 40   | 13   |        | 11   |
| Tanypodinae                     |      |      |       |      | 1     |      |        | 4    | 3    |        | 3    |
| Chironomidae pupae              |      |      |       | 1    | 2     |      |        |      |      |        | 1    |
| Dixidae                         |      |      |       |      |       |      |        |      |      |        |      |
| <i>Dixa</i> sp.                 | 5    |      |       | 1    | 1     | 1    |        |      |      | 3      |      |
| Simuliidae (including pupae)    |      |      |       | 1    |       |      | 9      | 39   | 3    | 9      | 21   |
| Tipulidae                       |      |      |       |      |       |      |        |      |      |        |      |
| <i>Antocha</i> sp.              | 1    |      |       |      |       |      |        |      |      |        |      |
| <i>Dicranota</i> sp.            | 1    |      |       |      |       |      |        | 1    | 3    | 7      |      |
| <i>Hexatoma</i> sp.             | 3    | 5    |       | 1    | 1     | 4    | 17     | 4    | 3    | 14     | 5    |
| <i>Longurio</i> sp.             |      |      |       |      |       |      |        |      |      |        | 2    |
| <i>Lipsothrix</i> sp.           |      |      |       |      |       |      | 1      |      |      |        |      |
| <i>Tipula</i> "abdominalis"     |      | 1    |       |      |       |      |        | 1    |      |        |      |
| <i>Tipula</i> sp. "moss animal" | 2    |      |       | 1    | 1     | 3    | 2      | 2    | 1    |        |      |
| <i>Tipula</i> sp cf. fig. 11.3  |      |      |       |      |       |      |        | 1    |      |        |      |
| <i>Tipula</i> sp.               |      |      |       |      |       |      | 1      |      |      |        |      |

<sup>1</sup> cases only; for *Micrasema*, not *burksi*<sup>2</sup> includes mature pupae and adults

Table A3. Taxa collected at site 2 by sampling date. The symbols ♂, ♀, or ♂♀, indicate some or all of the specimens were adult males, females or both. If the symbol is in the taxa column, it indicates all specimens were adults.

| Season                          | Fall |      |       |      |       |      | Winter |      |      | Spring |      |
|---------------------------------|------|------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                   | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |      |      |       |      |       |      |        |      |      |        |      |
| Annelida                        |      |      |       |      |       |      |        |      |      |        |      |
| Hirudinea                       |      |      |       |      |       |      |        |      |      |        |      |
| <i>Placobdella</i> sp.          |      |      |       | 3    | 1     | 5    |        |      |      | 4      |      |
| Oligochaeta                     | 1    | 2    | 8     | 3    |       | 3    | 2      | 1    | 2    |        | 1    |
| Arthropoda                      |      |      |       |      |       |      |        |      |      |        |      |
| Crustacea                       |      |      |       |      |       |      |        |      |      |        |      |
| Decapoda                        |      |      |       |      |       |      |        |      |      |        |      |
| Astacidae                       |      |      |       |      |       |      |        |      |      |        |      |
| <i>Cambarus bartoni</i>         |      | 2    | 4     |      |       |      | 1      |      |      | 4      |      |
| <i>Cambarus</i> sp. (juveniles) |      |      |       |      |       | 2    |        | 3    |      |        | 10   |
| Isopoda                         |      |      |       |      |       |      |        |      |      |        |      |
| Asellidae                       |      |      |       |      |       |      |        |      |      |        |      |
| <i>Lirceus</i> sp.              |      |      |       |      |       |      | 4      |      |      |        |      |
| Insecta                         |      |      |       |      |       |      |        |      |      |        |      |
| Plecoptera                      |      |      |       |      |       |      |        |      |      |        |      |
| Capniidae                       |      |      |       |      |       |      |        |      |      |        |      |
| <i>Allocapnia</i> sp.           |      |      |       |      |       |      | 1      |      |      |        |      |
| <i>Paracapnia</i> sp.           |      |      |       |      |       |      |        | 1♀   |      |        |      |
| Capniidae sp. (early)           |      |      | 10    | 1    |       |      |        |      |      |        |      |
| Chloroperlidae                  |      |      |       |      |       |      |        |      |      |        |      |
| <i>Alloperla</i> sp.            | 4    |      | 1     | 1    |       |      | 1      | 3    | 1    | 5      |      |
| <i>Haploperla brevis</i>        |      |      |       |      |       |      |        |      |      |        | 3    |
| <i>Sweltsa</i> sp.              |      | 3    | 19    | 4    | 5     | 2    | 5      | 6    | 4    |        | 2    |
| Chloroperlidae sp. (early)      |      |      | 2     |      |       |      | 4      |      | 2    |        | 2    |

Table A3. Continued.

| Season                                 | Fall |      |       |      |       |      | Winter |      |      | Spring |      |
|----------------------------------------|------|------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                          | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                            |      |      |       |      |       |      |        |      |      |        |      |
| Leuctridae                             |      |      |       |      |       |      |        |      |      |        |      |
| <i>Leuctra</i> sp.                     | 15   | 4    | 8     | 11♀♂ |       | 5    | 52     | 3    | 5♀♂  | 26     | 31♀♂ |
| Nemouridae                             |      |      |       |      |       |      |        |      |      |        |      |
| <i>Amphinemura appalachia</i>          |      |      |       |      |       |      | 3      | 5    |      | 4      | 26   |
| <i>Amphinemura</i> sp. (early)         |      |      |       | 1    |       |      |        |      |      |        |      |
| Peltoperlidae                          |      |      |       |      |       |      |        |      |      |        |      |
| <i>Tallaperla</i> sp.                  | 67   | 19   | 75    | 9    | 26    | 16   | 18     | 21   | 22   | 9      | 36   |
| Perlidae                               |      |      |       |      |       |      |        |      |      |        |      |
| <i>Acroneuria abnormis</i>             |      | 1    | 12    |      | 3     | 3    | 1      | 2    | 3    |        | 8    |
| <i>Beloneuria</i> sp.                  |      | 1    | 7     |      |       |      | 1      |      |      | 5      |      |
| <i>Eccopectura xanthenes</i>           |      | 4    | 10    |      | 3     | 3    |        | 2    | 3    | 3      | 3    |
| <i>Perlesta</i> sp. cf. <i>frisoni</i> | 1    |      |       |      |       |      |        |      |      | 1      | 6    |
| Perlidae sp. (early)                   |      | 1    | 1     | 3    | 1     |      |        |      |      |        |      |
| Perlodidae                             |      |      |       |      |       |      |        |      |      |        |      |
| <i>Helopicus subvarians</i>            |      |      |       |      |       |      | 9      |      |      | 4      |      |
| <i>Isoperla holochlora</i>             |      |      | 55    | 3    | 1     |      | 9      |      | 6    | 25     | 19   |
| <i>Isoperla</i> sp. cf. <i>dicala</i>  |      |      |       |      |       |      |        |      |      |        | 3    |
| <i>Isoperla similis</i>                |      | 1    | 14    |      |       | 14   | 14     | 18   | 2    |        | 1    |
| <i>Isoperla</i> sp. (early)            |      |      | 5     |      |       |      | 4      |      |      | 10     | 7    |
| <i>Malirekus hastatus</i>              | 27   | 7    | 7     | 6    | 12    | 2    | 23     | 14   | 1    |        | 8    |
| <i>Remenus bilobatus</i>               |      |      |       |      |       |      |        |      |      | 2      | 5    |
| <i>Yugus/Malirekus</i> (early)         |      |      | 1     |      |       |      | 40     | 1    |      |        |      |
| Perlodidae sp. (early)                 | 1    |      | 3     | 2    |       |      |        |      | 2    |        | 7    |
| Pteronarcyidae                         |      |      |       |      |       |      |        |      |      |        |      |
| <i>Pteronarcys scotti/proteus</i>      |      | 1    | 2     | 1    |       |      |        |      |      |        | 1    |
| Taeniopterygidae                       |      |      |       |      |       |      |        |      |      |        |      |
| <i>Bolotoperla rossi</i>               |      |      |       |      |       |      | 19     |      |      |        |      |

Table A3. Continued.

| Season<br>Sampling date                  | Fall |      |       |      |       |      | Winter |      |      | Spring |      |
|------------------------------------------|------|------|-------|------|-------|------|--------|------|------|--------|------|
|                                          | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                              |      |      |       |      |       |      |        |      |      |        |      |
| <i>Oemopteryx contorta</i>               |      |      |       |      |       |      |        |      | 1♀   |        |      |
| <i>Oemopteryx/Taenionema</i> sp.         |      |      |       |      |       |      | 1      | 2    | 2    |        |      |
| <i>Strophopteryx limata</i>              |      |      |       |      |       |      | 11     |      |      |        |      |
| <i>Strophopteryx</i> sp.                 |      |      |       |      |       |      |        | 6    | 12   |        |      |
| <i>Taeniopteryx</i> sp.                  |      |      |       |      |       |      | 1♀     |      |      |        |      |
| Taeniopterygidae sp. (early)             |      |      | 4     |      |       |      | 1      |      |      |        |      |
| Ephemeroptera                            |      |      |       |      |       |      |        |      |      |        |      |
| Ameletidae                               |      |      |       |      |       |      |        |      |      |        |      |
| <i>Ameletus cryptostimulus</i>           |      |      | 3     |      |       |      | 15     | 33   |      | 3      |      |
| <i>Ameletus</i> sp. (early)              |      |      |       |      | 1     |      |        |      |      |        |      |
| Baetidae                                 |      |      |       |      |       |      |        |      |      |        |      |
| <i>Acentrella</i> sp.                    |      |      |       |      |       |      |        |      |      | 1      |      |
| <i>Baetis</i> sp. cf. <i>flavistriga</i> | 1    |      | 1     |      |       |      |        |      | 13   | 3      | 13   |
| <i>Baetis</i> sp. cf. <i>tricaudatus</i> | 10   | 8    | 8     | 15   | 3     | 3    | 12     | 6    | 11   | 39     | 12   |
| <i>Baetis</i> sp. (other)                |      |      |       |      |       |      |        |      |      |        | 10   |
| <i>Baetis</i> sp. (early/damaged)        | 2    |      | 2     |      |       |      |        |      | 1    | 1      | 56   |
| Baetidae sp. (early)                     |      |      | 1     |      |       |      |        |      |      |        |      |
| Ephemerellidae                           |      |      |       |      |       |      |        |      |      |        |      |
| <i>Drunella longicornis</i>              |      |      |       |      |       |      |        |      |      |        | 39   |
| <i>Drunella tuberculata</i>              | 15   |      | 1     | 5    | 2     |      |        |      |      |        |      |
| <i>Drunella</i> sp. (early)              |      |      |       |      |       |      |        |      |      |        | 1    |
| <i>Ephemerella catawba</i>               |      |      |       |      |       |      | 140    | 115  | 176  | 13     | 31   |
| <i>Ephemerella rossi</i>                 |      |      |       |      |       |      |        |      |      | 67     | 78   |
| <i>Ephemerella hispida</i>               |      |      |       |      |       |      |        | 12   |      | 9      |      |
| <i>Ephemerella</i> sp. (early)           |      |      | 83    | 15   | 6     | 7    | 27     | 19   | 27   | 3      | 7    |
| <i>Eurylophella funeralis</i>            |      |      |       | 1    |       |      |        |      |      |        | 2    |
| Heptageniidae                            |      |      |       |      |       |      |        |      |      |        |      |

Table A3. Continued.

| Season                                         | Fall |      |       |      |       |      | Winter |      |      | Spring |      |
|------------------------------------------------|------|------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                                  | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                    |      |      |       |      |       |      |        |      |      |        |      |
| <i>Cinygmula subaequalis</i>                   |      |      |       |      |       |      |        | 28   |      |        |      |
| <i>Epeorus</i> sp. cf. <i>dispar</i>           | 4    | 5    | 32    | 5    | 3     | 16   | 30     | 11   | 23   | 26     | 138  |
| <i>Epeorus</i> sp. cf. <i>pleuralis</i>        |      |      | 8     |      |       |      |        | 14   |      |        |      |
| <i>Epeorus</i> sp. (early)                     | 16   | 2    | 19    | 4    |       |      | 12     | 4    | 8    |        | 1    |
| <i>Heptagenia</i> sp.                          | 6    |      |       |      |       |      |        |      |      |        | 2    |
| <i>Leucrocuta hebe/aphrodite</i>               |      |      |       |      |       |      |        |      |      |        | 2    |
| <i>Leucrocuta juno/maculipennis</i>            |      |      |       |      |       | 11   |        |      |      |        |      |
| <i>Leucrocuta maculipennis</i>                 |      | 2    |       |      |       |      |        |      |      |        |      |
| <i>Leucrocuta thetis</i>                       |      | 7    | 17    | 9    | 4     | 22   | 8      | 3    | 7    | 10     | 20   |
| <i>Leucrocuta</i> sp. cf. <i>thetis</i>        |      |      |       |      |       | 1    |        |      |      |        |      |
| <i>Rhithrogena</i> sp. (early)                 |      | 1    | 12    |      | 1     |      |        |      |      |        |      |
| <i>Stenacron</i> sp. cf. <i>carolina</i>       |      |      | 14    |      |       | 2    |        | 1    |      | 4      | 3    |
| <i>Stenacron</i> sp. cf. <i>pallidum</i>       | 1    |      |       |      |       |      |        |      |      |        |      |
| <i>Stenacron</i> sp. (early)                   |      |      |       |      |       |      |        |      |      |        | 1    |
| <i>Stenonema merririvulanum</i>                | 8    | 26   | 48    | 8    | 5     | 47   | 7      | 9    | 5    | 7      | 29   |
| <i>Stenonema pudicum</i>                       |      |      |       |      |       | 2    |        |      | 1    |        | 1    |
| <i>Stenonema</i> sp. (early)                   |      | 5    |       |      |       |      |        |      |      |        |      |
| Heptageniidae sp. (early)                      | 1    |      | 4     |      |       |      | 4      | 2    |      |        |      |
| Leptophlebiidae                                |      |      |       |      |       |      |        |      |      |        |      |
| <i>Habrophlebia vibrans</i>                    |      |      |       |      |       |      |        |      |      |        | 10   |
| <i>Paraleptophlebia</i>                        |      |      |       |      |       |      |        |      |      |        |      |
| <i>adoptiva/mollis</i>                         |      |      | 15    |      |       |      | 15     | 5    |      | 10     | 8    |
| <i>Paraleptophlebia</i> sp. cf. <i>guttata</i> |      |      | 1     |      |       | 4    |        |      | 2    | 2      |      |
| <i>Paraleptophlebia</i> sp. (early)            | 1    | 5    | 17    | 6    |       |      | 1      |      |      |        |      |
| Leptophlebiidae sp. (early/<br>damaged)        |      |      |       |      |       |      |        | 1    |      |        | 3    |
| Odonata                                        |      |      |       |      |       |      |        |      |      |        |      |

Table A3. Continued.

| Season<br>Sampling date                 | Fall |      |       |      |       |      | Winter |      |      | Spring |      |
|-----------------------------------------|------|------|-------|------|-------|------|--------|------|------|--------|------|
|                                         | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                             |      |      |       |      |       |      |        |      |      |        |      |
| Cordulegastridae                        |      |      |       |      |       |      |        |      |      |        |      |
| <i>Cordulegaster erronea</i>            |      | 1    |       |      | 1     |      |        |      |      |        | 1    |
| Gomphidae                               |      |      |       |      |       |      |        |      |      |        |      |
| <i>Lanthus vernalis</i>                 | 7    | 4    | 2     | 1    | 4     | 4    | 12     | 14   | 5    | 15     | 15   |
| Heteroptera                             |      |      |       |      |       |      |        |      |      |        |      |
| Gerridae                                |      |      |       |      |       |      |        |      |      |        |      |
| <i>Aquarius remigis</i>                 |      | 2    | 6     |      | 1     | 2    |        |      |      | 3      | 5    |
| Veliidae                                |      |      |       |      |       |      |        |      |      |        |      |
| <i>Microvelia</i> sp.                   |      |      |       |      |       |      |        |      |      | 2      |      |
| <i>Rhagovelia obesa</i>                 |      |      |       |      |       |      |        |      |      |        | 2    |
| Trichoptera                             |      |      |       |      |       |      |        |      |      |        |      |
| Apataniidae                             |      |      |       |      |       |      |        |      |      |        |      |
| <i>Apatania</i> sp.                     |      |      | 1     | 1    | 1     |      |        | 3    |      |        | 4    |
| Brachycentridae                         |      |      |       |      |       |      |        |      |      |        |      |
| <i>Micrasema burksi</i>                 | 1    | 1    |       | 1    | 2     | 1    | 23     | 12   | 3    | 1      |      |
| <i>Micrasema</i> sp. <sup>2</sup>       |      |      |       |      |       |      |        |      |      | 1      | 4    |
| Glossosomatidae                         |      |      |       |      |       |      |        |      |      |        |      |
| <i>Glossosoma nigrrior</i> (inc. pupae) | 9    | 3    | 2     | 6    | 1     | 1    |        |      |      |        | 8    |
| Hydropsychidae                          |      |      |       |      |       |      |        |      |      |        |      |
| <i>Arctopsyche irrorata</i>             |      | 7    | 12    | 3    | 3     |      |        |      |      |        |      |
| <i>Ceratopsyche macleodi</i>            | 64   | 27   | 79    | 18   | 12    | 5    | 14     | 8    | 11   |        | 1    |
| <i>Ceratopsyche slossonae</i>           |      |      |       |      |       |      |        |      |      |        | 1    |
| <i>Diplectrona modesta</i>              | 5    | 3    | 16    | 5    | 9     | 72   | 21     | 2    | 4    | 37     | 92   |
| <i>Parapsyche cardis</i>                | 40   | 34   | 21    | 5    | 28    | 4    | 38     | 6    | 18   | 6      | 7    |
| Hydropsychidae sp. (early)              |      |      | 1     |      |       | 1    |        |      |      |        |      |
| Lepidostomatidae                        |      |      |       |      |       |      |        |      |      |        |      |
| <i>Lepidostoma</i> sp.                  | 1    |      |       | 1    | 1     |      | 8      | 12   | 8    | 9      | 4    |



Table A3. Continued.

| Season                                         | Fall           |                |       |      |                |                | Winter          |      |      | Spring         |      |
|------------------------------------------------|----------------|----------------|-------|------|----------------|----------------|-----------------|------|------|----------------|------|
| Sampling date                                  | 9/96           | 9/00           | 10/00 | 9/01 | 10/01          | 9/02           | 2/97            | 2/01 | 2/02 | 6/96           | 6/02 |
| <b>TAXA</b>                                    |                |                |       |      |                |                |                 |      |      |                |      |
| Limnephilidae                                  |                |                |       |      |                |                |                 |      |      |                |      |
| <i>Pycnopsyche gentilis</i>                    |                |                |       |      |                |                |                 | 2    |      |                |      |
| <i>Pycnopsyche flavata/gentilis</i>            |                |                |       |      |                | 2              |                 |      |      |                | 2    |
| <i>Pycnopsyche sonso</i>                       |                |                |       |      |                |                |                 | 33   | 27   |                | 25   |
| <i>Pycnopsyche luculenta/sonso</i>             | 1 <sup>1</sup> | 8 <sup>2</sup> |       |      | 2 <sup>2</sup> | 3 <sup>2</sup> | 26 <sup>1</sup> |      |      | 6 <sup>1</sup> |      |
| <i>Pycnopsyche</i> sp. (early)                 |                |                | 69    |      |                |                |                 | 1    | 2    |                |      |
| Molannidae                                     |                |                |       |      |                |                |                 |      |      |                |      |
| <i>Molanna blenda</i>                          | 6              | 6              |       |      |                | 5              | 4               |      |      | 3              | 13   |
| Odontoceridae                                  |                |                |       |      |                |                |                 |      |      |                |      |
| <i>Psilotreta frontalis</i>                    | 5              | 5              | 2     |      | 1              | 7              | 11              | 2    | 4    | 4              | 6    |
| <i>Psilotreta</i> sp. (early)                  | 1              |                |       |      |                |                |                 |      |      | 4              | 1    |
| Philopotamidae                                 |                |                |       |      |                |                |                 |      |      |                |      |
| <i>Dolophilodes distinctus</i>                 | 28♂            | 4              | 15    | 3    |                |                | 4♂              |      |      | 12♂            |      |
| <i>Wormaldia</i> sp.                           |                |                |       |      |                |                |                 |      |      | 16             |      |
| Polycentropodidae                              |                |                |       |      |                |                |                 |      |      |                |      |
| <i>Nyctiophylax</i> sp.                        |                | 5              | 17    |      |                | 3              | 4               | 3    | 2    |                | 5    |
| <i>Polycentropus</i> sp.                       | 1              |                | 4     |      | 1              | 2              | 2               | 1    |      |                | 4    |
| Psychomiidae                                   |                |                |       |      |                |                |                 |      |      |                |      |
| <i>Lype diversa</i>                            |                |                | 3     |      | 1              |                |                 |      |      |                | 1♂   |
| Rhyacophilidae                                 |                |                |       |      |                |                |                 |      |      |                |      |
| <i>Rhyacophila appalachia/nigrita</i>          | 3              | 7              | 4     | 3    | 6              | 6              |                 | 9    | 5    |                | 16   |
| <i>Rhyacophila carolina</i>                    | 2              | 1              | 2     |      |                | 1              | 1               | 1    |      | 1              |      |
| <i>Rhyacophila fuscula</i>                     | 3              | 2              | 2     | 1    | 3              | 3              | 3               | 3    | 5    | 9              | 4    |
| <i>Rhyacophila glaberrima</i>                  | 1              |                | 1     |      |                |                |                 |      | 2    | 5              |      |
| <i>Rhyacophila minor</i>                       |                | 5              | 3     | 9    | 7              |                |                 |      |      |                |      |
| <i>Rhyacophila torva</i>                       |                |                |       |      |                | 1              | 2               |      | 1    | 4              |      |
| <i>Rhyacophila</i> sp. nov. cf. <i>nigrita</i> |                |                |       | 1    | 3              |                | 5               | 4    | 4    |                | 1    |



Table A3. Continued.

| Season                          | Fall |                |       |                |                |                | Winter |      |      | Spring |      |
|---------------------------------|------|----------------|-------|----------------|----------------|----------------|--------|------|------|--------|------|
| Sampling date                   | 9/96 | 9/00           | 10/00 | 9/01           | 10/01          | 9/02           | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |      |                |       |                |                |                |        |      |      |        |      |
| <i>Rhyacophila</i> sp. (early)  |      |                | 2     |                |                | 5              |        |      |      |        |      |
| <i>Rhyacophila</i> sp. (pupae)  |      |                |       |                |                |                |        |      |      |        | 1    |
| Sericostomatidae                |      |                |       |                |                |                |        |      |      |        |      |
| <i>Fattigia pele</i>            | 5    |                |       | 1              |                | 6              | 10     | 2    |      | 4      | 4    |
| Uenoidae                        |      |                |       |                |                |                |        |      |      |        |      |
| <i>Neophylax aniqua?</i>        |      | 3              | 1     |                |                |                |        |      |      |        |      |
| <i>Neophylax concinnus</i>      |      |                |       |                |                |                |        |      |      |        | 1    |
| <i>Neophylax consimilis</i>     |      | 1              |       |                | 2              |                |        |      |      |        | 2    |
| <i>Neophylax mitchelli</i>      |      | 4 <sup>3</sup> |       | 1 <sup>3</sup> | 1 <sup>3</sup> | 1 <sup>3</sup> |        | 7    | 9    | 2      | 26   |
| <i>Neophylax ornatus</i>        |      | 9              | 30    | 2              |                |                | 6      | 4    | 5    |        | 4    |
| <i>Neophylax</i> sp. (early)    | 3    |                | 2     |                |                |                | 6      |      |      |        |      |
| Coleoptera                      |      |                |       |                |                |                |        |      |      |        | 1    |
| Elmidae                         |      |                |       |                |                |                |        |      |      |        |      |
| <i>Optioservus immunis</i> ♂♀   | 1    |                | 1     |                |                |                |        |      |      |        |      |
| <i>Optioservus ovalis</i> ♂♀    | 4    | 1              | 13    | 4              | 6              | 1              |        |      |      |        | 3    |
| <i>Optioservus</i> sp.          |      |                |       | 3              | 3              |                |        |      |      | 1      |      |
| <i>Oulimnius latiusculus</i> ♂♀ |      |                |       | 2              | 1              |                |        |      |      |        | 1    |
| <i>Promoresia elegans</i>       |      |                |       |                |                |                |        |      | 1    |        |      |
| Diptera                         |      |                |       |                |                |                |        |      |      |        |      |
| Athericidae                     |      |                |       |                |                |                |        |      |      |        |      |
| <i>Atherix lantha</i>           | 1    |                |       |                |                | 2              |        |      | 1    |        | 9    |
| Blephariceridae                 |      |                |       |                |                |                |        |      |      |        |      |
| <i>Blepharicera</i> sp.         | 2    |                |       |                |                |                |        | 1    |      | 1      | 1    |
| Ceratopogonidae                 |      |                |       |                |                |                |        |      |      |        |      |
| <i>Atrichopogon</i> sp?         | 1    |                |       |                |                |                |        |      |      |        |      |
| <i>Bezzia</i> sp.               |      |                |       |                |                |                |        |      | 2    |        |      |
| <i>Bezzia/Palpomyia</i> sp.     |      |                |       |                |                |                | 1      |      |      |        |      |

Table A3. Continued.

| Season                          | Fall |      |       |      |       |      | Winter |      |      | Spring |      |
|---------------------------------|------|------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                   | 9/96 | 9/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |      |      |       |      |       |      |        |      |      |        |      |
| Chironomidae                    | 20   |      |       |      |       |      | 43     |      |      | 30     |      |
| Chironominae                    |      |      |       |      |       |      |        |      |      |        |      |
| Chironomini                     |      | 1    | 5     | 1    | 4     | 1    |        | 3    |      |        | 14   |
| Tanytarsini                     |      | 1    | 5     | 8    |       | 5    |        | 4    | 6    |        | 3    |
| Orthocladinae                   |      | 6    | 33    | 12   | 2     | 7    |        | 10   | 15   |        | 33   |
| Tanypodinae                     |      |      |       |      |       | 1    |        | 1    |      |        | 10   |
| Chironomidae pupae              |      |      | 3     |      | 2     | 2    |        |      |      |        | 1    |
| Dixidae                         |      |      |       |      |       |      |        |      |      |        |      |
| <i>Dixa</i> sp.                 |      |      | 1     | 3    | 4     | 1    |        |      |      |        | 12   |
| Psychodidae                     |      |      |       |      |       |      |        |      |      |        |      |
| <i>Pericoma albitarsis</i>      |      |      |       |      |       |      |        | 1    |      |        |      |
| Simuliidae (including pupae)    | 7    | 1    | 6     | 10   |       | 3    | 5      | 22   | 25   | 17     | 4    |
| Tipulidae                       |      |      |       |      |       |      |        |      |      |        |      |
| <i>Antocha</i> sp.              |      |      | 1     |      | 3     |      |        |      |      | 1      |      |
| <i>Dicranota</i> sp.            | 7    |      | 1     |      |       |      | 1      |      |      | 3      |      |
| <i>Hexatoma</i> sp.             | 4    | 3    | 2     | 4    | 3     | 5    | 11     | 2    | 2    | 2      | 6    |
| <i>Longurio</i> sp.             |      |      |       |      |       |      |        | 1    |      |        |      |
| <i>Limnophila</i> sp.           |      |      |       |      |       |      | 1      |      |      |        |      |
| <i>Tipula</i> "abdominalis"     |      |      |       |      |       |      | 1      | 1    |      |        |      |
| <i>Tipula</i> sp. "moss animal" |      | 1    |       |      | 1     |      |        |      |      |        |      |

<sup>1</sup> early instars<sup>2</sup> cases only; for *Micrasema*, not *burksi*<sup>3</sup> includes mature pupae and adults

Table A4. Taxa collected at site 3 by sampling date. The symbols ♂, ♀, or ♂♀, indicate some or all of the specimens were adult males, females or both. If the symbol is in the taxa column, it indicates all specimens were adults.

| Season                          | Fall |      |      |       |      | Winter |      | Spring |      |
|---------------------------------|------|------|------|-------|------|--------|------|--------|------|
| Sampling date                   | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |      |      |      |       |      |        |      |        |      |
| Platyhelminthes                 |      |      |      |       |      |        |      |        |      |
| Planarians                      |      |      |      |       |      | 1      |      |        |      |
| Annelida                        |      |      |      |       |      |        |      |        |      |
| Hirudinea                       |      |      |      |       |      |        |      |        |      |
| <i>Placobdella</i> sp.          |      |      |      |       |      |        |      |        | 19   |
| Oligochaeta                     | 1    | 1    |      | 2     | 4    | 5      | 2    |        | 5    |
| Arthropoda                      |      |      |      |       |      |        |      |        |      |
| Arachnida                       |      |      |      |       |      |        |      |        |      |
| Hydracarina                     | 1    |      |      |       |      |        |      | 1      |      |
| Crustacea                       |      |      |      |       |      |        |      |        |      |
| Decapoda                        |      |      |      |       |      |        |      |        |      |
| Astacidae                       |      |      |      |       |      |        |      |        |      |
| <i>Cambarus bartoni</i>         | 2    | 2    | 4    | 6     |      |        |      |        | 2    |
| <i>Cambarus</i> sp. (juveniles) |      |      |      |       |      |        | 2    |        |      |
| Insecta                         |      |      |      |       |      |        |      |        |      |
| Plecoptera                      |      |      |      |       |      |        |      |        |      |
| Capniidae                       |      |      |      |       |      |        |      |        |      |
| <i>Paracapnia</i> sp.           |      |      |      |       |      | 5♀     | 3    |        |      |
| Capniidae sp. (early)           |      | 2    |      |       |      |        |      |        | 1    |
| Chloroperlidae                  |      |      |      |       |      |        |      |        |      |
| <i>Alloperla</i> sp.            |      | 1    |      |       |      | 3      | 2    |        | 5    |
| <i>Haploperla brevis</i>        |      |      |      |       |      |        |      | 1      |      |
| <i>Sweltsa</i> sp.              | 9    | 6    | 4    | 7     | 2    | 1      | 3    | 9      |      |
| Chloroperlidae sp. (early)      |      | 2    |      |       |      | 1      |      |        | 3    |

Table A4. Continued.

| Season                                 | Fall |      |      |       |      | Winter |      | Spring |      |
|----------------------------------------|------|------|------|-------|------|--------|------|--------|------|
| Sampling date                          | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                            |      |      |      |       |      |        |      |        |      |
| Leuctridae                             |      |      |      |       |      |        |      |        |      |
| <i>Leuctra ferruginea</i> ♂            | 9    |      |      |       |      |        |      |        |      |
| <i>Leuctra</i> sp.                     | 17   | 6    | 7    | 3♂♀   | 11   | 24     | 4♂♀  | 22     | 12   |
| <i>Paraleuctra sara</i>                |      |      |      |       |      | 1      |      |        |      |
| Nemouridae                             |      |      |      |       |      |        |      |        |      |
| <i>Amphinemura appalachia</i>          |      |      |      |       | 2    | 9      | 3    | 9      | 13   |
| <i>Amphinemura</i> sp. (early)         |      | 2    |      | 2     |      | 1      |      |        |      |
| Nemouridae sp. (early)                 |      |      |      |       |      |        |      |        | 1    |
| Peltoperlidae                          |      |      |      |       |      |        |      |        |      |
| <i>Tallaperla</i> sp.                  |      | 34   | 14   | 25    | 13   | 10     | 9    |        | 10   |
| <i>Viehoperla</i> sp.                  |      |      |      | 1     |      |        |      |        |      |
| Peltoperlidae sp. (early)              | 48   |      |      |       |      |        |      | 4      |      |
| Perlidae                               |      |      |      |       |      |        |      |        |      |
| <i>Acroneuria abnormis</i>             | 1    |      |      | 1     |      |        |      | 1      | 1    |
| <i>Beloneuria</i> sp.                  |      |      |      |       |      | 1      |      |        | 3    |
| <i>Eccopectura xanthenes</i>           | 2    | 6    |      |       |      | 2      |      | 3      | 2    |
| <i>Perlesta</i> sp. cf. <i>frisoni</i> | 2    |      |      |       |      |        |      |        | 1    |
| Perlidae sp. (early)                   |      | 1    |      |       |      | 2      |      |        |      |
| Perlodidae                             |      |      |      |       |      |        |      |        |      |
| <i>Cultus decicus</i>                  | 1    |      |      |       |      |        |      |        |      |
| <i>Isoperla holochlora</i>             |      |      | 3    | 4     | 1    | 4      |      | 19     |      |
| <i>Isoperla</i> sp. cf. <i>dicala</i>  |      |      |      |       |      |        |      |        | 17   |
| <i>Isoperla similis</i>                | 4    | 2    |      | 1     | 4    | 12     | 2    |        |      |
| <i>Malirekus hastatus</i>              | 12   | 5    | 3    | 6     |      | 9      | 1    | 5      | 1    |
| <i>Remenus bilobatus</i>               |      |      |      |       |      |        |      | 3      | 3    |
| <i>Yugus/Malirekus</i> (early)         |      |      |      |       |      | 16     |      |        |      |
| Perlodidae sp. (early)                 |      | 1    | 2    |       |      |        |      |        | 1    |

Table A4. Continued.

| Season                                    | Fall |      |      |       |      | Winter |      | Spring |      |
|-------------------------------------------|------|------|------|-------|------|--------|------|--------|------|
| Sampling date                             | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| TAXA                                      |      |      |      |       |      |        |      |        |      |
| Taeniopterygidae                          |      |      |      |       |      |        |      |        |      |
| <i>Oemopteryx contorta</i> ♀              |      |      |      |       |      |        | 1    |        |      |
| <i>Oemopteryx</i> / <i>Taenionema</i> sp. |      |      |      |       |      | 14     |      |        |      |
| <i>Strophopteryx</i> sp.                  |      |      |      |       |      | 41     |      |        |      |
| Ephemeroptera                             |      |      |      |       |      |        |      |        |      |
| Ameletidae                                |      |      |      |       |      |        |      |        |      |
| <i>Ameletus cryptostimulus</i>            |      |      |      |       |      | 7      | 2    | 1      | 1    |
| Baetidae                                  |      |      |      |       |      |        |      |        |      |
| <i>Baetis</i> sp. cf. <i>flavistriga</i>  | 1    |      |      |       |      |        |      |        | 3    |
| <i>Baetis</i> sp. cf. <i>tricaudatus</i>  | 9    | 3    | 4    | 3     | 1    | 20     |      |        | 1    |
| <i>Baetis</i> sp. (early/damaged)         |      | 1    |      |       |      |        |      | 4      |      |
| <i>Centroptilum</i> s.l. (damaged)        |      |      |      |       |      |        |      | 1      |      |
| Baetidae sp. (early)                      | 4    | 2    |      |       |      |        |      | 2      |      |
| Ephemerellidae                            |      |      |      |       |      |        |      |        |      |
| <i>Drunella longicornis</i>               |      |      |      |       |      |        |      | 3      | 1    |
| <i>Drunella tuberculata</i>               | 10   |      |      |       |      |        |      |        |      |
| <i>Ephemerella catawba</i>                |      |      |      |       |      | 29     | 2    | 4      | 10   |
| <i>Ephemerella rossi</i>                  |      |      |      |       |      |        |      | 8      | 14   |
| <i>Ephemerella hispida</i>                |      |      |      |       |      | 1      |      |        | 2    |
| <i>Ephemerella</i> sp. (early)            |      |      |      |       |      |        | 1    |        | 1    |
| Ephemerellidae sp. (early)                |      |      |      | 1     | 1    |        |      |        |      |
| Heptageniidae                             |      |      |      |       |      |        |      |        |      |
| <i>Cinygmula subaequalis</i>              |      |      |      |       |      | 6      |      | 4      | 1    |
| <i>Epeorus</i> sp. cf. <i>dispar</i>      | 5    | 5    | 6    | 13    | 15   | 37     | 1    | 26     | 7    |
| <i>Epeorus</i> sp. cf. <i>pleuralis</i>   |      |      |      |       |      |        | 2    |        | 9    |
| <i>Epeorus</i> sp. (early)                | 2    | 4    |      |       |      |        |      |        | 1    |
| <i>Leucrocuta thetis</i>                  | 7    | 5    | 7    | 11    | 5    |        |      | 2      | 3    |

Table A4. Continued.

| Season<br>Sampling date                        | Fall |      |      |       |      | Winter |      | Spring |      |
|------------------------------------------------|------|------|------|-------|------|--------|------|--------|------|
|                                                | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                    |      |      |      |       |      |        |      |        |      |
| <i>Leucrocuta</i> sp.                          |      | 4    |      |       | 1    |        | 1    | 9      |      |
| <i>Stenacron</i> sp. cf. <i>carolina</i>       | 1    | 1    | 5    | 2     |      |        |      | 6      | 18   |
| <i>Stenacron</i> sp. cf. <i>pallidum</i>       |      |      | 2    |       |      |        |      |        |      |
| <i>Stenonema merrivulatum</i>                  | 14   | 21   | 9    | 17    |      | 5      | 7    | 18     | 25   |
| <i>Stenonema pudicum</i>                       |      | 1    |      |       | 28   |        |      |        |      |
| <i>Stenonema</i> sp. (early)                   |      | 2    |      |       |      |        |      |        |      |
| Heptageniidae sp. (early)                      |      |      | 2    | 1     |      |        |      |        | 1    |
| Leptophlebiidae                                |      |      |      |       |      |        |      |        |      |
| <i>Habrophlebia vibrans</i>                    |      |      | 1    | 1     |      |        |      |        |      |
| <i>Paraleptophlebia adoptiva/mollis</i>        |      |      |      |       |      | 4      |      | 8      | 3    |
| <i>Paraleptophlebia</i> sp. cf. <i>guttata</i> |      |      |      |       | 7    |        |      |        | 6    |
| <i>Paraleptophlebia</i> sp. (early)            | 3    |      |      |       | 4    |        |      |        |      |
| Leptophlebiidae sp. (early/<br>damaged)        |      |      |      |       |      |        |      |        | 3    |
| Odonata                                        |      |      |      |       |      |        |      |        |      |
| Aeschnidae                                     |      |      |      |       |      |        |      |        |      |
| <i>Boyeria grafiana</i>                        |      |      |      |       |      |        | 1    |        |      |
| Cordulegastridae                               |      |      |      |       |      |        |      |        |      |
| <i>Cordulegaster erronea</i>                   | 1    |      |      | 1     |      |        |      |        |      |
| Gomphidae                                      |      |      |      |       |      |        |      |        |      |
| <i>Lanthus vernalis</i>                        | 2    | 4    | 3    | 8     | 9    | 5      |      | 17     | 10   |
| Heteroptera                                    |      |      |      |       |      |        |      |        |      |
| Gerridae                                       |      |      |      |       |      |        |      |        |      |
| <i>Aquarius remigis</i>                        | 3    | 2    | 1    | 3     | 2    |        |      | 3      |      |
| Trichoptera                                    |      |      |      |       |      |        |      |        |      |
| Apataniidae                                    |      |      |      |       |      |        |      |        |      |
| <i>Apatania</i> sp.                            |      |      |      |       |      |        |      | 1      |      |

Table A4. Continued.

| Season                                                | Fall |                |                |                |                | Winter |                | Spring |      |
|-------------------------------------------------------|------|----------------|----------------|----------------|----------------|--------|----------------|--------|------|
| Sampling date                                         | 9/96 | 9/00           | 9/01           | 10/01          | 9/02           | 2/97   | 2/02           | 6/96   | 6/02 |
| <b>TAXA</b>                                           |      |                |                |                |                |        |                |        |      |
| Brachycentridae                                       |      |                |                |                |                |        |                |        |      |
| <i>Micrasema burksi</i>                               | 1    | 1              | 2              | 4              | 1              | 10     |                | 1      |      |
| Glossosomatidae                                       |      |                |                |                |                |        |                |        |      |
| <i>Glossosoma nigrrior</i> (inc. pupae)               | 7    | 1              | 1              | 1              | 1              |        |                |        |      |
| Hydropsychidae                                        |      |                |                |                |                |        |                |        |      |
| <i>Ceratopsyche macleodi</i>                          | 18   | 3              | 8              | 13             |                | 8      | 2              |        |      |
| <i>Diplectrona modesta</i>                            | 7    | 8              | 17             | 8              | 14             | 6      | 5              | 25     | 11   |
| <i>Parapsyche apicalis</i>                            |      |                |                |                |                | 5      |                |        | 5    |
| <i>Parapsyche cardis</i>                              | 16   | 18             | 14             | 52             | 5              | 7      | 2              | 9      | 22   |
| Hydropsychidae sp. (early)                            | 2    | 1              |                |                | 1              |        |                | 1      |      |
| Lepidostomatidae                                      |      |                |                |                |                |        |                |        |      |
| <i>Lepidostoma griseum</i> ♂                          | 1    |                |                |                |                |        |                |        |      |
| <i>Lepidostoma</i> sp.                                | 1    |                | 5 <sup>1</sup> | 1 <sup>1</sup> | 5 <sup>1</sup> | 24     |                | 10     | 12   |
| Limnephilidae                                         |      |                |                |                |                |        |                |        |      |
| <i>Pycnopsyche flavata</i>                            |      |                |                |                |                | 3      | 1              |        |      |
| <i>Pycnopsyche flavata/gentilis</i>                   | 1    |                |                |                | 1 <sup>1</sup> | 8      | 2 <sup>1</sup> | 1      |      |
| <i>Pycnopsyche sonso</i>                              |      |                |                |                |                |        |                |        | 14   |
| <i>Pycnopsyche luculenta/sonso</i><br>(early instars) | 1    |                | 4 <sup>1</sup> | 2 <sup>1</sup> | 4 <sup>1</sup> | 30     |                | 14     |      |
| <i>Pycnopsyche</i> sp. (early)                        |      |                | 1 <sup>1</sup> | 1              |                |        |                |        |      |
| Molannidae                                            |      |                |                |                |                |        |                |        |      |
| <i>Molanna blenda</i>                                 | 1    |                | 2              |                | 4              | 3      |                | 3      | 1    |
| Odontoceridae                                         |      |                |                |                |                |        |                |        |      |
| <i>Psilotreta frontalis</i>                           |      | 1              | 1              |                | 3              | 7      |                | 9      |      |
| <i>Psilotreta</i> sp. (early)                         | 1    | 1 <sup>1</sup> |                |                |                |        |                |        |      |
| Philopotamidae                                        |      |                |                |                |                |        |                |        |      |
| <i>Dolophilodes distinctus</i>                        | 8    | 1              | 1              | 1              | 1              | 3      | 1              | 9      | 10   |

Table A4. Continued.

| Season                                         | Fall           |      |                |       |                | Winter |      | Spring |      |
|------------------------------------------------|----------------|------|----------------|-------|----------------|--------|------|--------|------|
| Sampling date                                  | 9/96           | 9/00 | 9/01           | 10/01 | 9/02           | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                    |                |      |                |       |                |        |      |        |      |
| <i>Wormaldia moesta</i>                        |                |      |                |       |                | 2      |      | 1      |      |
| <i>Wormaldia</i> sp.                           |                |      |                |       |                |        |      |        | 2    |
| Polycentropodidae                              |                |      |                |       |                |        |      |        |      |
| <i>Nyctiophylax</i> sp.                        | 4              | 3    | 10             | 3     | 2              |        |      | 3      | 10   |
| <i>Polycentropus</i> sp.                       | 1              | 1    | 2              | 4     | 6              |        |      | 1      | 8    |
| Psychomiidae                                   |                |      |                |       |                |        |      |        |      |
| <i>Lype diversa</i>                            |                | 2    |                |       |                |        | 6    | 1♂     |      |
| Rhyacophilidae                                 |                |      |                |       |                |        |      |        |      |
| <i>Rhyacophila appalachia/nigrita</i>          | 13             | 3    | 2              |       | 6              | 8      | 2    | 3      | 3    |
| <i>Rhyacophila carolina</i>                    | 4              | 2    |                | 1     |                |        |      | 3♂     |      |
| <i>Rhyacophila fuscula</i>                     | 1              | 2    |                |       |                | 2      |      | 4      | 5    |
| <i>Rhyacophila minor</i>                       |                |      | 2              | 9     | 1              |        |      |        |      |
| <i>Rhyacophila torva</i>                       | 1              |      |                | 2     |                |        |      | 4      |      |
| <i>Rhyacophila</i> sp. nov. cf. <i>nigrita</i> |                |      |                |       | 1              |        |      |        | 1    |
| <i>Rhyacophila</i> sp. (early)                 |                |      | 1              |       |                | 1      |      | 1      |      |
| Sericostomatidae                               |                |      |                |       |                |        |      |        |      |
| <i>Fattigia pele</i>                           | 2              | 2    | 2              | 1     | 2              | 4      |      | 3      |      |
| Uenoidae                                       |                |      |                |       |                |        |      |        |      |
| <i>Neophylax consimilis</i>                    |                |      | 2              | 1     |                | 12     |      |        |      |
| <i>Neophylax mitchelli</i>                     | 4 <sup>2</sup> | 3    | 5 <sup>2</sup> |       | 2 <sup>2</sup> |        |      | 21     | 23   |
| <i>Neophylax ornatus</i>                       |                | 5    | 9              | 25    | 4              | 2      |      |        |      |
| <i>Neophylax</i> sp. (early)                   | 12             | 1    |                |       |                |        |      |        |      |
| Coleoptera                                     |                |      |                |       |                |        |      |        |      |
| Eubriidae                                      |                |      |                |       |                |        |      |        |      |
| <i>Ectopria</i> sp.                            |                |      |                |       |                |        |      |        | 7    |
| Elmidae                                        |                |      |                |       |                |        |      |        |      |
| <i>Optioservus immunis</i> ♂♀                  | 1              |      |                |       |                |        |      |        |      |



Table A4. Continued.

| Season<br>Sampling date      | Fall |      |      |       |      | Winter |      | Spring |      |
|------------------------------|------|------|------|-------|------|--------|------|--------|------|
|                              | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                  |      |      |      |       |      |        |      |        |      |
| <i>Optioservus</i> sp.       |      |      |      |       |      |        |      | 1      | 1    |
| Diptera                      |      |      |      |       |      |        |      |        |      |
| Blephariceridae              |      |      |      |       |      |        |      |        |      |
| <i>Blepharicera</i> sp.      |      |      |      |       |      | 3      |      | 5      | 6    |
| Ceratopogonidae              |      |      |      |       |      |        |      |        |      |
| <i>Bezzia/Palpomyia</i> sp.  | 3    |      |      | 2     | 1    | 2      |      | 6      |      |
| Chironomidae                 | 41   |      |      |       |      | 45     |      | 36     |      |
| Chironominae                 |      |      |      |       |      |        |      |        |      |
| Chironomini                  |      | 1    | 5    | 5     | 2    |        |      |        | 3    |
| Tanytarsini                  |      | 1    |      | 1     | 2    |        |      |        | 4    |
| Orthocladinae                |      | 6    | 5    | 4     | 5    |        | 3    |        | 15   |
| Tanypodinae                  |      |      |      |       |      |        | 2    |        |      |
| Chironomidae pupae           |      |      | 1    |       |      |        |      |        | 1    |
| Chironomidae sp. (damaged)   |      | 1    |      |       |      |        |      |        |      |
| Dixidae                      |      |      |      |       |      |        |      |        |      |
| <i>Dixa</i> sp.              | 2    |      | 2    |       |      |        |      |        |      |
| Dolichopodidae               |      |      |      |       |      |        |      |        |      |
| <i>Rhaphium</i> sp.?         |      |      |      |       |      | 1      |      |        |      |
| Muscidae                     |      |      |      |       |      |        |      |        |      |
| <i>Limnophora</i> sp.?       |      |      |      |       |      | 1      |      |        |      |
| Simuliidae (including pupae) | 5    |      |      | 1     |      | 6      |      | 11     | 1    |
| Tipulidae                    |      |      |      |       |      |        |      |        |      |
| <i>Antocha</i> sp.           | 1    |      |      |       |      |        |      | 1      |      |
| <i>Dicranota</i> sp.         | 3    |      |      |       |      | 1      |      | 5      | 6    |
| <i>Hexatoma</i> sp.          | 5    | 5    |      |       | 1    | 6      | 1    | 6      | 1    |
| <i>Limnophila</i> sp.        | 1    |      | 2    |       |      | 1      |      | 2      |      |
| <i>Ormosia</i> sp.           |      |      |      |       |      |        | 1    |        | 1    |

Table A4. Continued.

| Season                          | Fall |      |      |       |      | Winter |      | Spring |      |
|---------------------------------|------|------|------|-------|------|--------|------|--------|------|
| Sampling date                   | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |      |      |      |       |      |        |      |        |      |
| <i>Tipula</i> sp. "moss animal" |      |      |      | 1     |      | 1      |      |        |      |
| <i>Tipula</i> sp.               |      |      | 1    |       |      |        |      |        | 1    |
| Tipulidae sp. (early)           |      |      | 1    |       |      |        | 1    |        |      |

<sup>1</sup> cases only    <sup>2</sup> includes mature pupae and adults

Table A5. Taxa collected at site 4 by sampling date. The symbols ♂, ♀, or ♂♀, indicate some or all of the specimens were adult males, females or both. If the symbol is in the taxa column, it indicates all specimens were adults.

| Season                             | Fall |      |      |       |      | Winter |      | Spring |      |
|------------------------------------|------|------|------|-------|------|--------|------|--------|------|
| Sampling date                      | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                        |      |      |      |       |      |        |      |        |      |
| Nematomorpha                       |      |      |      |       |      |        |      |        |      |
| Horsehair worms                    | 1    |      |      |       |      |        |      |        |      |
| Annelida                           |      |      |      |       |      |        |      |        |      |
| Hirudinea                          |      |      |      |       |      |        |      |        |      |
| <i>Placobdella</i> sp.             |      | 1    |      |       |      |        |      |        |      |
| Oligochaeta                        | 2    | 4    |      |       | 4    | 3      | 6    |        |      |
| Arthropoda                         |      |      |      |       |      |        |      |        |      |
| Arachnida                          |      |      |      |       |      |        |      |        |      |
| Hydracarina                        |      | 1    |      |       | 1    |        |      | 1      | 1    |
| Crustacea                          |      |      |      |       |      |        |      |        |      |
| Decapoda                           |      |      |      |       |      |        |      |        |      |
| Astacidae                          |      |      |      |       |      |        |      |        |      |
| <i>Cambarus bartoni</i>            | 1    | 1    | 1    |       |      |        | 1    | 1      | 2    |
| <i>Cambarus</i> sp. (juveniles)    |      |      |      |       | 3    |        |      |        |      |
| Insecta                            |      |      |      |       |      |        |      |        |      |
| Plecoptera                         |      |      |      |       |      |        |      |        |      |
| Capniidae                          |      |      |      |       |      |        |      |        |      |
| <i>Paracapnia angulata</i>         |      |      |      |       |      | 4      |      |        |      |
| Capniidae sp. (early)              |      |      | 2    |       |      |        |      |        |      |
| Chloroperlidae                     |      |      |      |       |      |        |      |        |      |
| <i>Alloperla</i> sp.               | 5    |      | 3    | 2     | 2    | 5      | 2    | 9      | 9    |
| <i>Haploperla brevis</i>           |      |      |      |       |      |        |      | 6      | 3    |
| <i>Sweltsa lateralis/urticae</i> ♀ |      |      |      |       |      |        |      | 1      |      |
| <i>Sweltsa</i> sp.                 |      | 6    | 7    | 5     | 6    | 9      | 17   |        |      |
| Chloroperlidae sp. (early)         |      | 3    |      |       |      |        | 1    |        |      |

Table A5. Continued.

| Season                                 | Fall |      |                |                |      | Winter |      | Spring |      |
|----------------------------------------|------|------|----------------|----------------|------|--------|------|--------|------|
| Sampling date                          | 9/96 | 9/00 | 9/01           | 10/01          | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                            |      |      |                |                |      |        |      |        |      |
| Leuctridae                             |      |      |                |                |      |        |      |        |      |
| <i>Leuctra</i> sp.                     | 5    | 19♀♂ | 17♀♂           | 6♀♂            | 6    | 26     | 16♀♂ | 9      | 6♀♂  |
| <i>Paraleuctra sara</i>                |      |      |                |                |      |        |      |        | 1    |
| Nemouridae                             |      |      |                |                |      |        |      |        |      |
| <i>Amphinemura appalachia</i>          |      | 1    |                |                |      | 3      |      | 5      | 2    |
| <i>Amphinemura</i> sp. (early)         |      | 1    |                |                |      |        | 1    |        |      |
| Peltoperlidae                          |      |      |                |                |      |        |      |        |      |
| <i>Tallaperla elisa</i> ♂              |      |      |                |                |      |        |      | 1      |      |
| <i>Tallaperla</i> sp.                  | 54   | 24   | 27             | 20             | 9    | 17♀♂   | 18   | 3      | 6    |
| Perlidae                               |      |      |                |                |      |        |      |        |      |
| <i>Acroneuria abnormis</i>             | 4    | 4    | 5              | 4              | 2    | 1      | 4    | 1      | 7    |
| <i>Agnetina annulipes</i>              |      |      |                |                |      |        |      |        | 1?   |
| <i>Beloneuria</i> sp.                  |      | 2    | 1              |                |      |        | 1    |        | 1    |
| <i>Eccoptura xanthenes</i>             |      | 3    | 6              | 1              |      | 2      |      | 2      | 6    |
| <i>Perlesta</i> sp. cf. <i>frisoni</i> |      | 1    |                |                |      |        |      | 3      | 6    |
| Perlodidae                             |      |      |                |                |      |        |      |        |      |
| <i>Isoperla holochlora</i>             |      |      |                |                |      | 2      | 1    | 9      | 7    |
| <i>Isoperla similis</i>                |      | 1    | 4              | 3              | 3    | 9      | 9    | 1      | 2    |
| <i>Isoperla</i> sp. (early)            |      |      | 2 <sup>1</sup> | 1 <sup>1</sup> |      |        |      |        | 1    |
| <i>Malirekus hastatus</i>              | 17   | 9    | 6              | 5              |      | 4      | 2    | 13     | 1    |
| <i>Remenus bilobatus</i>               |      |      |                |                |      |        |      | 4      | 1    |
| <i>Yugus/Malirekus</i> (early)         |      |      |                |                |      | 15     |      |        |      |
| Perlodidae sp. (early)                 |      |      |                |                |      |        | 3    |        |      |
| Pteronarcyidae                         |      |      |                |                |      |        |      |        |      |
| <i>Pteronarcys scotti/proteus</i>      |      |      |                | 1              | 1    |        |      |        |      |
| Taeniopterygidae                       |      |      |                |                |      |        |      |        |      |
| <i>Bolotoperla rossi</i>               |      |      |                |                |      | 45     | 1    |        |      |

Table A5. Continued.

| Season<br>Sampling date                  | Fall |      |      |       |      | Winter |      | Spring |      |
|------------------------------------------|------|------|------|-------|------|--------|------|--------|------|
|                                          | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                              |      |      |      |       |      |        |      |        |      |
| <i>Strophopteryx limata</i>              |      |      |      |       |      | 3♂     |      |        |      |
| <i>Strophopteryx</i> sp.                 |      |      |      |       |      |        | 34   |        |      |
| <i>Taenionema atlanticum</i>             |      |      |      |       |      | 24     | 17   |        |      |
| Ephemeroptera                            |      |      |      |       |      |        |      |        |      |
| Ameletidae                               |      |      |      |       |      |        |      |        |      |
| <i>Ameletus cryptostimulus</i>           |      |      |      |       |      | 8      |      |        |      |
| <i>Ameletus</i> sp. (early)              |      |      |      | 1     |      |        |      |        |      |
| Baetidae                                 |      |      |      |       |      |        |      |        |      |
| <i>Baetis</i> sp. cf. <i>flavistriga</i> |      | 2    |      |       |      |        | 22   |        |      |
| <i>Baetis</i> sp. cf. <i>tricaudatus</i> | 5    | 1    | 20   | 4     |      | 28     | 6    | 15     | 9    |
| <i>Baetis</i> sp. (early/damaged)        |      | 1    |      |       | 1    |        |      | 3      | 5    |
| <i>Baetidae</i> sp. (early)              |      | 1    |      |       |      |        |      |        |      |
| Ephemerellidae                           |      |      |      |       |      |        |      |        |      |
| <i>Drunella longicornis</i>              |      |      |      |       |      |        |      | 6      | 22   |
| <i>Drunella tuberculata</i>              | 4    | 1    | 3    |       |      |        |      |        |      |
| <i>Drunella</i> sp. (early)              |      |      |      | 1     |      |        |      |        |      |
| <i>Ephemerella catawba</i>               |      |      |      |       |      | 75     | 39   | 3      | 11   |
| <i>Ephemerella rossi</i>                 |      |      |      |       |      |        |      | 23     | 30   |
| <i>Ephemerella hispida</i>               |      |      |      |       |      | 2      |      |        |      |
| <i>Ephemerella</i> sp. (early)           |      | 1    | 3    | 2     |      |        | 3    |        |      |
| <i>Eurylophella funeralis</i>            |      |      | 1    |       |      | 2      |      |        |      |
| <i>Ephemerellidae</i> sp. (early)        |      |      |      |       | 2    |        |      |        |      |
| Heptageniidae                            |      |      |      |       |      |        |      |        |      |
| <i>Cinygmula subaequalis</i>             |      |      |      |       |      | 12     |      | 10     |      |
| <i>Epeorus dispar</i>                    | 1    | 5    | 22   | 7     | 2    | 33     | 44   | 24     | 19   |
| <i>Epeorus pleuralis</i>                 |      |      |      |       |      |        |      |        | 34   |
| <i>Epeorus</i> sp. (early)               | 4    | 2    |      | 5     |      | 3      | 5    | 5      |      |

Table A5. Continued.

| Season                                         | Fall |      |      |                |      | Winter |      | Spring |      |
|------------------------------------------------|------|------|------|----------------|------|--------|------|--------|------|
| Sampling date                                  | 9/96 | 9/00 | 9/01 | 10/01          | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                    |      |      |      |                |      |        |      |        |      |
| <i>Heptagenia julia</i>                        |      |      | 2    |                |      |        |      |        |      |
| <i>Leucrocuta hebelaphrodite</i>               |      |      |      |                | 5    |        |      |        |      |
| <i>Leucrocuta maculipennis</i>                 |      |      |      |                |      |        |      |        | 4    |
| <i>Leucrocuta thetis</i>                       |      | 26   | 41   | 6              | 2    | 4      | 9    | 7      | 16   |
| <i>Leucrocuta</i> sp. not <i>thetis</i>        |      |      |      |                |      |        |      |        | 2    |
| <i>Leucrocuta</i> sp. 1 "harlequin"            |      |      |      |                |      |        |      |        | 2    |
| <i>Leucrocuta</i> sp.                          | 4    | 6    |      |                | 2    |        |      |        |      |
| <i>Rhithrogena</i> sp. (early)                 |      |      | 2    |                |      |        |      | 1      |      |
| <i>Stenacron carolina</i>                      |      |      |      |                |      | 1      |      | 3      | 1    |
| <i>Stenacron</i> sp. (early)                   |      |      |      |                | 1    |        |      |        |      |
| <i>Stenonema merrivulatum</i>                  | 5    | 9    | 21   | 7              | 22   | 6      | 12   | 13     | 21   |
| <i>Stenonema pudicum</i>                       |      |      |      |                | 1    |        |      |        |      |
| <i>Stenonema</i> sp. (early)                   |      | 9    |      |                | 4    |        |      |        |      |
| Heptageniidae sp. (early)                      |      | 1    |      |                |      |        | 4    |        |      |
| Leptophlebiidae                                |      |      |      |                |      |        |      |        |      |
| <i>Habrophlebia vibrans</i>                    |      |      | 3    |                |      |        | 2    | 1      |      |
| <i>Paraleptophlebia adoptiva/mollis</i>        |      | 1    |      |                |      | 10     |      | 14     | 3    |
| <i>Paraleptophlebia</i> sp. cf. <i>guttata</i> |      | 3    |      |                | 5    |        | 3    |        | 1    |
| <i>Paraleptophlebia</i> sp. (early)            | 2    | 2    | 6    | 2              | 4    |        |      |        |      |
| Leptophlebiidae sp. (early/<br>damaged)        |      | 1    |      |                |      |        |      |        |      |
| Odonata                                        |      |      |      |                |      |        |      |        |      |
| Gomphidae                                      |      |      |      |                |      |        |      |        |      |
| <i>Lanthus vernalis</i>                        | 3    | 6    | 11   | 4              | 4    | 9      | 5    | 12     | 14   |
| Heteroptera                                    |      |      |      |                |      |        |      |        |      |
| Gerridae                                       |      |      |      |                |      |        |      |        |      |
| <i>Aquarius remigis</i>                        | 2    | 4    | 5    | 0 <sup>2</sup> | 3    | 1      | 1    | 2      | 1    |

Table A5. Continued.

|                                        | Season        | Fall |                |                |       |                | Winter |      | Spring |                |
|----------------------------------------|---------------|------|----------------|----------------|-------|----------------|--------|------|--------|----------------|
|                                        | Sampling date | 9/96 | 9/00           | 9/01           | 10/01 | 9/02           | 2/97   | 2/02 | 6/96   | 6/02           |
| TAXA                                   |               |      |                |                |       |                |        |      |        |                |
| Trichoptera                            |               |      |                |                |       |                |        |      |        |                |
| Apataniidae                            |               |      |                |                |       |                |        |      |        |                |
| <i>Apatania</i> sp.                    |               |      | 2              | 3              |       | 2 <sup>3</sup> | 2      | 1    |        | 1 <sup>3</sup> |
| Brachycentridae                        |               |      |                |                |       |                |        |      |        |                |
| <i>Micrasema burksi</i>                |               | 2    | 1              |                | 3     |                | 14     | 4    | 1      | 2 <sup>3</sup> |
| Glossosomatidae                        |               |      |                |                |       |                |        |      |        |                |
| <i>Glossosoma nigrior</i> (inc. pupae) |               | 8    | 4              | 5              | 1     |                | 1      |      | 6      |                |
| Hydropsychidae                         |               |      |                |                |       |                |        |      |        |                |
| <i>Arctopsyche irrorata</i>            |               | 3    |                | 5              | 1     |                | 1      |      |        |                |
| <i>Ceratopsyche macleodi</i>           |               | 41   | 18             | 27             | 12    | 7              | 18     | 8    | 1      |                |
| <i>Ceratopsyche</i> sp. (early)        |               |      | 1              |                |       |                |        |      |        |                |
| <i>Diplectrona modesta</i>             |               | 10   | 13             | 7              | 7     | 28             | 11     | 16   | 26     | 27             |
| <i>Parapsyche cardis</i>               |               | 15   | 7              | 30             | 14    | 3              | 2      | 3    | 2      | 3              |
| Hydropsychidae sp. (early)             |               |      | 1              | 16             | 2     | 1              |        | 1    | 1      |                |
| Lepidostomatidae                       |               |      |                |                |       |                |        |      |        |                |
| <i>Lepidostoma</i> sp.                 |               |      |                | 9 <sup>3</sup> | 3     | 4 <sup>3</sup> | 15     | 5    | 13     | 10             |
| Limnephilidae                          |               |      |                |                |       |                |        |      |        |                |
| <i>Pycnopsyche antica/conspersa</i>    |               |      |                |                |       |                | 1      |      |        |                |
| <i>Pycnopsyche gentilis</i>            |               |      |                |                |       |                | 3      |      |        |                |
| <i>Pycnopsyche sonso</i>               |               |      |                |                |       |                |        | 20   |        | 18             |
| <i>Pycnopsyche luculenta/sonso</i>     |               |      |                |                |       |                | 29     |      | 11     |                |
| (early instars)                        |               |      | 1 <sup>3</sup> | 5 <sup>3</sup> |       |                | 29     |      | 11     |                |
| <i>Pycnopsyche</i> sp. (early)         |               |      |                |                |       | 1              |        |      |        |                |
| Molannidae                             |               |      |                |                |       |                |        |      |        |                |
| <i>Molanna blenda</i>                  |               | 3    |                | 1              |       |                | 3      | 2    | 6      | 8              |
| Odontoceridae                          |               |      |                |                |       |                |        |      |        |                |
| <i>Psilotreta frontalis</i>            |               | 4    | 1              | 5              | 1     | 6              | 6      | 4    |        | 8              |



Table A5. Continued.

| Season                                         | Fall |                 |                 |                |                | Winter |      | Spring |      |
|------------------------------------------------|------|-----------------|-----------------|----------------|----------------|--------|------|--------|------|
| Sampling date                                  | 9/96 | 9/00            | 9/01            | 10/01          | 9/02           | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                    |      |                 |                 |                |                |        |      |        |      |
| Philopotamidae                                 |      |                 |                 |                |                |        |      |        |      |
| <i>Dolophilodes distinctus</i>                 | 3    | 4               | 3               |                | 5              | 1♂     | 1    | 7♂     |      |
| <i>Wormaldia moesta</i>                        |      |                 |                 |                |                | 6      |      |        |      |
| Polycentropodidae                              |      |                 |                 |                |                |        |      |        |      |
| <i>Nyctiophylax</i> sp.                        | 7    | 5               | 2               |                | 3              | 2      | 1    | 1      | 8    |
| <i>Polycentropus</i> sp.                       | 1    | 3               | 2               | 1              |                |        |      |        | 4    |
| Psychomiidae                                   |      |                 |                 |                |                |        |      |        |      |
| <i>Lype diversa</i>                            |      |                 |                 |                |                | 1      |      |        |      |
| Rhyacophilidae                                 |      |                 |                 |                |                |        |      |        |      |
| <i>Rhyacophila appalachia/nigrita</i>          | 5    | 15              | 11              | 6              | 4              | 7      | 10   | 6      | 5    |
| <i>Rhyacophila carolina</i>                    | 6    | 1               | 1♂              |                |                |        |      | 1      | 2    |
| <i>Rhyacophila fuscula</i>                     | 5    |                 | 2               |                |                | 2      | 6    | 12     | 4    |
| <i>Rhyacophila glaberrima</i>                  |      |                 |                 |                | 1              | 1      |      | 1      |      |
| <i>Rhyacophila torva</i>                       | 2    |                 |                 | 1              |                |        |      | 1      | 1    |
| <i>Rhyacophila</i> sp. nov. cf. <i>nigrita</i> |      | 1               |                 | 1              | 2              |        | 1    |        | 1    |
| <i>Rhyacophila</i> sp. (early)                 |      | 3               | 4               |                | 11             | 3      | 1    |        |      |
| <i>Rhyacophila</i> sp. (pupae)                 |      | 3               |                 |                |                |        |      |        | 1    |
| Sericostomatidae                               |      |                 |                 |                |                |        |      |        |      |
| <i>Fattigia pele</i>                           | 2    | 2               | 4               | 1              | 3              | 2      | 1    | 2      | 3    |
| Uenoidae                                       |      |                 |                 |                |                |        |      |        |      |
| <i>Neophylax consimilis</i>                    |      |                 |                 |                |                | 11     |      |        | 11   |
| <i>Neophylax mitchelli</i>                     | 2    | 13 <sup>4</sup> | 28 <sup>4</sup> | 1 <sup>4</sup> | 2 <sup>4</sup> |        | 7    | 19     | 18   |
| <i>Neophylax ornatus</i>                       |      | 15              | 12              | 4              |                | 4      | 1    |        |      |
| <i>Neophylax</i> sp. (early)                   | 6    | 2               |                 |                | 3 <sup>5</sup> |        |      |        |      |
| Coleoptera                                     |      |                 |                 |                |                |        |      |        |      |
| Eubriidae                                      |      |                 |                 |                |                |        |      |        |      |
| <i>Ectopria</i> sp.                            |      |                 |                 |                |                |        |      |        | 1    |



Table A5. Continued.

| Season<br>Sampling date         | Fall |      |      |       |      | Winter |      | Spring |      |
|---------------------------------|------|------|------|-------|------|--------|------|--------|------|
|                                 | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |      |      |      |       |      |        |      |        |      |
| Elmidae                         |      |      |      |       |      |        |      |        |      |
| <i>Hydrochus</i> sp.            |      |      |      |       |      |        | 1    |        |      |
| <i>Optioservus ovalis</i> ♂♀    |      |      |      |       | 1    |        |      |        |      |
| <i>Oulimnius latiusculus</i> ♂♀ |      | 1    |      | 1     |      | 1      |      |        |      |
| Diptera                         |      |      |      |       |      |        |      |        |      |
| Athericidae                     |      |      |      |       |      |        |      |        |      |
| <i>Atherix lantha</i>           |      |      |      | 1     |      |        | 1    | 1      |      |
| Blephariceridae                 |      |      |      |       |      |        |      |        |      |
| <i>Blepharicera</i> sp.         |      |      |      |       |      | 3      |      | 4      | 3    |
| Ceratopogonidae                 |      |      |      |       |      |        |      |        |      |
| <i>Bezzia</i> sp.               |      |      |      |       |      |        | 1    |        |      |
| <i>Bezzia/Palpomyia</i> sp.     |      |      |      |       |      | 5      |      |        | 1    |
| Chironomidae                    | 14   |      |      |       |      | 70     |      | 30     |      |
| Chironominae                    |      |      |      |       |      |        |      |        |      |
| Chironomini                     |      |      | 3    |       | 4    |        | 1    |        | 2    |
| Tanytarsini                     |      | 5    | 2    |       | 1    |        | 2    |        | 1    |
| Orthocladinae                   |      | 7    | 10   | 4     | 2    |        | 32   |        | 5    |
| Tanypodinae                     |      |      | 2    |       |      |        | 1    |        |      |
| Chironomidae pupae              |      |      |      |       | 2    |        |      |        |      |
| Dixidae                         |      |      |      |       |      |        |      |        |      |
| <i>Dixa</i> sp.                 | 4    |      | 2    |       |      |        |      |        | 2    |
| Empididae                       |      |      | 1    |       |      |        |      | 1      |      |
| Psychodidae                     |      |      |      |       |      |        |      |        |      |
| <i>Pericoma albitarsis</i>      |      |      |      |       |      |        | 1    |        |      |
| Simuliidae (including pupae)    |      |      | 5    |       | 1    | 9      | 6    | 1      |      |
| Tipulidae                       |      |      |      |       |      |        |      |        |      |
| <i>Antocha</i> sp.              |      | 1    |      | 1     |      | 1      |      |        |      |

Table A5. Continued.

| Season                          | Fall |      |      |       |      | Winter |      | Spring |      |
|---------------------------------|------|------|------|-------|------|--------|------|--------|------|
| Sampling date                   | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |      |      |      |       |      |        |      |        |      |
| <i>Dicranota</i> sp.            | 4    |      | 1    |       |      | 3      |      | 4      | 4    |
| <i>Hexatoma</i> sp.             | 2    |      | 4    | 1     | 1    | 5      | 3    | 3      | 2    |
| <i>Limnophila</i> sp.           | 1    |      |      |       |      |        |      | 2      |      |
| <i>Limonia</i> sp.              |      |      |      | 1     |      |        | 2    |        |      |
| <i>Ormosia</i> sp.              |      |      |      |       |      | 1      |      |        |      |
| <i>Tipula</i> "abdominalis"     |      |      |      |       | 1    | 1      |      |        |      |
| <i>Tipula</i> sp. "moss animal" |      |      |      |       |      | 1      |      |        |      |

<sup>1</sup> not *Isoperla similis*

<sup>2</sup> absence likely due to collector bias

<sup>3</sup> cases only

<sup>4</sup> includes mature pupae and adults

<sup>5</sup> not *Neophylax mitchelli*

Table A6. Taxa collected at site 5 by sampling date. The symbols ♂, ♀, or ♂♀, indicate some or all of the specimens were adult males, females or both. If the symbol is in the taxa column, it indicates all specimens were adults.

| Season                          | Fall |      |      |       |      | Winter |      | Spring |      |
|---------------------------------|------|------|------|-------|------|--------|------|--------|------|
| Sampling date                   | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |      |      |      |       |      |        |      |        |      |
| Platyhelminthes                 |      |      |      |       |      |        |      |        |      |
| Planarians                      |      |      | 2    |       |      |        |      |        |      |
| Nematomorpha                    |      |      |      |       |      |        |      |        |      |
| Horsehair worms                 |      |      |      |       | 1    |        |      |        |      |
| Annelida                        |      |      |      |       |      |        |      |        |      |
| Hirudinea                       |      |      |      |       |      |        |      |        |      |
| <i>Placobdella</i> sp.          | 1    |      | 4    |       |      |        |      |        |      |
| Oligochaeta                     | 4    |      | 2    | 4     | 8    | 3      | 1    | 3      | 6    |
| Arthropoda                      |      |      |      |       |      |        |      |        |      |
| Arachnida                       |      |      |      |       |      |        |      |        |      |
| Hydracarina                     | 1    |      |      |       |      |        |      |        |      |
| Crustacea                       |      |      |      |       |      |        |      |        |      |
| Copepoda                        |      |      |      |       |      |        |      |        |      |
| Harpacticoida                   |      |      | 5    | 3     |      |        |      |        |      |
| Decapoda                        |      |      |      |       |      |        |      |        |      |
| Astacidae                       |      |      |      |       |      |        |      |        |      |
| <i>Cambarus bartoni</i>         | 1    |      |      | 1     |      | 1      |      |        |      |
| <i>Cambarus</i> sp. (juveniles) |      | 2    |      |       | 1    |        | 1    |        |      |
| Insecta                         |      |      |      |       |      |        |      |        |      |
| Plecoptera                      |      |      |      |       |      |        |      |        |      |
| Capniidae                       |      |      |      |       |      |        |      |        |      |
| <i>Allocaupnia</i> sp.          |      |      |      |       |      |        | 1♀   |        |      |
| <i>Paracupnia angulata</i>      |      |      |      |       |      | 1      |      |        |      |
| Capniidae sp. (early)           |      |      |      |       | 1    |        |      |        |      |
| Chloroperlidae                  |      |      |      |       |      |        |      |        |      |
| <i>Alloperla</i> sp.            |      |      |      |       |      |        | 1    | 7      |      |

Table A6. Continued.

| Season                                 | Fall |      |      |       |      | Winter |      | Spring |      |
|----------------------------------------|------|------|------|-------|------|--------|------|--------|------|
| Sampling date                          | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                            |      |      |      |       |      |        |      |        |      |
| <i>Haploperla brevis</i>               |      |      |      |       |      |        |      |        | 3    |
| <i>Sweltsa</i> sp.                     | 3    | 3    |      | 2     | 4    | 11     | 1    |        |      |
| Chloroperlidae sp. (early)             |      |      |      |       |      |        | 1    |        | 2    |
| Leuctridae                             |      |      |      |       |      |        |      |        |      |
| <i>Leuctra</i> sp.                     | 9    | 5    | 1    | 2     | 12   | 26     | 10   | 6      | 16   |
| Leuctridae sp. (early)                 |      |      |      | 2     |      |        |      |        | 1    |
| Nemouridae                             |      |      |      |       |      |        |      |        |      |
| <i>Amphinemura appalachia</i>          |      |      |      |       |      | 2      | 14   | 1      | 7    |
| <i>Amphinemura</i> sp. (early)         |      |      |      | 6     |      |        |      |        |      |
| Peltoperlidae                          |      |      |      |       |      |        |      |        |      |
| <i>Tallaperla</i> sp.                  | 13   | 18   | 11   | 23    | 29   | 6      | 36   | 6      | 8    |
| Perlidae                               |      |      |      |       |      |        |      |        |      |
| <i>Acroneuria abnormis</i>             | 2    | 1    | 2    | 6     | 2    |        | 2    | 1      | 3    |
| <i>Beloneuria</i> sp.                  |      | 1    | 1    | 3     |      |        |      |        |      |
| <i>Eccoptura xanthenes</i>             | 4    | 1    | 1    | 1     | 2    |        | 1    | 6      | 4    |
| <i>Perlesta</i> sp. cf. <i>frisoni</i> |      |      |      |       |      |        |      | 1      | 3    |
| Perlidae sp. (early)                   |      |      |      |       |      | 1      |      | 1      |      |
| Perlodidae                             |      |      |      |       |      |        |      |        |      |
| <i>Isoperla holochlora</i>             | 14   | 1    | 1    |       | 1    |        |      | 9      | 1    |
| <i>Isoperla</i> sp. cf. <i>dicala</i>  |      |      |      |       |      |        |      |        | 4    |
| <i>Isoperla similis</i>                |      | 2    | 2    | 4     | 5    | 4      | 6    |        | 4    |
| <i>Isoperla</i> sp. (early)            |      |      |      |       |      | 1      | 5    |        |      |
| <i>Malirekus hastatus</i>              | 11   | 4    | 7    | 10    | 1    | 8      | 8    | 5      | 4    |
| <i>Remenus bilobatus</i>               |      |      |      |       |      |        | 1    | 5      | 2    |
| Perlodidae sp. (early)                 |      | 1    |      |       |      |        |      |        |      |
| Pteronarcyidae                         |      |      |      |       |      |        |      |        |      |
| <i>Pteronarcys scotti/proteus</i>      |      |      |      |       |      |        |      | 1      |      |

Table A6. Continued.

| Season                                                                                                            | Fall |      |      |       |      | Winter |      | Spring |      |
|-------------------------------------------------------------------------------------------------------------------|------|------|------|-------|------|--------|------|--------|------|
| Sampling date                                                                                                     | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                                                                                       |      |      |      |       |      |        |      |        |      |
| Taeniopterygidae                                                                                                  |      |      |      |       |      |        |      |        |      |
| <i>Bolotoperla rossi</i>                                                                                          |      |      |      |       |      | 23     |      |        |      |
| <i>Oemopteryx contorta</i>                                                                                        |      |      |      |       |      |        | 4    |        |      |
| <i>Strophopteryx</i> sp.                                                                                          |      |      |      |       |      |        | 1    |        |      |
| <i>Taenionema atlanticum</i>                                                                                      |      |      |      |       |      | 7      |      |        |      |
| Ephemeroptera                                                                                                     |      |      |      |       |      |        |      |        |      |
| Ameletidae                                                                                                        |      |      |      |       |      |        |      |        |      |
| <i>Ameletus cryptostimulus</i>                                                                                    |      |      |      |       |      | 17     | 14   |        |      |
| Baetidae                                                                                                          |      |      |      |       |      |        |      |        |      |
| <i>Baetis</i> sp. cf. <i>flavistriga</i>                                                                          | 5    |      |      |       |      |        |      |        | 1    |
| <i>Baetis</i> sp. cf. <i>tricaudatus</i>                                                                          | 6    |      | 1    | 4     |      | 11     | 1    | 16     | 16   |
| <i>Baetis</i> sp. (early/damaged)                                                                                 |      |      |      |       |      |        |      |        | 1    |
| <i>Baetidae</i> sp. (early)                                                                                       |      |      |      |       |      |        |      | 2      |      |
| Ephemerellidae                                                                                                    |      |      |      |       |      |        |      |        |      |
| <i>Drunella tuberculata</i>                                                                                       | 1    |      |      |       |      |        |      |        |      |
| <i>Ephemerella catawba</i>                                                                                        |      |      |      |       |      |        |      | 4      | 8    |
| <i>Ephemerella</i> sp. cf. <i>catawba</i>                                                                         |      |      |      |       |      | 20     | 16*  |        | 2    |
| <i>Ephemerella rossi</i>                                                                                          |      |      |      |       |      |        |      | 36     | 40   |
| <i>Ephemerella hispida</i>                                                                                        |      |      |      |       |      | 11     |      |        |      |
| <i>Ephemerella</i> sp. 1 (like <i>catawba</i> ,<br>but spicules only at pale spots,<br>5-7 denticles/tarsal claw) |      |      |      |       |      |        | 10   |        | 2    |
| <i>Ephemerella</i> sp. (early)                                                                                    |      |      |      |       |      |        | 13   |        |      |
| <i>Eurylophella funeralis</i>                                                                                     |      |      |      |       |      | 2      | 1    |        |      |
| <i>Eurylophella</i> sp. (early)                                                                                   |      |      |      |       |      | 1      |      |        |      |
| <i>Ephemerellidae</i> sp. (early)                                                                                 |      |      | 6    | 3     |      | 1      |      |        | 1    |
| Heptageniidae                                                                                                     |      |      |      |       |      |        |      |        |      |

Table A6. Continued.

| Season                                         | Fall |      |      |       |      | Winter |      | Spring |      |
|------------------------------------------------|------|------|------|-------|------|--------|------|--------|------|
| Sampling date                                  | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                    |      |      |      |       |      |        |      |        |      |
| <i>Cinygmula subaequalis</i>                   |      |      |      |       |      |        |      | 1      | 1    |
| <i>Epeorus</i> sp. cf. <i>dispar</i>           | 4    | 3    | 2    | 27    | 7    | 32     | 15   | 19     | 23   |
| <i>Epeorus</i> sp. cf. <i>pleuralis</i>        |      |      |      |       |      |        | 1    |        | 3    |
| <i>Epeorus</i> sp. (early)                     | 5    |      | 8    |       | 1    |        | 3    | 8      |      |
| <i>Heptagenia</i> sp.                          | 8    |      |      |       |      |        |      |        |      |
| <i>Leucrocuta thetis</i>                       | 2    | 3    | 6    | 9     | 18   | 14     | 5    | 2      | 2    |
| <i>Leucrocuta</i> sp.                          |      |      |      |       |      |        |      |        | 1    |
| <i>Rhithrogena</i> sp.                         |      |      |      |       |      | 1      |      |        |      |
| <i>Stenacron</i> sp. cf. <i>carolina</i>       | 1    |      |      |       | 1    |        |      |        |      |
| <i>Stenacron</i> sp. cf. <i>pallidum</i>       |      |      |      |       |      |        |      | 4      |      |
| <i>Stenonema merrivulatum</i>                  | 7    | 2    | 11   | 15    |      | 6      | 16   | 3      |      |
| <i>Stenonema pudicum</i>                       |      |      |      |       | 23   | 1      | 1    |        | 5    |
| <i>Stenonema</i> sp. (early)                   |      | 2    |      |       |      |        |      |        | 1    |
| Heptageniidae sp. (early)                      | 1    | 1    |      |       |      | 2      | 3    |        |      |
| Leptophlebiidae                                |      |      |      |       |      |        |      |        |      |
| <i>Habrophlebia vibrans</i>                    |      | 1    |      | 1     | 4    |        |      |        |      |
| <i>Habrophlebiodes</i> sp.                     |      | 4    |      |       |      |        |      | 1      | 4    |
| <i>Paraleptophlebia adoptiva/mollis</i>        |      |      |      | 3     |      | 8      | 6    | 8      | 14   |
| <i>Paraleptophlebia</i> sp. cf. <i>guttata</i> |      |      |      | 1     | 9    |        | 1    |        | 6    |
| <i>Paraleptophlebia</i> sp. (early)            |      |      |      |       |      |        | 5    |        | 1    |
| Leptophlebiidae sp. (early/<br>damaged)        | 2    |      | 1    |       | 3    | 1      | 1    |        |      |
| Odonata                                        |      |      |      |       |      |        |      |        |      |
| Cordulegastridae                               |      |      |      |       |      |        |      |        |      |
| <i>Cordulegaster erronea</i>                   | 4    |      | 3    |       | 1    | 6      |      |        | 3    |
| Gomphidae                                      |      |      |      |       |      |        |      |        |      |
| <i>Lanthus vernalis</i>                        | 5    | 4    |      | 8     | 5    | 3      | 9    | 5      |      |

Table A6. Continued.

| Season<br>Sampling date                 | Fall |      |      |                |      | Winter |      | Spring |      |
|-----------------------------------------|------|------|------|----------------|------|--------|------|--------|------|
|                                         | 9/96 | 9/00 | 9/01 | 10/01          | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                             |      |      |      |                |      |        |      |        |      |
| Heteroptera                             |      |      |      |                |      |        |      |        |      |
| Gerridae                                |      |      |      |                |      |        |      |        |      |
| <i>Aquarius remigis</i>                 | 4    | 1    |      | 2              |      |        |      | 3      |      |
| Veliidae                                |      |      |      |                |      |        |      |        |      |
| <i>Rhagovelia obesa</i>                 | 2    |      |      | 8              |      |        |      |        |      |
| Megaloptera                             |      |      |      |                |      |        |      |        |      |
| Sialidae                                |      |      |      |                |      |        |      |        |      |
| <i>Sialis</i> sp.                       | 2    |      |      |                |      |        |      |        |      |
| Trichoptera                             |      |      |      |                |      |        |      |        |      |
| Brachycentridae                         |      |      |      |                |      |        |      |        |      |
| <i>Micrasema burksi</i>                 |      |      |      |                |      | 2      |      |        |      |
| Glossosomatidae                         |      |      |      |                |      |        |      |        |      |
| <i>Glossosoma nigrrior</i> (inc. pupae) | 10   | 1    | 1    |                |      |        |      | 4      |      |
| Goeridae                                |      |      |      |                |      |        |      |        |      |
| Hydropsychidae                          |      |      |      |                |      |        |      |        |      |
| <i>Arctopsyche irrorata</i>             | 1    | 1    |      |                |      |        |      |        |      |
| <i>Ceratopsyche macleodi</i>            | 13   |      | 3    | 12             |      |        | 7    |        |      |
| <i>Ceratopsyche</i> sp. (early)         |      | 1    |      |                |      |        |      |        |      |
| <i>Diplectrona modesta</i>              | 17   | 6    | 21   | 48             | 57   | 30     | 21   | 16     | 84   |
| <i>Parapsyche apicalis</i>              |      |      | 16   | 72             |      |        |      |        |      |
| <i>Parapsyche cardis</i>                | 41   | 8    |      |                | 8    | 5      | 3    | 2      | 6    |
| Hydropsychidae sp. (early)              | 8    |      |      |                | 3    |        | 1    | 1      |      |
| Lepidostomatidae                        |      |      |      |                |      |        |      |        |      |
| <i>Lepidostoma</i> sp.                  |      |      |      | 3 <sup>1</sup> |      | 12     |      | 7      | 1    |
| Leptoceridae                            |      |      |      |                |      |        |      |        |      |
| Leptoceridae sp. not <i>Ceraclea</i>    |      | 1    |      |                |      |        |      |        |      |
| Limnephilidae                           |      |      |      |                |      |        |      |        |      |

Table A6. Continued.

| Season                                | Fall |                  |      |                |      | Winter |                | Spring |      |
|---------------------------------------|------|------------------|------|----------------|------|--------|----------------|--------|------|
| Sampling date                         | 9/96 | 9/00             | 9/01 | 10/01          | 9/02 | 2/97   | 2/02           | 6/96   | 6/02 |
| <b>TAXA</b>                           |      |                  |      |                |      |        |                |        |      |
| <i>Pycnopsyche flavata</i>            |      |                  |      |                |      |        | 6              | 2      |      |
| <i>Pycnopsyche gentilis</i>           |      |                  |      |                |      | 2      |                |        |      |
| <i>Pycnopsyche flavata/gentilis</i>   |      | 1 <sup>1</sup>   |      |                |      |        |                |        |      |
| <i>Pycnopsyche sonso</i>              |      |                  |      |                |      |        | 20             |        | 2    |
| <i>Pycnopsyche luculenta/sonso</i>    |      |                  |      |                |      |        |                |        |      |
| (early instars)                       | 1    |                  |      | 2 <sup>1</sup> |      | 12     |                | 7      |      |
| <i>Pycnopsyche</i> sp. (early)        |      |                  |      |                |      |        | 3              |        |      |
| Molannidae                            |      |                  |      |                |      |        |                |        |      |
| <i>Molanna blenda</i>                 | 5    | 1                | 3    |                | 2    | 2      |                | 1      | 1    |
| Odontoceridae                         |      |                  |      |                |      |        |                |        |      |
| <i>Psilotreta frontalis</i>           | 1    |                  | 1    | 8              |      | 2      |                | 1      | 2    |
| <i>Psilotreta rufa</i>                |      | 1                |      |                |      |        |                |        |      |
| <i>Psilotreta</i> sp.                 |      | 2 <sup>2</sup> ♀ |      |                |      |        | 2 <sup>1</sup> |        |      |
| Philopotamidae                        |      |                  |      |                |      |        |                |        |      |
| <i>Dolophilodes distinctus</i>        | 7    | 1                | 2    | 17             | 4    | 3      |                | 4      | 3♂   |
| <i>Wormaldia moesta</i>               |      |                  |      |                |      |        | 2              |        |      |
| <i>Wormaldia</i> sp.                  |      |                  |      | 4              |      |        |                |        |      |
| Polycentropodidae                     |      |                  |      |                |      |        |                |        |      |
| <i>Nyctiophylax</i> sp.               | 4    |                  | 1    | 8              | 2    | 2      |                |        | 1    |
| <i>Polycentropus</i> sp.              | 1    |                  |      | 2              | 1    |        |                | 4      | 1    |
| Psychomyiidae                         |      |                  |      |                |      |        |                |        |      |
| <i>Lype diversa</i>                   |      |                  |      | 1              |      | 3      |                |        |      |
| Rhyacophilidae                        |      |                  |      |                |      |        |                |        |      |
| <i>Rhyacophila appalachia/nigrita</i> | 2    | 6                | 2    | 3              | 6    | 2      | 7              | 8      | 14   |
| <i>Rhyacophila carolina</i>           |      | 1                |      | 1              |      |        |                |        |      |
| <i>Rhyacophila fuscula</i>            |      |                  |      |                |      | 1      |                | 1      | 1    |
| <i>Rhyacophila glaberrima</i>         |      | 1                |      |                |      | 2      |                | 1      |      |



Table A6. Continued.

| Season                          | Fall            |                 |      |                |                | Winter |      | Spring |      |
|---------------------------------|-----------------|-----------------|------|----------------|----------------|--------|------|--------|------|
| Sampling date                   | 9/96            | 9/00            | 9/01 | 10/01          | 9/02           | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |                 |                 |      |                |                |        |      |        |      |
| <i>Rhyacophila minor</i>        |                 |                 |      | 2              |                |        |      |        |      |
| <i>Rhyacophila nigrita</i> ♂    |                 |                 |      |                |                |        |      | 4      |      |
| <i>Rhyacophila parantra</i> ?   | 7               |                 |      |                |                |        |      |        |      |
| <i>Rhyacophila torva</i>        |                 |                 |      | 2              |                | 1      |      |        |      |
| <i>Rhyacophila</i> sp. (early)  |                 | 1               |      | 2 <sup>3</sup> |                | 1      | 2    |        |      |
| Sericostomatidae                |                 |                 |      |                |                |        |      |        |      |
| <i>Fattigia pele</i>            | 4               | 2               | 1    | 1              |                | 1      | 1    |        | 1    |
| Uenoidae                        |                 |                 |      |                |                |        |      |        |      |
| <i>Neophylax aniqua</i> ?       |                 |                 |      |                |                | 9      |      |        |      |
| <i>Neophylax consimilis</i>     | 1               | 17 <sup>4</sup> | 4    | 2              |                |        |      |        |      |
| <i>Neophylax mitchelli</i>      | 10 <sup>4</sup> |                 |      |                | 1 <sup>4</sup> | 7      |      | 18     | 9    |
| <i>Neophylax ornatus</i>        |                 | 1               | 4    | 16             | 1              | 5      | 2    | 2      | 2    |
| <i>Neophylax</i> sp. (early)    |                 |                 |      |                |                | 1      |      |        |      |
| Coleoptera                      |                 |                 |      |                |                |        |      |        |      |
| Eubriidae                       |                 |                 |      |                |                |        |      |        |      |
| <i>Ectopria</i> sp.             | 3               | 1               | 1    | 1              |                |        |      |        |      |
| Elmidae                         |                 |                 |      |                |                |        |      |        |      |
| <i>Optioservus immunis</i> ♂♀   |                 |                 | 3    | 2              | 1              |        | 1    |        | 2    |
| <i>Optioservus ovalis</i> ♂♀    |                 |                 |      |                | 1              |        |      |        |      |
| <i>Optioservus</i> sp.          |                 |                 | 1    |                |                |        |      |        | 3    |
| <i>Oulimnius latiusculus</i> ♂♀ |                 |                 | 2    | 3              |                |        |      | 1      |      |
| <i>Promoresia tardella</i> ♂♀   |                 | 1 <sup>4</sup>  |      |                |                |        |      |        |      |
| Ptilodactylidae                 |                 |                 |      |                |                |        |      |        |      |
| <i>Anchytarsus bicolor</i>      |                 |                 |      |                |                |        |      |        | 2    |
| Diptera                         |                 |                 |      |                |                |        |      |        |      |
| Athericidae                     |                 |                 |      |                |                |        |      |        |      |
| <i>Atherix lantha</i>           |                 |                 |      |                | 2              |        |      |        |      |

Table A6. Continued.

| Season                       | Fall |      |      |       |      | Winter |      | Spring |      |
|------------------------------|------|------|------|-------|------|--------|------|--------|------|
| Sampling date                | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                  |      |      |      |       |      |        |      |        |      |
| Blephariceridae              |      |      |      |       |      |        |      |        |      |
| <i>Blepharicera</i> sp.      |      |      |      |       |      | 3      |      | 2      |      |
| Ceratopogonidae              |      |      |      |       |      |        |      |        |      |
| <i>Bezzia/Palpomyia</i> sp.  | 2    |      | 1    | 1     | 2    | 3      | 1    | 2      | 4    |
| Chironomidae                 | 25   |      |      |       |      | 36     |      | 31     |      |
| Chironominae                 |      |      |      |       |      |        |      |        |      |
| Chironomini                  |      | 2    | 2    | 2     | 2    |        |      |        | 3    |
| Tanytarsini                  |      | 1    | 2    |       | 1    |        |      |        | 1    |
| Orthocladinae                |      | 3    | 6    | 6     | 3    |        | 1    |        | 3    |
| Tanypodinae                  |      |      |      | 1     |      |        |      |        |      |
| Chironomidae pupae           |      |      |      |       |      |        |      |        | 1    |
| Dixidae                      |      |      |      |       |      |        |      |        |      |
| <i>Dixa</i> sp.              | 4    | 1    | 3    |       |      | 1      |      | 1      |      |
| Dolichopodidae               |      |      |      |       |      |        |      |        |      |
| Dolichopodidae sp.           |      |      |      |       |      | 1      |      |        |      |
| Psychodidae                  |      |      |      |       |      |        |      |        |      |
| <i>Pericoma albitarsis</i>   |      | 1    |      |       |      |        |      |        |      |
| Simuliidae (including pupae) | 1    |      | 1    |       |      | 9      | 1    |        | 1    |
| Tabanidae                    |      |      |      |       |      |        |      |        |      |
| <i>Tabanus</i> sp.           |      |      |      |       |      | 1      |      |        |      |
| Tipulidae                    |      |      |      |       |      |        |      |        |      |
| <i>Antocha</i> sp.           |      |      |      |       |      |        |      | 1      |      |
| <i>Dicranota</i> sp.         | 1    |      | 1    |       |      | 2      | 2    | 1      | 3    |
| <i>Hexatoma</i> sp.          | 3    | 2    |      | 3     | 2    | 1      | 2    | 6      | 6    |
| <i>Longurio</i> sp.          |      |      |      |       |      |        |      |        | 1    |
| <i>Limnophila</i> sp.        |      |      |      |       |      | 1      |      |        |      |
| <i>Limonia</i> sp.           |      | 1    |      |       |      |        |      |        |      |

Table A6. Continued.

| Season                          | Fall |      |      |       |      | Winter |      | Spring |      |
|---------------------------------|------|------|------|-------|------|--------|------|--------|------|
| Sampling date                   | 9/96 | 9/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| TAXA                            |      |      |      |       |      |        |      |        |      |
| <i>Pedicia</i> sp.              |      |      |      |       |      | 1      |      |        |      |
| <i>Tipula</i> "abdominalis"     |      |      |      | 2     |      | 1      | 3    |        | 1    |
| <i>Tipula</i> sp. "moss animal" |      |      |      | 1     | 1    |        |      |        |      |
| <i>Tipula</i> sp cf. fig. 11.3  |      |      |      |       |      | 1      | 8    |        |      |

<sup>1</sup> cases only

<sup>2</sup> pupae

<sup>3</sup> none of the above

<sup>4</sup> includes mature pupae and/or adults

Table A7. Taxa collected at site 6 by sampling date. Site was not sampled in fall of 1996 because it was dry. The symbols ♂, ♀, or ♂♀, indicate some or all of the specimens were adult males, females or both. If the symbol is in the taxa column, it indicates all specimens were adults

| Season                          | Fall |      |       |       | Winter |      | Spring |      |
|---------------------------------|------|------|-------|-------|--------|------|--------|------|
| Sampling date                   | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |      |      |       |       |        |      |        |      |
| Annelida                        |      |      |       |       |        |      |        |      |
| Hirudinea                       |      |      |       |       |        |      |        |      |
| <i>Placobdella</i> sp.          |      |      |       |       | 9      | 2    | 1      |      |
| Oligochaeta                     |      |      | 1     | 1     |        | 8    |        | 1    |
| Arthropoda                      |      |      |       |       |        |      |        |      |
| Arachnida                       |      |      |       |       |        |      |        |      |
| Hydracarina                     |      |      | 1     |       |        |      |        |      |
| Crustacea                       |      |      |       |       |        |      |        |      |
| Decapoda                        |      |      |       |       |        |      |        |      |
| Astacidae                       |      |      |       |       |        |      |        |      |
| <i>Cambarus bartoni</i>         |      | 2    |       |       |        |      |        |      |
| <i>Cambarus</i> sp. (juveniles) | 1    |      |       | 1     |        |      | 1      | 1    |
| Isopoda                         |      |      |       |       |        |      |        |      |
| Asellidae                       |      |      |       |       |        |      |        |      |
| <i>Lirceus</i> sp.              | 9    |      | 4     | 4     | 26     |      | 14     | 2    |
| Insecta                         |      |      |       |       |        |      |        |      |
| Plecoptera                      |      |      |       |       |        |      |        |      |
| Capniidae                       |      |      |       |       |        |      |        |      |
| <i>Allocapnia</i> sp.           |      |      |       |       |        | 1    |        |      |
| <i>Paracapnia</i> sp.           |      |      |       |       | 45♂♀   | 2    |        |      |
| Capniidae sp. (early)           |      | 1    | 2     |       | 6      | 2    |        |      |
| Chloroperlidae                  |      |      |       |       |        |      |        |      |
| <i>Sweltsa</i> sp.              |      | 1    |       |       | 5      | 8    |        |      |

Table A7. Continued.

| Season<br>Sampling date                   | Fall |      |       |       | Winter |      | Spring |      |
|-------------------------------------------|------|------|-------|-------|--------|------|--------|------|
|                                           | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                               |      |      |       |       |        |      |        |      |
| Leuctridae                                |      |      |       |       |        |      |        |      |
| <i>Leuctra</i> sp.                        | 1♀♂  | 1    | 2♀♂   | 4     | 6      | 2    | 31     | 23   |
| Nemouridae                                |      |      |       |       |        |      |        |      |
| <i>Amphinemura appalachia</i>             |      |      |       |       | 7      |      | 73     | 20   |
| <i>Amphinemura</i> sp. (early)            |      |      | 4     |       |        |      |        |      |
| <i>Nemoura?</i> sp.                       | 1    |      |       |       |        |      |        |      |
| Nemouridae sp. (early)                    |      |      |       |       | 2      |      |        |      |
| Peltoperlidae                             |      |      |       |       |        |      |        |      |
| <i>Tallaperla</i> sp.                     | 2    | 5    | 6     | 8     | 39     | 22   | 1      | 2    |
| <i>Viehopera</i> ? sp.                    |      | 2    |       |       |        | 2    |        |      |
| Peltoperlidae sp. (early)                 |      |      |       |       |        |      | 8      |      |
| Perlidae                                  |      |      |       |       |        |      |        |      |
| <i>Beloneuria</i> sp.                     | 6    | 5    | 4     |       | 11     | 16   | 7      | 9    |
| <i>Eccopectura xanthenes</i>              |      |      |       | 3     |        |      |        |      |
| Perlidae sp. (early)                      |      |      |       |       |        |      |        | 1    |
| Perlodidae                                |      |      |       |       |        |      |        |      |
| <i>Isoperla similis</i>                   | 3    |      | 5     | 3     | 32     | 4    |        |      |
| <i>Isoperla</i> sp. (early)               |      |      |       |       |        | 1    |        |      |
| <i>Malirekus hastatus</i>                 |      |      | 1     |       |        | 1    |        |      |
| Perlodidae sp. (early)                    |      |      |       |       |        |      | 3      | 1    |
| Taeniopterygidae                          |      |      |       |       |        |      |        |      |
| <i>Strophopteryx</i> sp.                  |      |      |       |       | 109    | 1    |        |      |
| Ephemeroptera                             |      |      |       |       |        |      |        |      |
| Ameletidae                                |      |      |       |       |        |      |        |      |
| <i>Ameletus cryptostimulus</i>            |      |      |       |       | 11     | 11   |        |      |
| Ephemerellidae                            |      |      |       |       |        |      |        |      |
| <i>Ephemerella</i> sp. cf. <i>catawba</i> |      |      |       |       | 1      |      |        |      |

Table A7. Continued.

| Season<br>Sampling date                                                                                           | Fall |      |       |       | Winter |      | Spring |      |
|-------------------------------------------------------------------------------------------------------------------|------|------|-------|-------|--------|------|--------|------|
|                                                                                                                   | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                                                                                       |      |      |       |       |        |      |        |      |
| <i>Ephemerella</i> sp. 1 (like <i>catawba</i> ,<br>but spicules only at pale spots,<br>5-7 denticles/tarsal claw) |      |      |       |       |        | 1    |        |      |
| Heptageniidae                                                                                                     |      |      |       |       |        |      |        |      |
| <i>Epeorus</i> sp. cf. <i>dispar</i>                                                                              |      |      |       |       | 1      | 2    |        |      |
| <i>Epeorus</i> sp. (early)                                                                                        |      |      | 2     |       |        |      |        |      |
| <i>Leucrocuta</i> sp.                                                                                             |      |      |       |       |        |      |        | 1    |
| <i>Stenacron</i> sp. cf. <i>carolina</i>                                                                          |      | 1    |       | 1     | 2      |      |        | 2    |
| <i>Stenonema merrivulvum</i>                                                                                      | 1    | 7    | 4     |       | 29     | 9    | 1      | 2    |
| <i>Stenonema pudicum</i>                                                                                          |      |      |       | 2     |        |      |        |      |
| Leptophlebiidae                                                                                                   |      |      |       |       |        |      |        |      |
| <i>Habrophlebia vibrans</i>                                                                                       |      |      |       | 1     |        |      |        |      |
| <i>Habrophlebiodes</i> sp.                                                                                        |      |      |       |       |        | 1    |        |      |
| <i>Paraleptophlebia adoptiva/mollis</i>                                                                           | 1    |      |       |       |        |      |        |      |
| Leptophlebiidae sp. (early/<br>damaged)                                                                           |      |      |       | 1     |        |      |        |      |
| Odonata                                                                                                           |      |      |       |       |        |      |        |      |
| Cordulegastridae                                                                                                  |      |      |       |       |        |      |        |      |
| <i>Cordulegaster erronea</i>                                                                                      |      | 2    |       |       |        |      |        |      |
| Gomphidae                                                                                                         |      |      |       |       |        |      |        |      |
| <i>Lanthus vernalis</i>                                                                                           | 1    | 4    | 1     | 2     | 2      | 1    |        |      |
| Heteroptera                                                                                                       |      |      |       |       |        |      |        |      |
| Gerridae                                                                                                          |      |      |       |       |        |      |        |      |
| <i>Aquarius remigis</i>                                                                                           |      | 1    |       |       |        |      |        |      |
| Sialidae                                                                                                          |      |      |       |       |        |      |        |      |
| <i>Sialis</i> sp.                                                                                                 |      |      |       |       |        |      | 1      |      |
| Trichoptera                                                                                                       |      |      |       |       |        |      |        |      |

Table A7. Continued.

| Season<br>Sampling date                       | Fall           |      |                |                | Winter |                | Spring |      |
|-----------------------------------------------|----------------|------|----------------|----------------|--------|----------------|--------|------|
|                                               | 9/00           | 9/01 | 10/01          | 10/02          | 2/97   | 2/02           | 6/96   | 6/02 |
| <b>TAXA</b>                                   |                |      |                |                |        |                |        |      |
| Brachycentridae                               |                |      |                |                |        |                |        |      |
| <i>Micrasema burksi</i>                       |                |      |                |                |        |                | 1      |      |
| Glossosomatidae                               |                |      |                |                |        |                |        |      |
| <i>Glossosoma nigrrior</i> (inc. pupae)       |                |      | 1              |                |        |                |        |      |
| Hydropsychidae                                |                |      |                |                |        |                |        |      |
| <i>Arctopsyche irrorata</i>                   |                |      |                |                |        |                |        | 1    |
| <i>Diplectrona metaqui</i>                    |                | 6    | 2              |                |        |                |        |      |
| <i>Diplectrona modesta</i>                    |                |      | 1              |                | 4      | 20             | 1      | 17   |
| <i>Parapsyche apicalis</i>                    |                | 1    | 1              |                | 9      |                |        | 1    |
| <i>Parapsyche cardis</i>                      |                |      | 2              |                | 10     |                | 2      | 2    |
| <i>Parapsyche</i> sp. pupa ( <i>cardis</i> ?) |                |      |                |                |        | 1              |        |      |
| Hydropsychidae sp. (pupae)                    |                |      |                | 2              |        |                |        |      |
| Lepidostomatidae                              |                |      |                |                |        |                |        |      |
| <i>Lepidostoma</i> sp.                        | 1 <sup>1</sup> | 1    | 3 <sup>1</sup> |                | 2      |                | 10     | 3    |
| Limnephilidae                                 |                |      |                |                |        |                |        |      |
| <i>Pycnopsyche flavata</i>                    |                | 43   | 17             |                |        | 15?            |        | 7    |
| <i>Pycnopsyche gentilis</i>                   |                | 1    |                |                | 4      |                | 2      |      |
| <i>Pycnopsyche flavata/gentilis</i>           |                |      |                |                |        |                |        |      |
| (early instars)                               | 1              |      |                | 4 <sup>1</sup> |        |                |        |      |
| <i>Pycnopsyche sonso</i>                      | 1              | 13   | 6              | 1              |        |                |        | 1    |
| <i>Pycnopsyche luculenta/sonso</i>            |                |      |                |                |        |                |        |      |
| (early instars)                               |                |      |                |                | 7      |                | 3      |      |
| <i>Pycnopsyche</i> sp. (early instars)        |                |      |                | 1              |        |                |        |      |
| <i>Pycnopsyche</i> sp.                        |                |      |                |                |        | 1 <sup>2</sup> |        |      |
| Molannidae                                    |                |      |                |                |        |                |        |      |
| <i>Molanna blenda</i>                         |                |      | 3              |                | 1      |                |        |      |
| Odontoceridae                                 |                |      |                |                |        |                |        |      |

Table A7. Continued.

| Season                                         | Fall           |                |                |       | Winter         |      | Spring |      |
|------------------------------------------------|----------------|----------------|----------------|-------|----------------|------|--------|------|
| Sampling date                                  | 9/00           | 9/01           | 10/01          | 10/02 | 2/97           | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                    |                |                |                |       |                |      |        |      |
| <i>Psilotreta amera</i>                        |                |                |                | 2     |                |      | 3♂♀    |      |
| <i>Psilotreta frontalis</i>                    | 1              | 1 <sup>1</sup> |                |       | 1 <sup>1</sup> |      |        |      |
| <i>Psilotreta rossi</i>                        |                |                |                |       |                | 1    |        |      |
| <i>Psilotreta</i> sp. (pupae)                  |                |                |                |       |                |      |        | 3    |
| Philopotamidae                                 |                |                |                |       |                |      |        |      |
| <i>Chimarra</i> sp.                            |                |                |                |       |                | 1    |        |      |
| <i>Dolophilodes distinctus</i>                 |                |                |                |       |                | 1    |        | 2♂   |
| <i>Wormaldia moesta</i>                        |                |                |                |       |                | 1    |        |      |
| <i>Wormaldia moesta</i> ♂                      |                |                |                |       | 2              |      |        |      |
| <i>Wormaldia</i> sp.                           |                |                |                |       | 14             |      | 2      |      |
| Polycentropodidae                              |                |                |                |       |                |      |        |      |
| <i>Polycentropus cinereus</i>                  |                |                |                |       |                |      |        | 1♂   |
| <i>Polycentropus</i> sp.                       |                | 2              |                |       | 1              | 2    | 1      |      |
| Rhyacophilidae                                 |                |                |                |       |                |      |        |      |
| <i>Rhyacophila appalachia/nigrita</i>          |                |                |                | 2     | 8              | 5    | 2      |      |
| <i>Rhyacophila carolina</i>                    |                |                |                |       | 1              |      |        |      |
| <i>Rhyacophila glaberrima</i>                  |                | 2?             | 1              |       | 7              | 1    | 2      |      |
| <i>Rhyacophila nigrita</i> ♂                   |                |                |                |       |                |      | 2      |      |
| <i>Rhyacophila torva</i>                       |                |                |                |       | 1              |      |        |      |
| <i>Rhyacophila</i> sp. nov. cf. <i>nigrita</i> |                |                |                |       | 2              |      |        |      |
| <i>Rhyacophila</i> sp. (early)                 | 1              |                |                |       |                |      |        |      |
| Uenoidae                                       |                |                |                |       |                |      |        |      |
| <i>Neophylax mitchelli</i>                     | 2 <sup>3</sup> | 6 <sup>3</sup> |                | 2     | 16             |      | 13     | 16   |
| <i>Neophylax ornatus</i>                       |                |                |                |       | 3              |      |        |      |
| <i>Neophylax</i> sp. (early)                   |                |                | 1 <sup>1</sup> |       | 32             |      |        |      |
| Coleoptera                                     |                |                |                |       |                |      |        |      |



Table A7. Continued.

| Season                       | Fall |      |       |       | Winter |      | Spring |      |
|------------------------------|------|------|-------|-------|--------|------|--------|------|
| Sampling date                | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                  |      |      |       |       |        |      |        |      |
| Dytiscidae                   |      |      |       |       |        |      |        |      |
| <i>Hydaticus</i> sp.         |      |      |       |       |        |      | 1      |      |
| Diptera                      |      |      |       |       |        |      |        |      |
| Athericidae                  |      |      |       |       |        |      |        |      |
| <i>Atherix lantha</i>        |      |      |       |       |        | 1    |        |      |
| Blephariceridae              |      |      |       |       |        |      |        |      |
| <i>Blepharicera</i> sp.      |      |      |       |       |        |      | 2      |      |
| Chironomidae                 |      |      |       |       | 23     |      | 5      |      |
| Chironominae                 |      |      |       |       |        |      |        |      |
| Chironomini                  |      |      |       |       |        | 1    |        | 2    |
| Tanytarsini                  |      | 1    |       |       |        | 2    |        |      |
| Orthocladinae                |      | 6    | 12    | 1     |        | 14   |        | 5    |
| Tanypodinae                  |      |      |       |       |        | 1    |        | 1    |
| Chironomidae pupae           |      | 4    |       | 1     |        |      |        |      |
| Dixidae                      |      |      |       |       |        |      |        |      |
| <i>Dixa</i> sp.              | 1    |      | 1     |       |        | 5    | 1      |      |
| Simuliidae (including pupae) |      |      |       |       | 23     | 7    | 17     |      |
| Syrphidae                    |      |      |       |       |        |      |        |      |
| <i>Chrysogaster</i> sp.      |      |      |       |       | 1      |      |        |      |
| Thaumaecidae                 |      |      |       |       |        |      |        |      |
| <i>Thaumalia</i> sp.         |      |      |       |       | 1      |      |        |      |
| Tipulidae                    |      |      |       |       |        |      |        |      |
| <i>Dicranota</i> sp.         |      |      |       |       | 4      | 2    | 3      | 3    |
| <i>Erioptera</i> sp.         |      |      |       |       | 1      |      |        |      |
| <i>Hexatoma</i> sp.          |      |      |       |       | 1      | 1    | 1      |      |
| <i>Limnophila</i> sp.        |      |      |       |       |        |      | 1      |      |
| <i>Lipsothrix</i> sp.        |      |      |       |       | 1      |      |        |      |

Table A7. Continued.

| Season                          | Fall |      |       |       | Winter |      | Spring |      |
|---------------------------------|------|------|-------|-------|--------|------|--------|------|
| Sampling date                   | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| TAXA                            |      |      |       |       |        |      |        |      |
| <i>Ormosia</i> sp.              |      |      |       |       |        | 2    |        |      |
| <i>Pilaria</i> sp.              |      |      | 1     |       |        |      |        |      |
| <i>Pedicia</i> sp.              |      |      |       |       |        | 6    |        |      |
| <i>Tipula abdominalis</i>       |      |      |       | 3     |        |      |        |      |
| <i>Tipula</i> sp. "moss animal" |      | 1    |       |       | 2      |      |        |      |
| <i>Tipula</i> sp cf. fig. 11.3  | 1    |      |       |       | 3      | 2    |        |      |
| Tipulidae sp. (early)           | 1    |      |       |       |        |      |        |      |

<sup>1</sup> cases only

<sup>2</sup> early, not *Pycnopsyche flavata*

<sup>3</sup> includes mature pupae and adults

Table A8. Taxa collected at site 7 by sampling date. October 2000 sample was in Sams Creek ca. 200 m below the mouth of Starkey Creek, above site 7. The symbols ♂, ♀, or ♂♀, indicate some or all of the specimens were adult males, females or both. If the symbol is in the taxa column, it indicates all specimens were adults.

| Season                                | Fall |      |       |       |      |       |      | Winter |      |      | Spring |      |
|---------------------------------------|------|------|-------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                         | 9/96 | 9/00 | 11/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                           |      |      |       |       |      |       |      |        |      |      |        |      |
| Nematomorpha                          |      |      |       |       |      |       |      |        |      |      |        |      |
| Horsehair worms                       |      |      |       |       | 1    | 1     | 1    |        |      |      |        |      |
| Annelida                              |      |      |       |       |      |       |      |        |      |      |        |      |
| Hirudinea                             |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Placobdella</i> sp.                |      |      |       |       |      |       | 1    |        |      |      |        |      |
| Oligochaeta                           | 4    | 6    | 3     | 2     | 6    | 4     | 21   | 5      | 3    | 11   | 2      | 6    |
| Arthropoda                            |      |      |       |       |      |       |      |        |      |      |        |      |
| Arachnida                             |      |      |       |       |      |       |      |        |      |      |        |      |
| Hydracarina                           | 1    | 1    | 1     | 1     | 1    |       |      |        |      | 2    |        |      |
| Crustacea                             |      |      |       |       |      |       |      |        |      |      |        |      |
| Decapoda                              |      |      |       |       |      |       |      |        |      |      |        |      |
| Astacidae                             |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Cambarus bartoni</i>               |      |      | 2     |       | 3    | 4     |      |        |      | 1    | 1      | 3    |
| <i>Cambarus</i> sp. (juveniles)       |      |      |       |       |      |       | 7    |        |      |      |        |      |
| Insecta                               |      |      |       |       |      |       |      |        |      |      |        |      |
| Plecoptera                            |      |      |       |       |      |       |      |        |      |      |        |      |
| Capniidae                             |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Allocaupnia/Paracupnia</i> (early) |      |      | 14    | 1     |      |       |      |        |      |      |        |      |
| <i>Paracupnia angulata</i>            |      |      |       |       |      |       |      | 1♂     | 2♀♂  |      |        |      |
| <i>Paracupnia</i> sp.                 |      |      |       |       |      |       |      | 2      |      |      |        |      |
| Chloroperlidae                        |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Alloperla</i> sp.                  |      | 3    | 1     | 3     | 1    | 7     |      | 1      |      | 5    |        | 4    |
| <i>Haploperla brevis</i>              |      |      |       |       |      |       |      |        |      |      | 7♀     | 1    |
| <i>Sweltsa lateralis/urticae</i> ♀    |      |      |       |       |      |       |      |        |      |      | 3      |      |

Table A8. Continued.

| Season                                 | Fall |      |       |       |      |       |      | Winter |      |      | Spring |      |
|----------------------------------------|------|------|-------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                          | 9/96 | 9/00 | 11/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                            |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Sweltsa</i> sp.                     | 16   | 9    | 12    | 2     | 11   | 1     | 5    | 30     | 9    | 25   | 4      |      |
| Chloroperlidae sp. (early)             |      | 2    | 1     | 2     | 3    | 1     |      |        |      | 1    |        |      |
| Leuctridae                             |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Leuctra triloba</i> ♂               | 1    |      |       |       |      |       |      |        |      |      |        |      |
| <i>Leuctra truncata</i> ♂♀             | 3    |      |       |       |      |       |      |        |      |      |        |      |
| <i>Leuctra</i> sp.                     | 17   |      | 6     | 2     | 11♂♀ |       | 21♀♂ | 19     | 7    | 14♀♂ | 5      | 7    |
| Leuctridae sp.                         |      |      |       |       |      |       |      |        |      |      |        | 1    |
| Nemouridae                             |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Amphinemura appalachia</i>          |      |      |       |       | 1    |       |      | 3      | 1    |      | 8      | 7    |
| <i>Amphinemura wui</i> ♀♂              |      |      |       |       |      |       |      |        |      |      | 1      |      |
| <i>Soyedina kondratieffi</i>           |      |      |       |       |      |       |      | 1      |      |      |        |      |
| Peltoperlidae                          |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Tallaperla</i> sp.                  |      | 21   | 11    | 21    | 18   | 13    | 19   | 22     | 21   | 21   |        | 8    |
| Peltoperlidae sp. (early)              | 17   |      |       |       |      |       |      |        |      |      |        |      |
| Perlidae                               |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Acroneuria abnormis</i>             | 21   | 2    | 8     | 13    | 45   | 6     | 21   | 9      | 17   | 16   | 15     | 11   |
| <i>Beloneuria</i> sp.                  |      | 1    |       | 1     |      |       |      |        |      |      |        |      |
| <i>Eccoptura xanthenes</i>             | 1    | 1    | 2     | 7     | 4    | 2     |      |        | 1    | 4    |        | 1    |
| <i>Perlesta</i> sp. cf. <i>frisoni</i> | 7    |      |       |       |      |       |      |        |      |      | 20     | 22   |
| Perlidae sp. (early)                   |      | 3    | 2     |       |      |       |      |        |      |      |        |      |
| Perlodidae                             |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Isoperla holochlora</i>             |      |      |       |       |      |       |      |        | 9    |      | 21     | 43   |
| <i>Isoperla similis</i>                |      |      | 3     |       | 2    |       |      | 10     | 2    | 8    |        |      |
| <i>Isoperla</i> sp. (early)            | 4    |      |       |       | 3    |       |      | 18     |      | 1    |        |      |
| <i>Malirekus hastatus</i>              | 6    |      | 2     | 7     | 8    | 4     | 1    | 26     | 7    | 1    |        |      |
| <i>Remenus bilobatus</i>               |      |      |       |       |      |       |      |        |      |      | 5      | 4    |
| <i>Yugus arinus</i>                    |      |      |       |       |      |       |      | 1      | 1    |      |        |      |

Table A8. Continued.

| Season                                             | Fall |      |       |       |      |       |      | Winter |      |      | Spring |      |
|----------------------------------------------------|------|------|-------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                                      | 9/96 | 9/00 | 11/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                        |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Yugus/Malirekus</i> (early)                     |      |      |       |       |      |       |      | 18     |      |      |        |      |
| Perlodidae sp. (early)                             |      |      | 8     |       | 1    |       |      |        |      |      |        |      |
| Pteronarcyidae                                     |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Pteronarcys scotti/proteus</i>                  | 6    | 8    | 4     | 1     | 12   | 7     | 8    | 2      | 1    | 5    | 4      | 8    |
| Taeniopterygidae                                   |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Bolotoperla rossi</i>                           |      |      |       |       |      |       |      | 22     |      |      |        |      |
| <i>Oemopteryx contorta</i>                         |      |      |       |       |      |       |      |        | 1♀♂  |      |        |      |
| <i>Oemopteryx/Taenionema</i> sp.                   |      |      |       |       |      |       |      | 4      |      |      |        |      |
| <i>Strophopteryx</i> sp.                           |      |      |       |       |      |       |      |        | 4    | 60   |        |      |
| <i>Taenionema atlanticum</i>                       |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Taeniopteryx</i> sp. cf. <i>burksi</i>          |      |      |       |       |      |       |      | 1♀     |      |      |        |      |
| <i>Taeniopteryx</i> sp.                            |      |      | 12    |       |      |       |      | 1      |      |      |        |      |
| Taeniopterygidae sp. (not<br><i>Taeniopteryx</i> ) |      |      | 4     |       |      |       |      |        |      |      |        |      |
| Ephemeroptera                                      |      |      |       |       |      |       |      |        |      |      |        |      |
| Ameletidae                                         |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Ameletus cryptostimulus</i>                     |      |      |       |       |      |       |      | 14     | 17   |      |        | 1    |
| <i>Ameletus</i> sp. (early)                        |      |      | 4     | 1     |      |       |      |        |      |      |        |      |
| Baetidae                                           |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Acentrella</i> sp.                              | 2    |      |       |       |      |       |      |        |      |      |        |      |
| <i>Baetis</i> sp. cf. <i>flavistriga</i>           | 6    |      |       |       |      | 1     | 4    |        |      | 28   | 11     | 2    |
| <i>Baetis</i> sp. cf. <i>tricaudatus</i>           | 7    |      |       |       | 5    | 2     | 1    | 36     | 3    | 29   | 2      | 27   |
| <i>Baetis</i> sp. (early/damaged)                  |      |      |       |       |      |       | 6    |        |      | 8    |        | 7    |
| Ephemerellidae                                     |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Drunella longicornis</i>                        |      |      |       |       |      |       |      |        |      |      | 26     | 23   |
| <i>Drunella tuberculata</i>                        | 7    |      |       |       | 2    | 2     | 4    |        |      |      |        |      |
| <i>Drunella</i> sp. (in molt)                      |      |      |       |       |      |       | 1    |        |      |      |        |      |

Table A8. Continued.

| Season                                   | Fall |      |       |       |      |       |      | Winter |      |      | Spring |      |
|------------------------------------------|------|------|-------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                            | 9/96 | 9/00 | 11/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                              |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Ephemerella catawba</i>               |      |      |       |       |      |       |      | 53     | 31   | 64   | 22     | 63   |
| <i>Ephemerella rossi</i>                 |      |      |       |       |      |       |      |        |      |      | 100    | 52   |
| <i>Ephemerella hispida</i>               |      |      |       |       |      |       |      | 25     |      |      |        |      |
| <i>Ephemerella</i> sp. (early)           |      |      |       |       |      |       | 1    | 6      |      |      |        |      |
| <i>Eurylophella funeralis</i>            | 2    | 3    |       |       |      |       |      | 5      | 2    | 4    | 2      |      |
| <i>Eurylophella</i> sp. (early)          |      |      |       |       | 1    | 2     | 4    |        |      |      |        |      |
| Ephemerellidae sp. (early)               |      |      | 33    | 40    | 3    |       |      |        |      | 4    |        | 1    |
| Heptageniidae                            |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Cinygmula subaequalis</i>             | 2    |      |       |       |      |       |      | 5      | 12   |      |        |      |
| <i>Epeorus</i> sp. cf. <i>dispar</i>     |      |      | 12    | 5     | 34   | 7     | 7    | 69     | 55   | 24   | 9      | 12   |
| <i>Epeorus</i> sp. cf. <i>pleuralis</i>  |      |      |       |       |      |       |      |        |      |      |        | 87   |
| <i>Epeorus</i> sp. (early)               | 4    | 3    | 22    | 5     | 1    | 1     |      | 7      | 3    | 7    | 3      |      |
| <i>Heptagenia pulla</i>                  |      | 1    |       |       |      |       |      |        |      |      |        |      |
| <i>Heptagenia</i> sp.                    | 8    |      |       |       |      |       |      |        |      |      |        |      |
| <i>Leucrocuta hebe/aphrodite</i>         |      |      |       |       |      |       | 18   |        |      |      |        |      |
| <i>Leucrocuta maculipennis</i>           |      |      |       |       |      |       | 7    |        |      |      |        | 2    |
| <i>Leucrocuta thetis</i>                 |      |      |       |       |      |       | 23   |        |      |      |        |      |
| <i>Leucrocuta</i> sp. cf. <i>thetis</i>  | 3    | 18   | 14    | 14    | 30   | 18    |      | 8      | 21   | 41   | 8      | 20   |
| <i>Leucrocuta</i> sp. (other)            |      |      |       |       |      |       |      |        |      |      |        | 11   |
| <i>Leucrocuta/ Heptagenia</i>            |      |      |       |       |      |       |      |        |      | 2    |        |      |
| <i>Rhithrogena</i> sp. cf. <i>amica</i>  |      |      |       |       |      |       |      | 15     | 1    |      |        |      |
| <i>Rhithrogena</i> sp. (early)           |      |      | 2     |       | 2    | 1     |      |        |      |      | 8      |      |
| <i>Stenacron</i> sp. cf. <i>carolina</i> |      |      |       |       |      |       | 2    |        |      |      |        | 2    |
| <i>Stenacron</i> sp. cf. <i>pallidum</i> |      |      | 1     |       | 1    |       |      | 2      |      | 2    |        |      |
| <i>Stenonema merrivulatum</i>            | 12   | 5    | 5     | 10    | 8    | 6     | 9    | 9      | 3    | 31   | 2      | 16   |
| <i>Stenonema pudicum</i>                 | 30   |      | 18    | 4     | 26   | 5     | 7    | 28     | 33   | 4    | 2      | 33   |
| <i>Stenonema</i> sp. (early)             | 16   | 9    | 3     | 3     | 7    | 5     | 29   |        |      | 4    |        |      |

Table A8. Continued.

| Season                                  | Fall |      |       |       |      |       |      | Winter |      |      | Spring |      |
|-----------------------------------------|------|------|-------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                           | 9/96 | 9/00 | 11/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                             |      |      |       |       |      |       |      |        |      |      |        |      |
| Heptageniidae sp. (early)               |      |      |       |       | 1    |       |      |        |      | 3    |        |      |
| Leptophlebiidae                         |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Habrophlebia vibrans</i>             |      | 3    | 2     |       |      |       | 4    |        | 1    | 4    | 2      | 14   |
| <i>Habrophlebiodes</i> sp.              |      |      |       |       | 1    |       |      |        |      |      | 3      | 4    |
| <i>Paraleptophlebia</i>                 |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>adoptiva/mollis</i>                  |      |      | 9     | 15    |      |       |      | 13     | 13   |      | 20     | 11   |
| <i>Paraleptophlebia</i> sp. cf.         |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>guttata</i>                          |      |      | 2     | 2     | 12   |       |      |        |      | 12   |        | 1    |
| <i>Paraleptophlebia</i> sp. (early)     | 2    | 3    |       |       |      |       |      |        |      |      |        |      |
| Leptophlebiidae sp. (early/<br>damaged) |      |      |       |       |      |       | 1    |        |      |      | 17     |      |
| Odonata                                 |      |      |       |       |      |       |      |        |      |      |        |      |
| Cordulegastridae                        |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Cordulegaster erronea</i>            |      |      |       | 1     |      |       |      | 1      |      |      |        | 1    |
| <i>Cordulegaster maculata</i>           |      |      |       |       |      |       |      |        | 1    | 2    |        |      |
| Gomphidae                               |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Lanthus vernalis</i>                 | 7    | 7    | 4     | 3     | 7    | 8     | 16   | 12     | 14   | 16   | 7      | 13   |
| Heteroptera                             |      |      |       |       |      |       |      |        |      |      |        |      |
| Gerridae                                |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Aquarius remigis</i>                 | 6    | 1    | 2     | 1     | 3    | 6     | 8    |        | 4    | 3    | 8      | 7    |
| Veliidae                                |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Rhagovelia obesa</i>                 |      |      | 2     |       |      |       |      |        |      |      |        |      |
| Megaloptera                             |      |      |       |       |      |       |      |        |      |      |        |      |
| Sialidae                                |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Sialis</i> sp.                       |      |      |       |       |      |       | 1    | 2      |      | 1    |        |      |
| Trichoptera                             |      |      |       |       |      |       |      |        |      |      |        |      |
| Apataniidae                             |      | 2    | 32    | 3     |      |       |      |        |      |      |        |      |



Table A8. Continued.

| Season                                 | Fall |                 |       |       |      |       |                 | Winter |      |                  | Spring         |                 |
|----------------------------------------|------|-----------------|-------|-------|------|-------|-----------------|--------|------|------------------|----------------|-----------------|
| Sampling date                          | 9/96 | 9/00            | 11/00 | 10/00 | 9/01 | 10/01 | 9/02            | 2/97   | 2/01 | 2/02             | 6/96           | 6/02            |
| <b>TAXA</b>                            |      |                 |       |       |      |       |                 |        |      |                  |                |                 |
| <i>Apatania</i> sp.                    | 2    |                 |       |       | 19   | 5     | 21 <sup>1</sup> | 12     | 5    | 33               | 1 <sup>1</sup> | 18 <sup>1</sup> |
| Brachycentridae                        |      |                 |       |       |      |       |                 |        |      |                  |                |                 |
| <i>Micrasema burksi</i>                |      |                 | 1     | 1     | 5    | 1     |                 | 1      | 3    | 4                | 1              | 1 <sup>1</sup>  |
| Glossosomatidae                        |      |                 |       |       |      |       |                 |        |      |                  |                |                 |
| <i>Glossosoma nigror</i> (inc. pupae)  | 14   | 2               | 1     | 11    | 10   | 1     | 8               | 1      |      |                  | 5              | 2               |
| Hydropsychidae                         |      |                 |       |       |      |       |                 |        |      |                  |                |                 |
| <i>Arctopsyche irrorata</i>            | 18   | 1               | 8     | 2     | 48   | 3     | 2               | 3      |      |                  |                |                 |
| <i>Ceratopsyche macleodi</i>           | 37   | 9               | 39    | 76    | 55   | 16    | 25              | 39     | 19   | 4                |                | 1♂              |
| <i>Diplectrona modesta</i>             | 10   |                 | 4     | 3     | 14   |       | 18              | 16     | 1    | 8                | 27             | 54              |
| <i>Hydropsyche franclemonti</i>        |      |                 |       |       | 1    |       |                 |        |      |                  |                |                 |
| <i>Parapsyche cardis</i>               |      |                 |       | 8     | 4    |       | 2               |        | 3    | 6                |                |                 |
| Hydropsychidae sp. (early)             |      |                 |       |       | 4    |       | 5               |        |      | 1                |                |                 |
| Lepidostomatidae                       |      |                 |       |       |      |       |                 |        |      |                  |                |                 |
| <i>Lepidostoma</i> sp.                 | 1    |                 | 3     | 1     |      | 4     | 1               | 25     | 5    | 5                | 12             | 14              |
| Leptoceridae                           |      |                 |       |       |      |       |                 |        |      |                  |                |                 |
| <i>Ceraclea</i> sp. cf. <i>ancylus</i> |      |                 |       |       |      | 2     |                 |        |      |                  |                | 1               |
| Limnephilidae                          |      |                 |       |       |      |       |                 |        |      |                  |                |                 |
| <i>Pycnopsyche flavata</i>             |      |                 |       |       |      |       |                 | 1      | 1    |                  |                |                 |
| <i>Pycnopsyche gentilis</i>            |      |                 |       |       |      |       |                 | 3      | 2    |                  |                |                 |
| <i>Pycnopsyche flavata/gentilis</i>    |      |                 |       |       |      |       | 1               |        |      | 1 <sup>1</sup>   | 1 <sup>1</sup> |                 |
| <i>Pycnopsyche sonso</i>               | 1♂   |                 |       |       |      |       |                 |        |      |                  |                |                 |
| <i>Pycnopsyche luculenta/sonso</i>     |      |                 |       |       |      |       |                 |        |      |                  |                |                 |
| (early instars)                        | 1    |                 |       |       |      |       | 1 <sup>1</sup>  | 23     | 18   | 100 <sup>2</sup> | 5              | 39              |
| <i>Pycnopsyche</i> sp. (early)         |      | 12 <sup>1</sup> | 17    | 8     | 5    | 2     | 3               |        | 1    |                  |                |                 |
| Molannidae                             |      |                 |       |       |      |       |                 |        |      |                  |                |                 |
| <i>Molanna blenda</i>                  | 2    | 5               |       | 1     | 6    |       | 5               | 7      | 2    | 3                | 14             | 9               |



Table A8. Continued.

| Season                                     | Fall     |      |       |       |      |       |      | Winter |      |      | Spring |      |
|--------------------------------------------|----------|------|-------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                              | 9/96     | 9/00 | 11/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                |          |      |       |       |      |       |      |        |      |      |        |      |
| Odontoceridae                              |          |      |       |       |      |       |      |        |      |      |        |      |
| <i>Psilotreta amera</i>                    |          |      |       |       | 1    |       |      |        |      |      |        | 1    |
| <i>Psilotreta amera/rufa</i>               |          | 1    |       |       |      |       |      | 1      |      |      |        |      |
| <i>Psilotreta frontalis</i>                | 9        | 10   | 8     | 13    | 16   | 8     | 5    | 20     | 1    | 19   | 5      | 9    |
| <i>Psilotreta rossi</i>                    |          |      |       |       | 1    |       |      |        |      |      |        |      |
| <i>Psilotreta rufa</i>                     |          |      |       |       |      |       |      |        |      |      |        |      |
| <i>Psilotreta</i> sp. (early)              | 3        |      |       |       |      |       | 2    |        |      |      | 4      |      |
| Philopotamidae                             |          |      |       |       |      |       |      |        |      |      |        |      |
| <i>Dolophilodes distinctus</i>             | 7        |      | 7     |       | 9    |       | 1    | 8♀♂    | 2♀♂  | 5    | 2      |      |
| <i>Wormaldia moesta</i>                    |          |      |       |       |      |       |      | 8♂     |      |      |        |      |
| <i>Wormaldia</i> sp.                       |          |      | 1     |       |      |       |      |        |      |      | 1      |      |
| Polycentropodidae                          |          |      |       |       |      |       |      |        |      |      |        |      |
| <i>Nyctiophylax</i> sp.                    | 2        | 2    | 14    | 8     | 17   | 6     | 8    | 4      | 2    | 6    |        | 1    |
| <i>Polycentropus</i> sp.                   | 2        |      | 5     | 3     | 3    |       | 3    | 4      |      |      |        | 1    |
| Psychomiidae                               |          |      |       |       |      |       |      |        |      |      |        |      |
| <i>Lype diversa</i>                        |          |      |       |       |      |       | 2    |        |      | 1    |        |      |
| Rhyacophilidae                             |          |      |       |       |      |       |      |        |      |      |        |      |
| <i>Rhyacophila</i>                         |          |      |       |       |      |       |      |        |      |      |        |      |
| <i>appalachia/nigrita</i>                  | 3        | 2    | 5     | 4     | 2    | 3     | 2    | 2      | 4    | 12   | 2      | 2    |
| <i>Rhyacophila carolina</i>                | 27♀<br>♂ | 4    |       | 2     |      |       |      |        |      |      | 2      | 1    |
| <i>Rhyacophila fuscula</i>                 | 9        | 2    | 2     | 3     | 1    |       | 2    | 10     | 1    | 9    | 5♀     | 16   |
| <i>Rhyacophila glaberrima</i>              |          |      |       |       |      |       |      |        |      | 2    | 3      | 3    |
| <i>Rhyacophila minor</i>                   | 9        | 4    | 2     | 5     | 8    | 15    | 1    | 1      |      |      |        |      |
| <i>Rhyacophila</i> sp. cf. <i>parantra</i> |          |      |       |       |      |       |      |        |      |      |        |      |
| <i>Rhyacophila torva</i>                   | 5♂       |      | 1     |       | 7    | 1     | 1    | 3♂     |      | 1    |        | 3    |
| <i>Rhyacophila</i> sp. nov. cf.            |          |      |       |       |      |       |      |        |      |      |        |      |

Table A8. Continued.

| Season                                             | Fall           |                |                |                |                 |                |                 | Winter |      |                 | Spring |      |
|----------------------------------------------------|----------------|----------------|----------------|----------------|-----------------|----------------|-----------------|--------|------|-----------------|--------|------|
| Sampling date                                      | 9/96           | 9/00           | 11/00          | 10/00          | 9/01            | 10/01          | 9/02            | 2/97   | 2/01 | 2/02            | 6/96   | 6/02 |
| <b>TAXA</b>                                        |                |                |                |                |                 |                |                 |        |      |                 |        |      |
| <i>nigrita</i>                                     |                |                | 1              | 1              | 4               | 3              | 1               | 5      | 2    |                 |        | 4    |
| <i>Rhyacophila</i> sp. (early)                     |                |                |                |                |                 |                | 5               |        | 1    | 1               |        |      |
| Sericostomatidae                                   |                |                |                |                |                 |                |                 |        |      |                 |        |      |
| <i>Fattigia pele</i>                               | 1              |                |                | 2              | 1               | 1              | 2               | 5      |      | 1               | 1      | 5    |
| Uenoidae                                           |                |                |                |                |                 |                |                 |        |      |                 |        |      |
| <i>Neophylax consimilis</i>                        |                |                | 2 <sup>1</sup> |                |                 |                | 6 <sup>3</sup>  | 1      | 22   | 35 <sup>3</sup> | 1      | 4    |
| <i>Neophylax mitchelli</i>                         | 2 <sup>3</sup> | 2 <sup>3</sup> | 1 <sup>3</sup> | 1 <sup>3</sup> | 27 <sup>3</sup> | 3 <sup>3</sup> | 17 <sup>3</sup> | 7      | 25   | 3               | 10     | 8    |
| <i>Neophylax ornatus</i>                           |                | 1              | 26             | 3              | 2               |                |                 |        | 1    |                 |        |      |
| <i>Neophylax</i> sp. (early, dark head with spine) |                |                |                |                |                 |                |                 | 1      |      |                 |        |      |
| <i>Neophylax</i> sp. (early)                       | 4              |                |                |                | 3               | 28             |                 |        | 2    | 1               |        |      |
| Coleoptera                                         |                |                |                |                |                 |                |                 |        |      |                 |        |      |
| Elmidae                                            |                |                |                |                |                 |                |                 |        |      |                 |        |      |
| <i>Optioservus immunis</i> ♂♀                      | 1              |                | 1              |                |                 |                |                 |        |      |                 |        |      |
| <i>Optioservus ovalis</i> ♂♀                       | 1              |                |                | 5              |                 | 1              | 2               | 1      |      | 1               | 1      | 1    |
| <i>Optioservus trivitattus</i> ♂♀                  |                |                |                |                |                 |                |                 | 1      |      |                 |        |      |
| <i>Optioservus</i> sp.                             |                |                | 3              | 1              |                 | 1              |                 |        | 2    |                 |        |      |
| <i>Oulimnius latiusculus</i> ♂♀                    | 1              |                |                |                |                 |                | 5               |        |      |                 |        | 2    |
| <i>Promoresia elegans</i>                          |                |                |                |                |                 |                | 1               |        |      | 1               |        |      |
| <i>Promoresia tardella</i>                         | 8              |                | 3              |                | 6               |                |                 |        |      |                 |        | 3♂♀  |
| Hydrophilidae                                      |                |                |                |                |                 |                |                 |        |      |                 |        |      |
| <i>Helophorous</i> sp.??                           |                |                |                |                |                 |                | 2               |        |      |                 |        |      |
| Ptilodactylidae                                    |                |                |                |                |                 |                |                 |        |      |                 |        |      |
| <i>Anchytarsus</i> sp.                             |                |                |                |                |                 | 1              |                 |        |      |                 |        |      |
| Diptera                                            |                |                |                |                |                 |                |                 |        |      |                 |        |      |
| Athericidae                                        |                |                |                |                |                 |                |                 |        |      |                 |        |      |
| <i>Atherix lantha</i>                              | 7              |                | 5              | 2              | 7               | 7              | 17              |        | 1    | 8               |        |      |

Table A8. Continued.

| Season                                       | Fall |      |       |       |      |       |      | Winter |      |      | Spring |      |
|----------------------------------------------|------|------|-------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                                | 9/96 | 9/00 | 11/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                  |      |      |       |       |      |       |      |        |      |      |        |      |
| Blephariceridae                              |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Blepharicera</i> sp.                      | 2    |      |       |       |      |       |      | 13     |      | 33   | 2      | 4    |
| Ceratopogonidae                              |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Bezzia</i> sp.                            |      |      |       |       | 1    | 1     |      |        |      |      |        |      |
| <i>Bezzia/Palpomyia</i> sp.                  | 4    |      |       |       |      |       |      |        | 1    |      | 1      | 9    |
| <i>Probezzia</i> sp.                         |      |      |       |       |      | 1     |      |        |      |      |        |      |
| Chironomidae                                 | 35   |      |       |       |      |       |      | 125    |      |      | 37     |      |
| Chironominae                                 |      |      |       |       |      |       |      |        |      |      |        |      |
| Chironomini                                  |      | 4    | 4     |       | 3    | 19    | 6    |        | 2    | 6    |        | 16   |
| Tanytarsini                                  |      | 6    |       | 2     | 27   | 1     | 13   |        | 1    | 9    |        | 5    |
| Orthocladinae                                |      | 6    | 14    | 4     | 17   | 9     | 4    |        | 11   | 23   |        | 16   |
| Tanypodinae                                  |      |      |       |       |      |       | 4    |        |      | 2    |        | 2    |
| Chironomidae pupae                           |      |      |       |       |      | 2     |      |        |      | 2    |        | 2    |
| Dixidae                                      |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Dixa</i> sp.                              |      | 1    | 1     |       | 7    | 3     | 1    |        |      |      |        |      |
| Empididae                                    |      |      |       |       |      |       |      |        |      |      |        |      |
| Empididae sp.                                |      |      |       | 1     |      |       |      |        |      |      |        | 1    |
| Simuliidae (including pupae)                 | 7    | 2    |       |       | 9    |       | 6    | 12     | 14   | 27   | 4      | 12   |
| Tipulidae                                    |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Antocha</i> sp.                           |      | 1    |       |       |      |       |      |        |      |      | 2      |      |
| <i>Dactylolabis</i> sp.?                     |      |      |       |       |      |       |      |        | 1    |      |        |      |
| <i>Dicranota</i> sp.                         | 5    |      |       |       |      |       |      | 2      |      |      | 1      | 7    |
| <i>Hexatoma</i> sp.                          | 7    | 2    | 1     | 3     | 12   | 1     | 8    | 8      | 12   | 14   | 3      | 6    |
| <i>Longurio</i> sp.                          |      |      |       |       |      |       |      |        | 1    |      |        |      |
| <i>Limnophila</i> sp. (M&C <sup>4</sup> figs |      |      |       |       |      |       |      |        |      |      |        |      |
| 22.5, 22.8, toothed mandible)                |      |      | 1     |       |      |       |      | 1      |      | 1    |        |      |
| <i>Limonia</i> sp.                           |      |      |       |       |      | 1     |      | 2      |      |      |        |      |

Table A8. Continued.

| Season                                       | Fall |      |       |       |      |       |      | Winter |      |      | Spring |      |
|----------------------------------------------|------|------|-------|-------|------|-------|------|--------|------|------|--------|------|
| Sampling date                                | 9/96 | 9/00 | 11/00 | 10/00 | 9/01 | 10/01 | 9/02 | 2/97   | 2/01 | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                  |      |      |       |       |      |       |      |        |      |      |        |      |
| <i>Lipsothrix</i> sp.                        |      |      |       |       |      |       |      | 1      |      |      |        |      |
| <i>Ormosia</i> sp.                           |      |      |       |       |      |       |      |        |      |      |        | 1    |
| <i>Pilaria</i> sp.                           |      |      |       |       |      |       |      |        |      | 3    |        |      |
| <i>Tipula abdominalis</i>                    |      | 3    | 5     |       |      |       | 2    |        | 4    | 6    |        |      |
| <i>Tipula</i> sp. "moss animal"              |      |      |       |       |      | 1     | 5    |        | 2    |      |        |      |
| <i>Tipula</i> sp. cf. fig. 11.3 <sup>5</sup> |      |      |       |       |      |       |      | 1      |      |      |        |      |
| <i>Tipula</i> sp.                            |      |      |       |       |      |       |      |        |      |      | 1      |      |

<sup>1</sup> cases only

<sup>2</sup> one worker collected 72 specimens

<sup>3</sup> includes mature pupae

<sup>4</sup> Merritt and Cummins (1986)

<sup>5</sup> Brigham, et al. (1982)

Table A9. Taxa collected at site 8 by sampling date. The symbols ♂, ♀, or ♂♀, indicate some or all of the specimens were adult males, females or both. If the symbol is in the taxa column, it indicates all specimens were adults.

| Season                          | Fall |      |      |       |       | Winter |      | Spring |      |
|---------------------------------|------|------|------|-------|-------|--------|------|--------|------|
| Sampling date                   | 9/96 | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |      |      |      |       |       |        |      |        |      |
| Nematomorpha                    |      |      |      |       |       |        |      |        |      |
| Horsehair worms                 |      |      | 1    |       |       |        |      |        |      |
| Annelida                        |      |      |      |       |       |        |      |        |      |
| Hirudinea                       |      |      |      |       |       |        |      |        |      |
| <i>Placobdella</i> sp.          |      | 10   |      |       | 15    |        |      |        | 1    |
| Oligochaeta                     | 5    | 16   | 2    |       | 3     | 2      | 8    | 2      | 1    |
| Arthropoda                      |      |      |      |       |       |        |      |        |      |
| Arachnida                       |      |      |      |       |       |        |      |        |      |
| Hydracarina                     | 1    |      |      |       |       |        |      |        |      |
| Crustacea                       |      |      |      |       |       |        |      |        |      |
| Decapoda                        |      |      |      |       |       |        |      |        |      |
| Astacidae                       |      |      |      |       |       |        |      |        |      |
| <i>Cambarus bartoni</i>         | 1    |      |      |       |       | 1      |      |        |      |
| <i>Cambarus</i> sp. (juveniles) |      | 2    |      |       | 2     |        |      |        | 3    |
| Insecta                         |      |      |      |       |       |        |      |        |      |
| Plecoptera                      |      |      |      |       |       |        |      |        |      |
| Capniidae                       |      |      |      |       |       |        |      |        |      |
| <i>Allocaonia</i> sp.           |      |      |      |       |       | 1♀     |      |        |      |
| <i>Paracania</i> sp.            |      |      |      |       |       |        | 1    |        |      |
| Chloroperlidae                  |      |      |      |       |       |        |      |        |      |
| <i>Alloperla</i> sp.            | 3    | 2    | 1    | 2     | 9     |        | 10   | 1      | 4    |
| <i>Haploperla brevis</i>        |      |      |      |       |       |        |      | 4      |      |
| <i>Sweltsa</i> sp.              | 8    | 10   | 4    | 2     | 4     | 32     | 11   |        |      |
| Chloroperlidae sp. (early)      |      |      | 5    | 3     |       |        |      |        |      |

Table A9. Continued.

| Season                                 | Fall |      |      |       |       | Winter |      | Spring |      |
|----------------------------------------|------|------|------|-------|-------|--------|------|--------|------|
| Sampling date                          | 9/96 | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                            |      |      |      |       |       |        |      |        |      |
| Leuctridae                             |      |      |      |       |       |        |      |        |      |
| <i>Leuctra ferruginea</i> ♀♂           | 3    |      |      |       |       |        |      |        |      |
| <i>Leuctra</i> sp.                     | 7    | 4♀   | 2♀♂  | 3♀♂   | 20♂   | 4      | 5    | 4      | 16♀  |
| <i>Paraleuctra sara</i>                |      |      |      |       |       |        | 1    |        |      |
| Nemouridae                             |      |      |      |       |       |        |      |        |      |
| <i>Amphinemura appalachia</i>          | 1    |      |      |       |       | 4      | 1    | 2      | 3    |
| Peltoperlidae                          |      |      |      |       |       |        |      |        |      |
| <i>Tallaperla</i> sp.                  | 9    | 5    | 14   | 8     | 4     | 6      | 8    | 2      | 30   |
| Perlidae                               |      |      |      |       |       |        |      |        |      |
| <i>Acroneuria abnormis</i>             | 15   | 11   | 18   | 5     | 22    | 7      | 16   | 9      | 35   |
| <i>Beloneuria</i> sp.                  |      |      |      |       |       |        | 1    |        |      |
| <i>Eccopectura xanthenes</i>           |      |      | 3    |       |       |        | 4    | 1      | 4    |
| <i>Paragnetina immarginata</i>         | 1    |      |      |       |       |        |      |        |      |
| <i>Perlesta</i> sp. cf. <i>frisoni</i> |      |      |      |       |       |        |      | 4      | 30   |
| Perlidae sp. (early)                   |      |      | 1    |       |       |        |      |        |      |
| Perlodidae                             |      |      |      |       |       |        |      |        |      |
| <i>Isoperla holochlora</i>             | 56   |      | 3    | 3     |       |        | 11   | 2      | 37   |
| <i>Isoperla</i> sp. cf. <i>dicala</i>  |      |      |      |       |       |        | 1    |        |      |
| <i>Isoperla similis</i>                |      | 3    |      |       | 5     | 6      | 12   |        |      |
| <i>Isoperla</i> sp. (early)            |      | 1    | 2    | 2     |       |        |      |        |      |
| <i>Malirekus hastatus</i>              | 9    | 1    |      |       | 1     | 16     | 4    | 1      | 1    |
| <i>Remenus bilobatus</i>               |      |      |      |       |       |        |      | 3      |      |
| <i>Yugus arimis</i>                    |      |      |      |       |       | 6      | 4    |        |      |
| <i>Yugus</i> sp. (early)               |      |      |      |       |       |        | 1    |        |      |
| Perlodidae sp. (early)                 |      | 1    |      | 1     | 2     |        | 2    |        |      |
| Pteronarcyidae                         |      |      |      |       |       |        |      |        |      |
| <i>Pteronarcys scotti/proteus</i>      | 9    | 10   | 18   | 11    | 6     | 7      | 11   | 3      |      |

Table A9. Continued.

| Season<br>Sampling date                  | Fall |      |      |       |       | Winter |      | Spring |      |
|------------------------------------------|------|------|------|-------|-------|--------|------|--------|------|
|                                          | 9/96 | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                              |      |      |      |       |       |        |      |        |      |
| Taeniopterygidae                         |      |      |      |       |       |        |      |        |      |
| <i>Bolotoperla rossi</i>                 |      |      |      |       |       | 2      |      |        |      |
| <i>Oemopteryx contorta</i>               |      |      |      |       |       |        | 1    |        |      |
| <i>Strophopteryx</i> sp.                 |      |      |      |       |       |        | 1    |        |      |
| <i>Taeniopteryx</i> sp.                  |      |      |      |       |       | 7      | 1♀   |        |      |
| Ephemeroptera                            |      |      |      |       |       |        |      |        |      |
| Ameletidae                               |      |      |      |       |       |        |      |        |      |
| <i>Ameletus cryptostimulus</i>           |      |      |      |       |       | 8      | 31   |        |      |
| <i>Ameletus</i> sp. (early)              |      |      |      |       |       |        | 4    |        |      |
| Baetidae                                 |      |      |      |       |       |        |      |        |      |
| <i>Acentrella</i> sp. cf. <i>amplus</i>  | 4    |      |      |       |       |        |      |        |      |
| <i>Baetis</i> sp. cf. <i>flavistriga</i> | 5    | 5    | 1    | 2     | 3     |        | 2    |        | 17   |
| <i>Baetis</i> sp. cf. <i>tricaudatus</i> | 16   | 6    | 15   | 11    | 11    | 45     | 44   | 7      | 25   |
| <i>Baetis</i> sp. (early/damaged)        |      | 3    | 4    | 1     | 3     |        | 2    |        | 7    |
| <i>Centroptilum</i> s.l. (damaged)       |      |      |      |       |       |        |      | 1      |      |
| <i>Baetidae</i> sp. (early)              | 4    |      | 1    |       |       |        |      |        |      |
| Ephemerellidae                           |      |      |      |       |       |        |      |        |      |
| <i>Drunella longicornis</i>              |      |      |      |       |       |        |      | 4      | 12   |
| <i>Drunella tuberculata</i>              | 6    | 1    | 10   | 2     | 3     |        |      | 1      | 13   |
| <i>Drunella</i> sp. (early)              |      |      |      |       |       |        |      |        | 1    |
| <i>Ephemerella catawba</i>               | 1    |      |      |       |       | 5      | 6    |        | 3    |
| <i>Ephemerella rossi</i>                 |      |      |      |       |       | 5      | 32   | 22     | 206  |
| <i>Ephemerella hispida</i>               |      |      |      |       |       | 30     | 23   |        | 21   |
| <i>Ephemerella</i> sp. (early)           |      | 1    |      |       |       |        | 46   |        | 5    |
| <i>Eurylophella funeralis</i>            | 1    |      |      |       | 1     | 7      | 2    |        | 3    |
| <i>Eurylophella</i> sp. (early)          |      |      |      | 3     |       |        |      |        |      |
| <i>Ephemerellidae</i> sp. (early)        |      |      | 1    | 2     |       | 3      |      | 1      |      |



Table A9. Continued.

| TAXA                                           | Season        | Fall |      |      |       | Winter |      | Spring |      |      |
|------------------------------------------------|---------------|------|------|------|-------|--------|------|--------|------|------|
|                                                | Sampling date | 9/96 | 9/00 | 9/01 | 10/01 | 10/02  | 2/97 | 2/02   | 6/96 | 6/02 |
| Heptageniidae                                  |               |      |      |      |       |        |      |        |      |      |
| <i>Cinygmula subaequalis</i>                   |               |      |      |      |       | 1      |      |        |      | 1    |
| <i>Epeorus "dispar"</i>                        |               | 7    | 2    | 16   | 2     | 5      | 55   | 10     | 11   | 48   |
| <i>Epeorus "pleuralis"</i>                     |               |      |      |      |       |        |      | 86     |      | 8    |
| <i>Epeorus</i> sp. (early)                     |               |      | 2    | 5    | 2     |        |      | 3      | 3    |      |
| <i>Heptagenia julia</i>                        |               | 3    |      | 1    |       |        |      |        |      |      |
| <i>Heptagenia</i> sp.                          |               | 3    |      | 3    |       |        | 1    |        | 2    |      |
| <i>Leucrocuta thetis</i>                       |               | 2    | 15   | 17   | 11    | 14     | 3    | 93     | 1    | 11   |
| <i>Leucrocuta</i> sp.                          |               |      | 1    |      |       | 8      |      | 22     |      | 2    |
| <i>Rhithrogena</i> sp. cf. <i>amica</i>        |               |      |      |      |       |        | 5    |        |      |      |
| <i>Rhithrogena</i> sp. cf. <i>fuscifrons</i>   |               | 4    |      |      |       |        |      |        | 5    |      |
| <i>Rhithrogena</i> sp. (early)                 |               |      | 1    | 3    | 6     |        |      | 12     |      | 3    |
| <i>Stenacron</i> sp. cf. <i>pallidum</i>       |               |      |      |      |       |        | 1    |        |      |      |
| <i>Stenacron</i> sp. (early)                   |               |      |      |      |       | 1      |      | 1      |      |      |
| <i>Stenonema merrivulatum</i>                  |               | 2    |      | 11   | 7     | 13     | 1    |        |      | 79   |
| <i>Stenonema pudicum</i>                       |               | 37   |      | 8    | 13    | 10     | 42   | 49     | 6    | 2    |
| <i>Stenonema</i> sp. (early)                   |               |      | 26   | 26   | 32    | 21     |      | 26     | 5    | 5    |
| Heptageniidae sp. (early)                      |               |      | 1    |      |       | 8      |      | 1      |      | 1    |
| Leptophlebiidae                                |               |      |      |      |       |        |      |        |      |      |
| <i>Habrophlebia vibrans</i>                    |               |      | 1    | 2    |       |        |      |        |      |      |
| <i>Habrophlebiodes</i> sp.                     |               |      |      |      |       |        |      |        | 1    |      |
| <i>Paraleptophlebia adoptiva/mollis</i>        |               | 2    |      | 1    |       | 1      | 13   | 21     | 9    | 5    |
| <i>Paraleptophlebia</i> sp. cf. <i>guttata</i> |               |      | 3    | 2    |       | 1      |      | 9      |      | 19   |
| <i>Paraleptophlebia</i> sp. (early)            |               |      | 1    |      | 3     | 1      |      |        |      |      |
| Leptophlebiidae sp. (early/<br>damaged)        |               |      | 1    | 2    | 1     | 8      | 4    |        |      | 9    |
| Odonata                                        |               |      |      |      |       |        |      |        |      |      |



Table A9. Continued.

| Season<br>Sampling date                | Fall |      |                |                |       | Winter |      | Spring |                 |
|----------------------------------------|------|------|----------------|----------------|-------|--------|------|--------|-----------------|
|                                        | 9/96 | 9/00 | 9/01           | 10/01          | 10/02 | 2/97   | 2/02 | 6/96   | 6/02            |
| <b>TAXA</b>                            |      |      |                |                |       |        |      |        |                 |
| Aeschnidae                             |      |      |                |                |       |        |      |        |                 |
| <i>Boyeria vinosa</i>                  | 1    |      |                |                |       |        |      |        |                 |
| <i>Boyeria grafiana</i>                |      | 1    |                |                |       |        |      |        |                 |
| Cordulegastridae                       |      |      |                |                |       |        |      |        |                 |
| <i>Cordulegaster erronea</i>           | 1    | 1    |                |                |       |        |      |        | 1               |
| <i>Cordulegaster maculata</i>          | 1    | 1    |                |                |       |        |      |        |                 |
| Gomphidae                              |      |      |                |                |       |        |      |        |                 |
| <i>Lanthus vernalis</i>                | 7    | 5    | 6              | 13             | 8     | 14     | 13   | 9      | 14              |
| Heteroptera                            |      |      |                |                |       |        |      |        |                 |
| Gerridae                               |      |      |                |                |       |        |      |        |                 |
| <i>Aquarius remigis</i>                | 1    |      | 3              | 3              | 3     |        | 1    | 3      | 6               |
| Trichoptera                            |      |      |                |                |       |        |      | 65♀    |                 |
| Apataniidae                            |      |      |                |                |       |        |      |        |                 |
| <i>Apatania</i> sp.                    | 3    | 5    | 2              | 4              | 1     | 15     | 41   | 1      | 16 <sup>1</sup> |
| Brachycentridae                        |      |      |                |                |       |        |      |        |                 |
| <i>Micrasema burksi</i>                |      |      |                | 1 <sup>1</sup> |       | 2      | 1    |        |                 |
| Glossosomatidae                        |      |      |                |                |       |        |      |        |                 |
| <i>Glossosoma nigrior</i> (inc. pupae) | 12   | 11   | 8              | 2              | 9     |        |      | 12     | 23              |
| Goeridae                               |      |      |                |                |       |        |      |        |                 |
| <i>Goera</i> sp. cf. <i>fuscata</i>    |      |      | 1 <sup>1</sup> | 1              | 4     |        |      |        |                 |
| Hydropsychidae                         |      |      |                |                |       |        |      |        |                 |
| <i>Arctopsyche irrorata</i>            | 5    | 2    | 37             | 15             | 10    |        | 8    | 1      |                 |
| <i>Ceratopsyche macleodi</i>           | 13   | 43   | 34             | 20             | 3     | 20     | 28   |        |                 |
| <i>Ceratopsyche slosonae</i>           |      |      |                |                |       |        |      | 1      | 2               |
| <i>Diplectrona modesta</i>             | 12   | 5    | 3              | 8              | 26    | 8      | 3    | 19     | 80              |
| <i>Hydropsyche franelemonti</i>        |      |      |                | 1              |       |        |      |        |                 |
| <i>Parapsyche cardis</i>               |      |      | 3              |                | 8     |        |      |        |                 |

Table A9. Continued.

| Season<br>Sampling date                               | Fall |                |                |                |       | Winter |      | Spring |      |
|-------------------------------------------------------|------|----------------|----------------|----------------|-------|--------|------|--------|------|
|                                                       | 9/96 | 9/00           | 9/01           | 10/01          | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                           |      |                |                |                |       |        |      |        |      |
| Hydropsychidae sp. (pupae)                            |      |                |                |                |       |        |      |        | 7    |
| Hydropsychidae sp. (early)                            |      | 1              | 6              |                |       |        | 2    |        | 1    |
| Lepidostomatidae                                      |      |                |                |                |       |        |      |        |      |
| <i>Lepidostoma</i> sp.                                | 1    | 6 <sup>1</sup> | 2              | 1 <sup>1</sup> | 4     | 21     | 3    | 7      | 11   |
| Leptoceridae                                          |      |                |                |                |       |        |      |        |      |
| <i>Ceraclea</i> sp. cf. <i>ancylus</i>                |      | 2              |                |                |       |        |      |        | 1    |
| Limnephilidae                                         |      |                |                |                |       |        |      |        |      |
| <i>Pycnopsyche gentilis</i>                           |      |                |                | 1              |       | 3      |      |        |      |
| <i>Pycnopsyche sonso</i>                              |      |                |                |                |       |        | 56   |        | 22   |
| <i>Pycnopsyche luculenta/sonso</i><br>(early instars) | 1    | 3 <sup>1</sup> | 8 <sup>1</sup> | 5 <sup>1</sup> | 11    | 22     |      | 7      |      |
| <i>Pycnopsyche</i> sp. (early)                        |      |                |                |                |       |        | 3    |        |      |
| Molannidae                                            |      |                |                |                |       |        |      |        |      |
| <i>Molanna blenda</i>                                 | 6    | 2              | 6              | 3              | 11    | 2      | 8    | 1      | 11   |
| Odontoceridae                                         |      |                |                |                |       |        |      |        |      |
| <i>Psilotreta amera</i> (pupae)                       |      |                |                |                |       |        |      |        | 5    |
| <i>Psilotreta frontalis</i>                           | 9    |                | 16             | 11             | 10    | 4      | 12   | 3      | 8    |
| <i>Psilotreta rossi</i>                               |      |                |                | 1              |       |        |      |        |      |
| <i>Psilotreta</i> sp. (early)                         | 1    | 3              |                | 1              |       |        | 1    |        |      |
| Philopotamidae                                        |      |                |                |                |       |        |      |        |      |
| <i>Dolophilodes distinctus</i>                        | 4    | 4              | 3              |                | 2     | 8      | 1    | 6♂♀    | 36♂  |
| <i>Wormaldia</i> sp.                                  |      |                |                |                |       | 1      |      |        |      |
| Polycentropodidae                                     |      |                |                |                |       |        |      |        |      |
| <i>Nyctiophylax</i> sp.                               | 1    | 4              | 1              | 4              | 1     | 1      |      |        | 4    |
| <i>Polycentropus</i> sp.                              | 3    |                |                |                | 1     | 3      | 1    | 3      | 2    |
| Psychomiidae                                          |      |                |                |                |       |        |      |        |      |
| <i>Lype diversa</i>                                   |      | 7              | 2              | 1              |       |        |      | 3♂♀    |      |

Table A9. Continued.

| Season<br>Sampling date                                                | Fall           |                 |                |                 |                | Winter |      | Spring |      |
|------------------------------------------------------------------------|----------------|-----------------|----------------|-----------------|----------------|--------|------|--------|------|
|                                                                        | 9/96           | 9/00            | 9/01           | 10/01           | 10/02          | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                                            |                |                 |                |                 |                |        |      |        |      |
| Rhyacophiladae                                                         |                |                 |                |                 |                |        |      |        |      |
| <i>Rhyacophila appalachia/nigrita</i>                                  | 5              | 4               |                |                 | 2              |        | 2    | 1      | 3    |
| <i>Rhyacophila atrata</i> (concolorous head, golden brown)             |                |                 |                |                 |                |        | 4    | 10♂♀   |      |
| <i>Rhyacophila atrata</i>                                              |                |                 |                |                 |                |        |      |        |      |
| <i>Rhyacophila carolina</i>                                            | 14♂            |                 | 1              |                 |                |        |      | 21♂    | 7    |
| <i>Rhyacophila fuscula</i>                                             | 20♂♀           |                 | 1              |                 | 3              | 14     | 8    | 13♂♀   | 20   |
| <i>Rhyacophila glaberrima</i>                                          |                |                 |                |                 |                | 1      |      |        |      |
| <i>Rhyacophila minor</i>                                               |                | 15              | 27             | 6               | 10             |        | 1    |        |      |
| <i>Rhyacophila nigrita</i> ♂                                           |                |                 |                |                 |                |        |      | 4      |      |
| <i>Rhyacophila</i> sp. cf. <i>parantra</i> ?                           | 3              |                 |                |                 |                |        |      |        |      |
| <i>Rhyacophila teddyi</i> ♂                                            |                |                 |                |                 |                |        |      | 3      |      |
| <i>Rhyacophila torva</i>                                               | 1              |                 | 5              | 9               |                | 1      | 2    |        |      |
| <i>Rhyacophila</i> sp. nov. cf. <i>nigrita</i>                         |                |                 | 1              |                 |                |        | 2    |        |      |
| <i>Rhyacophila</i> sp. (early)                                         | 1              |                 |                | 2               | 1              | 4      |      |        |      |
| <i>Rhyacophila</i> sp. (pupae)                                         |                |                 |                |                 |                |        | 1    |        |      |
| Sericostomatidae                                                       |                |                 |                |                 |                |        |      |        |      |
| <i>Fattigia pele</i>                                                   | 3              | 1               | 4              | 1               |                | 6      | 6    | 1      | 8    |
| Uenoidae                                                               |                |                 |                |                 |                |        |      |        |      |
| <i>Neophylax consimilis</i>                                            |                | 1?              |                |                 |                | 11     | 29   | 3      | 9    |
| <i>Neophylax consimilis</i> (mature pupae)                             | 1              |                 | 5              | 10 <sup>1</sup> |                |        |      |        |      |
| <i>Neophylax mitchelli</i>                                             | 1 <sup>2</sup> | 12 <sup>2</sup> | 1 <sup>2</sup> | 5 <sup>2</sup>  | 9 <sup>2</sup> | 2      | 2    |        | 13   |
| <i>Neophylax ornatus</i>                                               |                |                 |                |                 |                | 1      |      |        | 1    |
| <i>Neophylax oligius</i>                                               |                |                 |                |                 |                | 1      |      |        |      |
| <i>Neophylax securis</i> ? (early;black head;lat. gills pres; pronotal |                |                 |                |                 |                |        |      |        |      |

Table A9. Continued.

| Season<br>Sampling date             | Fall |      |      |       |       | Winter |      | Spring |      |
|-------------------------------------|------|------|------|-------|-------|--------|------|--------|------|
|                                     | 9/96 | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                         |      |      |      |       |       |        |      |        |      |
| setae mostly posteriad)             |      |      |      |       |       |        | 1    |        |      |
| <i>Neophylax</i> sp. (cases, other) |      | 4    |      |       | 2     |        |      |        |      |
| <i>Neophylax</i> sp. (early)        |      |      | 2    | 1     |       |        |      |        |      |
| Coleoptera                          |      |      |      |       |       |        |      |        |      |
| Eubriidae                           |      |      |      |       |       |        |      |        |      |
| <i>Ectopria</i> sp.                 |      |      |      |       |       |        | 1    |        |      |
| Elmidae                             |      |      |      |       |       |        |      |        |      |
| <i>Optioservus immunis</i> ♂♀       |      |      |      | 1     |       |        |      |        |      |
| <i>Optioservus ovalis</i> ♂♀        |      |      |      |       |       |        | 1    |        |      |
| <i>Optioservus</i> sp.              | 1    | 1    |      | 1     | 1     |        |      | 1      |      |
| <i>Oulimnius latiusculus</i> ♂♀     |      |      |      | 1     |       |        |      |        |      |
| <i>Promoresia tardella</i>          | 4♂♀  |      | 2    | 5     |       |        |      | 1♂♀    |      |
| Elmidae sp. (damaged)               |      |      |      |       | 1     |        |      |        |      |
| Ptilodactylidae                     |      |      |      |       |       |        |      |        |      |
| <i>Anchytarsus</i> sp.              |      |      |      |       |       |        | 2    |        |      |
| Diptera                             |      |      |      |       |       |        |      |        |      |
| Athericidae                         |      |      |      |       |       |        |      |        |      |
| <i>Atherix lantha</i>               | 6    | 11   | 21   | 20    | 11    | 2      | 14   |        | 5    |
| Blephariceridae                     |      |      |      |       |       |        |      |        |      |
| <i>Blepharicera</i> sp.             |      |      |      |       |       | 8      | 4    | 3      |      |
| Ceratopogonidae                     |      |      |      |       |       |        |      |        |      |
| <i>Bezzia</i> sp.                   |      |      |      | 1     |       |        |      |        |      |
| <i>Bezzia/Palpomyia</i> sp.         | 4    | 3    |      |       | 1     |        |      | 4      | 1    |
| Chironomidae                        | 37   |      |      |       |       | 63     |      | 33     |      |
| Chironominae                        |      |      |      |       |       |        |      |        |      |
| Chironomini                         |      | 3    | 3    | 7     | 4     |        | 3    |        | 5    |
| Tanytarsini                         |      | 6    | 3    | 2     | 6     |        | 21   |        |      |

Table A9. Continued.

| Season<br>Sampling date                                          | Fall |      |      |       |       | Winter |      | Spring |      |
|------------------------------------------------------------------|------|------|------|-------|-------|--------|------|--------|------|
|                                                                  | 9/96 | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                                                      |      |      |      |       |       |        |      |        |      |
| Orthocladinae                                                    |      | 10   | 6    |       | 4     |        | 25   |        | 27   |
| Tanypodinae                                                      |      | 2    |      |       |       |        | 7    |        | 1    |
| Chironomidae pupae                                               |      | 1    |      |       |       |        |      |        | 1    |
| Dixidae                                                          |      |      |      |       |       |        |      |        |      |
| <i>Dixa</i> sp.                                                  |      | 2    | 2    | 2     | 2     |        |      |        | 1    |
| Simuliidae (including pupae)                                     | 11   | 10   | 14   | 3     | 11    | 11     |      | 11     | 10   |
| Tipulidae                                                        |      |      |      |       |       |        |      |        |      |
| <i>Antocha</i> sp.                                               | 1    |      |      |       |       |        |      | 1      | 2    |
| <i>Dicranota</i> sp.                                             | 9    |      |      |       |       | 1      | 1    | 10     |      |
| <i>Hexatoma</i> sp.                                              | 6    | 7    | 4    | 1     | 13    | 9      | 8    | 6      | 1    |
| <i>Limnophila</i> sp. (M&C figs 22.5,<br>22.8, toothed mandible) |      |      |      | 4     |       |        |      |        |      |
| <i>Limonia</i> sp.                                               |      | 2    |      |       |       |        |      |        |      |
| <i>Ormosia</i> sp.                                               |      |      |      |       |       | 1      |      |        |      |
| <i>Tipula</i> "abdominalis"                                      |      |      | 1    |       | 1     |        | 4    |        | 1    |
| <i>Tipula</i> sp. "moss animal"                                  |      | 1    |      | 1     | 1     |        |      |        |      |
| Tipulidae sp. (early)                                            |      | 1    |      |       |       |        |      |        |      |

<sup>1</sup> cases only<sup>2</sup> includes mature pupae

Table A10. Taxa collected at site 9 by sampling date. The symbols ♂, ♀, or ♂♀, indicate some or all of the specimens were adult males, females, or both. If the symbol is in the taxa column, it indicates all specimens were adults.

| Season                          | Fall |      |      |       |       | Winter |      | Spring |      |
|---------------------------------|------|------|------|-------|-------|--------|------|--------|------|
| Sampling date                   | 9/96 | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <b>TAXA</b>                     |      |      |      |       |       |        |      |        |      |
| Nematomorpha                    |      |      |      |       |       |        |      |        |      |
| Horsehair worms                 |      |      | 1    |       | 2     |        |      |        |      |
| Annelida                        |      |      |      |       |       |        |      |        |      |
| Hirudinea                       |      |      |      |       |       |        |      |        |      |
| <i>Placobdella</i> sp.          |      | 3    |      |       | 4     |        |      |        |      |
| Oligochaeta                     | 4    | 23   | 4    | 5     | 9     | 5      | 2    | 3      | 12   |
| Mollusca                        |      |      |      |       |       |        |      |        |      |
| Pelcypoda                       |      |      |      |       |       |        |      |        |      |
| <i>Sphaerium</i> sp.            |      |      |      |       |       | 1      |      |        |      |
| Arthropoda                      |      |      |      |       |       |        |      |        |      |
| Arachnida                       |      |      |      |       |       |        |      |        |      |
| Hydracarina                     | 2    | 2    | 1    | 2     | 2     |        | 1    |        | 1    |
| Crustacea                       |      |      |      |       |       |        |      |        |      |
| Decapoda                        |      |      |      |       |       |        |      |        |      |
| Astacidae                       |      |      |      |       |       |        |      |        |      |
| <i>Cambarus bartoni</i>         |      |      | 2    | 2     |       |        | 1    | 1      | 2    |
| <i>Cambarus</i> sp. (juveniles) |      | 3    |      |       | 5     |        |      |        |      |
| Insecta                         |      |      |      |       |       |        |      |        |      |
| Plecoptera                      |      |      |      |       |       |        |      |        |      |
| Capniidae                       |      |      |      |       |       |        |      |        |      |
| <i>Paracapnia angulata</i> ♂♀   |      |      |      |       |       |        | 3    |        |      |
| Chloroperlidae                  |      |      |      |       |       |        |      |        |      |
| <i>Alloperla neglecta</i> ♂♀    |      |      |      |       |       |        |      | 6      |      |
| <i>Alloperla</i> sp.            | 1    |      |      |       | 2     | 1      |      | 5      |      |
| <i>Haploperla brevis</i>        |      |      |      |       |       |        |      | 1      | 1    |

Table A10. Continued.

| Season                                 | Fall |      |      |       |       | Winter |      | Spring |      |
|----------------------------------------|------|------|------|-------|-------|--------|------|--------|------|
| Sampling date                          | 9/96 | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <i>Sweltsa mediana</i> ♂♀              |      |      |      |       |       |        |      | 1      |      |
| <i>Sweltsa</i> sp.                     | 8    | 9    | 5    | 3     | 5     | 24     | 11   |        | 3    |
| Leuctridae                             |      |      |      |       |       |        |      |        |      |
| <i>Leuctra biloba/grandis</i> ♀♂       |      |      |      |       |       |        |      | 2      |      |
| <i>Leuctra carolinensis</i> ♂          |      |      |      |       |       |        |      | 1      |      |
| <i>Leuctra</i> sp.                     | 18♀  | 7♀   | 4♀♂  | 8♀♂   | 3♀♂   |        |      | 5      | 15♀♂ |
| Nemouridae                             |      |      |      |       |       |        |      |        |      |
| <i>Amphinemura appalachia</i>          |      |      |      |       |       |        |      | 2      | 2    |
| <i>Amphinemura wui</i> ♀♂              |      |      |      |       |       |        |      | 3      |      |
| <i>Amphinemura</i> sp. (early)         |      |      |      |       |       |        | 1    |        |      |
| Peltoperlidae                          |      |      |      |       |       |        |      |        |      |
| <i>Tallaperla elisa</i> ♀♂             |      |      |      |       |       |        |      | 1      |      |
| <i>Tallaperla</i> sp.                  | 9    | 11   | 17   | 1     | 3     | 10     | 11   | 7      | 8    |
| Perlidae                               |      |      |      |       |       |        |      |        |      |
| <i>Acroneuria abnormis</i>             | 18   | 26   | 19   | 16    | 19    | 10     | 6    | 11     | 6    |
| <i>Agnetina</i> sp. (early instars)    | 1    |      |      |       |       |        |      | 1      |      |
| <i>Eccopectura xanthenes</i>           | 1    | 2    | 1    |       |       |        |      | 4      | 2    |
| <i>Hansonoperla appalachia</i>         |      |      |      | 1     |       |        |      |        |      |
| <i>Paragnetina immarginata</i>         | 2    |      | 1    |       | 1     |        |      |        |      |
| <i>Perlesta</i> sp. cf. <i>frisoni</i> | 1    |      | 1    |       |       |        |      | 15     | 14   |
| Perlidae sp. (early)                   |      |      |      |       |       |        |      | 1      | 1    |
| Perlodidae                             |      |      |      |       |       |        |      |        |      |
| <i>Isoperla holochlora</i>             | 1♀♂  |      |      |       |       | 44     | 30   | 42     | 28   |
| <i>Isoperla</i> sp. cf. <i>lata</i>    |      |      |      |       |       | 1      |      |        |      |
| <i>Isoperla similis</i>                | 1    | 3    |      |       |       | 3      | 6    | 1      | 3    |
| <i>Isoperla</i> sp. (early)            | 1    |      |      | 1     |       |        |      | 4      | 1    |
| <i>Malirekus hastatus</i>              | 9    |      | 2    |       |       | 2      | 3    |        | 1    |
| <i>Remenus bilobatus</i>               |      |      |      |       |       |        |      | 2      |      |

Table A10. Continued.

| Season                                   | Fall |      |      |       |       | Winter |      | Spring |      |
|------------------------------------------|------|------|------|-------|-------|--------|------|--------|------|
| Sampling date                            | 9/96 | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <i>Yugus arinus</i>                      |      |      |      |       |       | 5      | 2    |        |      |
| <i>Yugus/Malirekus</i> (early)           |      |      |      |       |       | 5      |      |        |      |
| Perlodidae sp. (early)                   |      | 2    | 1    |       | 1     |        |      |        |      |
| Pteronarcyidae                           |      |      |      |       |       |        |      |        |      |
| <i>Pteronarcys scotti/proteus</i>        | 9    | 10   | 15   | 16    | 1     | 5      | 5    | 11     | 6    |
| Taeniopterygidae                         |      |      |      |       |       |        |      |        |      |
| <i>Bolotoperla rossi</i>                 |      |      |      |       |       | 1      |      |        |      |
| <i>Strophopteryx limata</i>              |      |      |      |       |       |        | 1    |        |      |
| <i>Taenionema atlanticum</i>             |      |      |      |       |       | 4      | 1    |        |      |
| <i>Taeniopteryx</i> sp. ♂                |      |      |      |       |       |        | 4    |        |      |
| Ephemeroptera                            |      |      |      |       |       |        |      |        |      |
| Ameletidae                               |      |      |      |       |       |        |      |        |      |
| <i>Ameletus cryptostimulus</i>           |      |      |      |       |       | 13     | 10   |        |      |
| Baetidae                                 |      |      |      |       |       |        |      |        |      |
| <i>Acentrella</i> sp cf. <i>carolina</i> | 9    |      | 2    |       |       |        |      |        |      |
| <i>Baetis</i> sp. cf. <i>flavistriga</i> | 6    | 6    | 3    |       |       |        |      |        | 6    |
| <i>Baetis</i> sp. cf. <i>tricaudatus</i> | 5    | 4    | 9    |       | 4     | 34     | 21   | 9      | 23   |
| <i>Baetis</i> sp. (other)                |      |      | 6    |       |       | 1      |      |        |      |
| <i>Baetis</i> sp. (early/damaged)        |      | 3    | 2    |       | 1     |        |      |        |      |
| Baetidae sp. (early)                     | 4    |      |      |       |       |        |      | 1      | 7    |
| Ephemerellidae                           |      |      |      |       |       |        |      |        |      |
| <i>Drunella longicornis</i>              |      |      |      |       |       |        |      | 9      | 7    |
| <i>Drunella tuberculata</i>              | 8    | 1    | 4    |       |       |        |      | 19     | 35   |
| <i>Drunella</i> sp. (early)              |      |      |      |       | 1     |        |      | 1      | 1    |
| <i>Ephemerella catawba</i>               |      |      |      |       |       | 20     | 72   | 36     | 35   |
| <i>Ephemerella rossi</i>                 |      |      |      |       |       |        | 5    | 68     | 67   |
| <i>Ephemerella hispida</i>               |      |      |      |       |       | 46     | 26   |        |      |
| <i>Ephemerella rotunda</i>               |      |      |      |       |       | 5      |      |        |      |



Table A10. Continued.

| Season                                     | Fall |      |      |       |       | Winter |      | Spring |      |
|--------------------------------------------|------|------|------|-------|-------|--------|------|--------|------|
| Sampling date                              | 9/96 | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| <i>Ephemerella</i> sp. (early)             |      | 3    |      |       |       |        | 4    | 10     | 2    |
| <i>Eurylophella funeralis</i>              | 4    |      | 1    |       |       | 5      | 2    |        | 10   |
| <i>Eurylophella</i> sp. (early)            |      |      |      | 1     |       |        |      |        |      |
| <i>Serratella</i> sp. cf. <i>deficiens</i> |      |      | 4    |       |       |        |      |        |      |
| <i>Serratella spiculosa</i> ?              | 4    |      |      |       |       |        |      |        |      |
| <i>Timpanago</i> (= <i>Danella</i> ) sp.   |      |      |      |       |       |        |      | 4      |      |
| Ephemerellidae sp.                         |      |      |      |       |       |        |      |        | 1 ♀  |
| Heptageniidae                              |      |      |      |       |       |        |      |        |      |
| <i>Cinygmula subaequalis</i>               |      |      |      |       |       | 2      | 8    | 1      |      |
| <i>Epeorus</i> sp. cf. <i>dispar</i>       | 7    |      | 1    |       | 4     | 7      | 7    | 14     | 14   |
| <i>Epeorus</i> sp. cf. <i>pleuralis</i>    |      |      |      |       |       | 40     | 39   |        |      |
| <i>Epeorus rubidus/subpallidus</i>         | 3    |      |      |       |       |        |      | 1      |      |
| <i>Epeorus</i> sp. (early)                 |      | 1    |      |       |       |        |      | 2      |      |
| <i>Heptagenia marginalis</i>               |      |      |      |       |       |        |      |        | 1    |
| <i>Heptagenia pulla</i>                    |      |      | 1    |       |       |        |      |        |      |
| <i>Heptagenia</i> sp.                      |      |      | 3    |       |       |        |      |        | 11   |
| <i>Leucrocuta hebe/aphrodite</i>           |      |      |      |       | 4     |        |      |        |      |
| <i>Leucrocuta thetis</i>                   | 5    | 28   | 5    |       | 12    | 8      | 18   |        | 5    |
| <i>Leucrocuta</i> sp. cf. <i>thetis</i>    |      |      |      |       |       |        |      |        |      |
| <i>Leucrocuta</i> sp.                      |      |      |      |       | 1     |        |      | 10     |      |
| <i>Rhithrogena</i> sp. cf. <i>amica</i>    |      |      |      |       |       | 16     | 4    |        |      |
| <i>Rhithrogena</i> sp. (early)             |      | 4    | 2    |       | 2     |        |      | 6      | 8    |
| <i>Stenacron</i> sp. cf. <i>pallidum</i>   |      | 1    | 5    |       | 1     | 1      |      | 3      | 1    |
| <i>Stenonema femoratum</i>                 |      |      |      |       | 4     |        |      |        |      |
| <i>Stenonema merrivulatum</i>              | 1    |      | 27   |       | 1     | 1      | 1    |        | 12   |
| <i>Stenonema modestum</i>                  |      |      |      |       |       |        |      |        |      |
| <i>Stenonema pudicum</i>                   | 17   | 12   | 1    |       | 36    | 25     | 27   | 23     | 37   |
| <i>Stenonema</i> sp. (early)               | 5    | 20   | 13   |       | 21    |        | 8    | 13     |      |

Table A10. Continued.

| Season                                         | Fall |      |      |       |       | Winter         |                 | Spring |      |
|------------------------------------------------|------|------|------|-------|-------|----------------|-----------------|--------|------|
| Sampling date                                  | 9/96 | 9/00 | 9/01 | 10/01 | 10/02 | 2/97           | 2/02            | 6/96   | 6/02 |
| Leptophlebiidae                                |      |      |      |       |       |                |                 |        |      |
| <i>Habrophlebia vibrans</i>                    | 2    | 1    | 1    |       | 1     |                |                 | 9      | 7    |
| <i>Paraleptophlebia</i> sp. cf.                |      |      |      |       |       |                |                 |        |      |
| <i>adoptiva/mollis</i>                         | 1    | 1    |      |       | 1     | 6 <sup>1</sup> | 23 <sup>1</sup> | 11     | 7    |
| <i>Paraleptophlebia</i> sp. cf. <i>guttata</i> |      | 3    | 2    |       |       |                |                 | 3      |      |
| <i>Paraleptophlebia</i> sp. (early)            |      |      |      |       | 2     |                |                 |        |      |
| Leptophlebiidae sp. (early/<br>damaged)        | 1    |      | 8    |       | 3     |                |                 | 18     | 7    |
| Odonata                                        |      |      |      |       |       |                |                 |        |      |
| Aeschnidae                                     |      |      |      |       |       |                |                 |        |      |
| <i>Boyeria grafiana</i>                        |      | 1    |      |       |       |                |                 |        |      |
| Calopterygidae                                 |      |      |      |       |       |                |                 |        |      |
| <i>Calopteryx maculata/dimidiata</i>           | 5    |      |      |       |       | 1              |                 |        |      |
| Cordulegastridae                               |      |      |      |       |       |                |                 |        |      |
| <i>Cordulegaster erronea</i>                   |      |      |      |       |       | 1              |                 | 1      |      |
| Gomphidae                                      |      |      |      |       |       |                |                 |        |      |
| <i>Lanthus vernalis</i>                        | 7    | 13   | 5    | 5     | 10    | 3              | 10              | 15     | 14   |
| Heteroptera                                    |      |      |      |       |       |                |                 |        |      |
| Gerridae                                       |      |      |      |       |       |                |                 |        |      |
| <i>Aquarius remigis</i>                        | 2    | 6    | 4    | 3     | 8     |                | 2               | 3      | 3    |
| Veliidae                                       |      |      |      |       |       |                |                 |        |      |
| <i>Rhagovelia obesa</i>                        |      |      |      |       |       |                |                 |        | 3    |
| Megaloptera                                    |      |      |      |       |       |                |                 |        |      |
| Corydalidae                                    |      |      |      |       |       |                |                 |        |      |
| <i>Nigrionia serricornis</i>                   | 1    | 3    | 1    |       | 2     |                |                 |        | 1    |
| Sialidae                                       |      |      |      |       |       |                |                 |        |      |
| <i>Sialis</i> sp.                              |      |      |      |       |       | 1              |                 |        |      |
| Trichoptera                                    |      |      |      |       |       |                |                 |        |      |

Table A10. Continued.

| Season                                      | Fall |      |      |       |                | Winter |      | Spring |      |
|---------------------------------------------|------|------|------|-------|----------------|--------|------|--------|------|
| Sampling date                               | 9/96 | 9/00 | 9/01 | 10/01 | 10/02          | 2/97   | 2/02 | 6/96   | 6/02 |
| Apataniidae                                 |      |      |      |       |                |        |      |        |      |
| <i>Apatania</i> sp.                         | 3    | 4    | 10   | 5     | 3              | 19     | 12   | 2      | 11   |
| Brachycentridae                             |      |      |      |       |                |        |      |        |      |
| <i>Micrasema burksi</i>                     | 1    |      |      | 1     |                | 2      | 2    |        |      |
| <i>Micrasema charonis</i> ♂                 |      |      |      |       |                |        |      | 1      |      |
| <i>Micrasema</i> sp. <sup>2</sup>           |      |      |      |       |                |        |      |        | 1    |
| Glossosomatidae                             |      |      |      |       |                |        |      |        |      |
| <i>Glossosoma nigrior</i> (inc. pupae)      | 8    | 15   | 2    | 2     | 13             |        | 2    | 17     | 24   |
| Goeridae                                    |      |      |      |       |                |        |      |        |      |
| <i>Goera fuscula</i>                        |      |      | 1    |       |                |        |      |        |      |
| Hydropsychidae                              |      |      |      |       |                |        |      |        |      |
| <i>Arctopsyche irrorata</i>                 | 16   | 9    | 21   | 23    | 5              | 3      | 4    |        |      |
| <i>Ceratopsyche macleodi</i>                | 24   | 39   | 25   | 47    | 23             | 23     | 8    |        |      |
| <i>Ceratopsyche slosonae</i>                | 1    |      |      | 5     | 2              | 1      |      | 30♂    | 4    |
| <i>Ceratopsyche sparna</i> (male pupa)      | 1    |      |      |       |                |        |      |        |      |
| <i>Cheumatopsyche</i> sp.                   |      |      |      |       |                |        |      |        | 1    |
| <i>Diplectrona modesta</i>                  | 5    | 6    | 2    | 20    | 30             | 8      | 9    | 35     | 41   |
| <i>Hydropsyche francelemonti</i>            |      |      |      | 1     |                |        |      |        |      |
| <i>Hydropsyche</i> sp. cf. <i>venularis</i> | 1    |      |      |       |                |        |      |        |      |
| <i>Parapsyche cardis</i>                    |      |      | 1    | 6     | 1              |        |      |        |      |
| Hydropsychidae sp. (early)                  | 1    | 7    | 6    | 7     | 5              |        |      |        |      |
| Lepidostomatidae                            |      |      |      |       |                |        |      |        |      |
| <i>Lepidostoma lydia</i> ♂                  |      |      |      |       |                |        |      | 2      |      |
| <i>Lepidostoma</i> sp.                      | 1    | 6    |      | 1     | 2 <sup>3</sup> | 11     | 17   | 14     | 24   |
| Leptoceridae                                |      |      |      |       |                |        |      |        |      |
| <i>Ceraclea</i> sp. cf. <i>ancylus</i>      | 2    | 3    |      |       | 1              |        |      |        | 1    |
| <i>Triaenodes</i> sp. (empty cases)         | 1    |      |      |       |                |        |      |        |      |
| Limnephilidae                               |      |      |      |       |                |        |      |        |      |

Table A10. Continued.

| Season                                  | Fall |                |      |       |                | Winter |      | Spring |      |
|-----------------------------------------|------|----------------|------|-------|----------------|--------|------|--------|------|
| Sampling date                           | 9/96 | 9/00           | 9/01 | 10/01 | 10/02          | 2/97   | 2/02 | 6/96   | 6/02 |
| <i>Pycnopsyche sonso</i>                |      |                |      |       |                |        | 24   |        | 14   |
| <i>Pycnopsyche luculenta/sonso</i>      |      |                |      |       |                |        |      |        |      |
| (early instars)                         | 1    | 5 <sup>3</sup> |      |       | 3 <sup>3</sup> | 23     |      | 11     |      |
| <i>Pycnopsyche</i> sp. (early)          |      |                |      | 3     |                |        |      |        |      |
| Limnephilidae sp. (early)               |      | 1              |      |       |                |        |      |        |      |
| Molannidae                              |      |                |      |       |                |        |      |        |      |
| <i>Molanna blenda</i>                   | 6    | 1              |      | 11    | 8              | 1      | 6    | 5      | 7    |
| Odontoceridae                           |      |                |      |       |                |        |      |        |      |
| <i>Psilotreta frontalis</i>             | 15   | 35             | 26   | 14    | 18             | 9      | 12   | 36     | 43   |
| <i>Psilotreta</i> sp. (early)           |      | 1              |      | 3     |                |        |      |        | 1    |
| <i>Psilotreta</i> sp. (pupae)           |      |                |      |       |                |        |      |        | 2    |
| Philopotamidae                          |      |                |      |       |                |        |      |        |      |
| <i>Chimarra</i> sp.                     |      |                |      |       | 1              |        |      |        |      |
| <i>Dolophilodes distinctus</i>          | 5    | 2              |      | 1     | 5              | 1♂     | 1    | 8♂     | 6    |
| <i>Wormaldia moesta</i>                 | 1    |                |      |       |                |        | 2    | 2♂     |      |
| Polycentropodidae                       |      |                |      |       |                |        |      |        |      |
| <i>Nyctiophylax nephophilus</i> ♂       |      |                |      |       |                |        |      | 1      |      |
| <i>Nyctiophylax</i> sp.                 |      | 1              | 2    | 2     | 2              | 1      | 4    | 10     | 9    |
| <i>Phylocentropus</i> sp. (empty tubes) |      |                |      |       |                |        |      | 1      |      |
| <i>Polycentropus carolinensis</i> ♂     |      |                |      |       |                |        |      | 1      |      |
| <i>Polycentropus</i> sp.                | 4    | 1              | 1    | 1     |                | 2      |      | 2      | 4    |
| Psychomiidae                            |      |                |      |       |                |        |      |        |      |
| <i>Lype diversa</i>                     |      | 3              |      |       |                |        | 1    | 8♂     |      |
| Rhyacophilidae                          |      |                |      |       |                |        |      |        |      |
| <i>Rhyacophila appalachia</i> ♂         |      |                |      |       |                |        |      | 3      |      |
| <i>Rhyacophila appalachia/nigrita</i>   | 1    | 3              | 3    | 1     | 3              | 1      | 1    | 3      | 5    |
| <i>Rhyacophila carolina</i>             | 2♂♀  |                |      |       | 5              |        |      | 23♂♀   | 5    |
| <i>Rhyacophila fuscula</i>              | 12   | 1              | 7    | 20    | 2              | 11     | 9    | 17     | 9    |

Table A10. Continued.

| Season                                         | Fall           |                |                |       |                 | Winter |      | Spring |      |
|------------------------------------------------|----------------|----------------|----------------|-------|-----------------|--------|------|--------|------|
| Sampling date                                  | 9/96           | 9/00           | 9/01           | 10/01 | 10/02           | 2/97   | 2/02 | 6/96   | 6/02 |
| <i>Rhyacophila glaberrima</i>                  |                |                | 1              |       |                 | 1      | 3    | 1      |      |
| <i>Rhyacophila minor</i>                       |                | 4              | 18             | 25    | 5               |        |      |        |      |
| <i>Rhyacophila nigrita</i> ♂                   |                |                |                |       |                 |        |      | 1      | 3    |
| <i>Rhyacophila teddyi</i> ♂                    |                |                |                |       |                 |        |      | 3      |      |
| <i>Rhyacophila torva</i>                       |                | 2              | 1              | 1     |                 |        |      | 1      |      |
| <i>Rhyacophila</i> sp. nov. cf. <i>nigrita</i> |                |                |                |       |                 |        | 3    | 1      |      |
| <i>Rhyacophila</i> sp. (early)                 | 1              | 3              |                |       | 4               |        |      | 1      |      |
| <i>Rhyacophila</i> sp. (pupae)                 |                | 2              |                |       |                 |        |      |        |      |
| Sericostomatidae                               |                |                |                |       |                 |        |      |        |      |
| <i>Fattigia pele</i>                           | 2              | 1              | 2              | 2     | 1               | 14     | 2    | 4      | 3    |
| Uenoidae                                       |                |                |                |       |                 |        |      |        |      |
| <i>Neophylax concinnus</i>                     |                |                |                |       |                 |        |      | 1      |      |
| <i>Neophylax consimilis</i>                    | 4 <sup>4</sup> | 4 <sup>4</sup> | 2 <sup>4</sup> |       | 2 <sup>4</sup>  | 8      | 16   | 2      | 12   |
| <i>Neophylax mitchelli</i>                     | 3 <sup>4</sup> | 4 <sup>4</sup> | 5 <sup>4</sup> |       | 3 <sup>4</sup>  |        |      | 2      | 1    |
| <i>Neophylax</i> sp. (early)                   |                | 1              |                |       | 16 <sup>3</sup> |        |      |        | 1    |
| Coleoptera                                     |                |                |                |       |                 |        |      |        |      |
| Carabidae                                      |                |                |                |       |                 |        |      |        |      |
| <i>Chelanius</i> sp.?                          |                |                |                |       |                 | 3      | 1    |        |      |
| Dryopidae                                      |                |                |                |       |                 |        |      |        |      |
| <i>Helichus basalis</i> ♂♀                     | 2              |                |                |       |                 |        |      |        |      |
| Eubriidae                                      |                |                |                |       |                 |        |      |        |      |
| <i>Ectopria</i> sp.                            | 1              |                |                |       |                 |        |      |        |      |
| Elmidae                                        |                |                |                |       |                 |        |      |        |      |
| <i>Optioservus immunis</i> ♂♀                  |                |                |                |       | 1               |        |      |        |      |
| <i>Optioservus ovalis</i> ♂♀                   |                |                |                | 3     |                 |        |      |        | 5    |
| <i>Optioservus</i> sp.                         |                |                |                | 1     |                 |        |      |        |      |
| <i>Oulimnius latiusculus</i> ♂♀                |                |                |                | 2     |                 |        |      |        |      |
| <i>Promoresia tardella</i>                     | 11♂♀           | 6♂♀            | 4♂♀            | 19♂♀  |                 | 2♂♀    |      | 7♂♀    | 1    |

Table A10. Continued.

| Season                       | Fall |      |      |       |       | Winter |      | Spring |      |
|------------------------------|------|------|------|-------|-------|--------|------|--------|------|
| Sampling date                | 9/96 | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| Psephenidae                  |      |      |      |       |       |        |      |        |      |
| <i>Psephenus herricki</i>    |      |      |      |       |       |        | 1    |        |      |
| Diptera                      |      |      |      |       |       |        |      |        |      |
| Athericidae                  |      |      |      |       |       |        |      |        |      |
| <i>Atherix lantha</i>        | 5    | 16   |      | 15    | 3     | 4      | 10   | 4      | 15   |
| Blephariceridae              |      |      |      |       |       |        |      |        |      |
| <i>Blepharicera</i> sp.      | 3    |      | 3    |       |       | 7      | 5    | 4      |      |
| Ceratopogonidae              |      |      |      |       |       |        |      |        |      |
| <i>Bezzia</i> sp.            |      |      |      |       |       |        |      |        | 4    |
| <i>Bezzia/Palpomyia</i> sp.  | 3    | 4    |      | 1     | 1     | 1      |      | 6      |      |
| Chironomidae                 | 33   |      |      |       |       | 62     |      | 54     |      |
| Chironominae                 |      |      |      |       |       |        |      |        |      |
| Chironomini                  |      | 3    |      | 2     |       |        | 4    |        | 5    |
| Tanytarsini                  |      | 10   |      | 4     | 9     |        | 5    |        | 13   |
| Orthocladinae                |      | 7    | 30   | 9     | 11    |        | 61   |        | 46   |
| Tanypodinae                  |      |      | 5    | 1     | 3     |        | 1    |        | 12   |
| Chironomidae pupae           |      | 1    | 1    | 2     | 4     |        | 2    |        | 2    |
| Dixidae                      |      |      |      |       |       |        |      |        |      |
| <i>Dixa</i> sp.              |      | 1    | 7    | 1     |       |        |      |        |      |
| Psychodidae                  |      |      |      |       |       |        |      |        |      |
| <i>Pericoma albitarsis</i>   |      | 1    |      |       |       |        |      |        |      |
| Simuliidae (including pupae) | 12   | 24   | 14   |       | 3     | 9      | 18   | 30     | 19   |
| Tipulidae                    |      |      |      |       |       |        |      |        |      |
| <i>Antocha</i> sp.           | 1    |      | 3    |       | 2     | 1      |      | 7      | 2    |
| <i>Dactylolabis</i> sp.?     |      |      |      |       |       |        | 4    |        |      |
| <i>Dicranota</i> sp.         | 4    | 3    | 4    |       | 1     | 1      | 2    | 8      |      |
| <i>Hexatoma</i> sp.          | 5    | 7    | 1    | 4     | 3     | 6      | 6    | 11     | 5    |
| <i>Longurio</i> sp.          |      |      |      |       |       |        |      |        | 1    |

Table A10. Continued.

| Season                          | Fall |      |      |       |       | Winter |      | Spring |      |
|---------------------------------|------|------|------|-------|-------|--------|------|--------|------|
| Sampling date                   | 9/96 | 9/00 | 9/01 | 10/01 | 10/02 | 2/97   | 2/02 | 6/96   | 6/02 |
| TAXA                            |      |      |      |       |       |        |      |        |      |
| <i>Limonia</i> sp.              |      | 1    |      |       |       |        |      |        |      |
| <i>Tipula abdominalis</i>       |      |      | 1    |       | 1     | 3      |      | 1      |      |
| <i>Tipula</i> sp. "moss animal" |      | 7    |      | 1     |       |        |      |        |      |
| <i>Tipula</i> sp.               |      |      |      |       | 2     |        |      |        |      |
| Tipulidae sp. (early)           |      | 2    |      | 1     |       |        |      |        |      |

<sup>1</sup> two taxa in winter sample; 1 of these virtually lacking posterolateral spines on abdominal segment 8; 2 specimens in 1997, 15 in 2002.

<sup>2</sup> vegetative cases, not *Micrasema burksi*

<sup>3</sup> cases only

<sup>4</sup> includes mature pupae

## **Appendix 2**



Table A11. Trichoptera taken from a light trap on Sams Creek at the campsite ca 200 m below the confluence of Starkey Creek, GRSM, Sevier Co., TN, 6-7 June 1996. Trap was a Coleman lantern set in a white pan containing weak isopropanol; it was left out all night. The number in the deposition column is the catalog number for the University of Tennessee Trichoptera collection. Identifications by D.A. Etnier.

| Deposition | Taxon                                          | No. specimens |
|------------|------------------------------------------------|---------------|
| 1.278      | <i>Glossosoma nigrior</i>                      | 1             |
| 1.279      | <i>Rhyacophila appalachia</i>                  | 34            |
| 1.280      | <i>Rhyacophila</i> sp. nov. cf. <i>nigrita</i> | 31            |
| 1.281      | <i>Rhyacophila carolina</i>                    | 9             |
| 1.282      | <i>Rhyacophila teddyi</i>                      | 2             |
| 1.283      | <i>Rhyacophila nigrita</i>                     | 1             |
| 1.284      | <i>Rhyacophila atrata</i>                      | 2             |
| 2.90       | <i>Dolophilodes distinctus</i>                 | 2             |
| 2.91       | <i>Wormaldia moesta</i>                        | 3             |
| 4.659      | <i>Ceratopsyche macleodi</i>                   | 81            |
| 4.660      | <i>Arctopsyche irrorata</i>                    | 1             |
| 7.422      | <i>Pseudostenophylax uniformis</i>             | 1             |
| 10.37      | <i>Psilotreta frontalis</i>                    | 1             |
| 10.38      | <i>Psilotreta rossi</i>                        | 2             |
| 14.100     | <i>Lepidostoma lobatum</i>                     | 1             |
| 14.101     | <i>Lepidostoma lydia</i>                       | 14            |
| 14.102     | <i>Lepidostoma bryanti</i>                     | 1             |
| 16.24      | <i>Fattigia pele</i>                           | 1             |
| 18.25      | Undet. females                                 | ca 100        |

### Trichoptera taken from light traps in GRSM in 2000

Boldface entries indicate taxa that have been cataloged at UT. Non-boldface entries (females, common males from large samples) have been cataloged as a single, mixed lot from that locality and date or discarded. Species are in phylogenetic order by family, and alphabetical order within family. Unidentified females are listed in the same order, before the list of taxa identified to species, or not listed. Numbers preceding entries are for locality reference.

43. Black light trap provided by Steve Moore, camping area along Sams Creek ca. 1/8 mile below Starkey Creek, GRSM, Sevier Co., TN, 17 Sept. A00. Laura Curry, Dan Nolfi, Bryan Rau. **1.281, *Rhyacophila carolina*** Banks, 5 males; **1.705, *Rhyacophila fuscula* (Walker)**, 6 males; **7.594, *Pycnopsyche sonso* Milne**, 15 males, 10 females; **7.597, *Pycnopsyche***

*gentilis* (McLachlan), 2 females; 7.596, *Neophylax consimilis* Betten, 1 male; 7.595, *N. kolodskii* Parker, 1 male, 1 female; *N. mitchelli* Carpenter, 2 males, 1 female; *Lepidostoma* sp., 1 female.

44. Thunderhead Prong at New World crossing, 3200 ft, Blount Co., TN, 26 Sept. 2000, black light, DC Nolfi, BG Rau. *Neophylax mitchelli* Carpenter, 2 males, 2 females; 7.602, *Pycnopsyche gentilis* (McLachlan), 2 males.

45. Alum Cave Creek, 1<sup>st</sup> bridge above trailhead, Sevier Co., TN, 27 Sept. 2000, black light, Robin Zimmer, Rich Humphreys. 7.612, *Pycnopsyche gentilis* (McLachlan), 1 male; 7.613, *P. sonso* (Milne), 1 male, 1 female.

46. Marks Creek, tributary to Lynn Camp Prong, Sevier Co., TN, combined from two black-light traps, one at 2300 ft, one at 3200 ft, 30 Sept. 2000, Greg P. Shaffer, Laura Curry. *Rhyacophila carolina*, 3 males, 1 female; 1.707, *R. fuscula* (Walker), 2 males, 17 females; 1.708, *R. glaberrima* Ulmer, 2 males; *Wormaldia moesta*, 2 males; 7.618, *Pycnopsyche gentilis* (McLachlan), 2 males, 1 female; 7.614, *P. luculenta* (Betten), 5 females; 7.615, *P. sonso* (Milne), 24 males, 10 females; 7.617, *Neophylax consimilis* Betten, 3 females; *N. mitchelli* Carpenter, 4 males, 3 females; 7.616, *N. ornatus* Banks, 5 males, 16 females; 14.126, *Lepidostoma griseum* (Banks), 1 male, 1 female.

47. Alum Cave Creek between 3<sup>rd</sup> and 4<sup>th</sup> bridge above trail head, 0.3 mi. below Arch Point, Sevier Co., TN, 27 Sept. 2000, black light, Robin Zimmer, Rich Humphrey. *Pycnopsyche sonso* (Milne), 2 females; 14.125, *Lepidostoma lobatum* Wallace & Sherberger, 1 male.

48. Indian Flats Prong, 3200 ft, Sevier Co., TN, 29 Sept. 2000, black light, BG Rau, DC Nolfi. 7.604, *Pycnopsyche gentilis* (McLachlan), 1 male, 4 females; 7.603, *P. sonso* (Milne), 23 males, 8 females; 7.606, *Neophylax consimilis* Betten, 1 female; 7.605, *N. ornatus* Banks, 1 female.

49. Thunderhead Prong at Shut-In Branch, Blount Co., TN, 26 Sept. 2000, black light, BG Rau, DC Nolfi. 7.611, *Pycnopsyche luculenta* (Betten), 2 males; 7.608, *Neophylax consimilis* Betten, 5 females; 7.610, *N. mitchelli* Carpenter, 24 males, 10 females; 7.609, *N. ornatus* Banks, 1 female.

50. Lynn Camp Prong, elev. 3360 ft, Sevier Co., TN, 29 Sept. 2000, black light, DC Nolfi, BG Rau. *Rhyacophila carolina* Banks, 1 female; 1.717, *Rhyacophila glaberrima* Ulmer, 2 females; 7.621, *Pycnopsyche flavata* (Banks), 1 male; 7.620, *P. gentilis* (McLachlan), 6 males, 11 females; 7.619, *P. sonso* (Milne), 59 males, 32 females; 7.623, *Neophylax consimilis* Betten, 1 male, 1 female; 7.622, *N. mitchelli* Carpenter, 21 males, 26 females.

## Trichoptera and Plecoptera taken from light traps in GRSM in 2001

Boldface entries of Trichoptera indicate taxa that have been cataloged at UT. Non-boldface Trichoptera entries (females, common males from large samples) have been cataloged as a single, mixed lot from that locality and date or discarded. Identifications by D.A. Etnier. Plecoptera deposited at C. P. Gillette Museum of Arthropod Diversity, Colorado State University, Ft. Collins, CO; identifications by B. C. Kondratieff.

51. Sams Creek campsite ca. 200 m below mouth of Starkey Creek, black light 13 July 2001, CA Walker, CAW01-34. *Rhyacophila carolina*, 2 males; *R. fuscula*, 4 females; **1.283**, *R. nigrita*, 6 males; **1.282**, *R. teddyi*, 1 male; *Dolophilodes distinctus*, 24 males, 1 female; **2.118**, *D. major*, 1 male; **2.91**, *Wormaldia moesta*, 1 male, 1 female; *Lype diversa*, 1 male, 4 females; **3.370**, *Nyctiophylax nephophilus*, 4 males; **3.368**, *Polycentropus cinereus*, 30 males; **3.369**, *P. maculatus*, 1 male; *Ceratopsyche macleodi*, 11 males; **4.773**, *C. morosa*, 1 male; **4.774**, *C. slossonae*, 44 males; **4.775**, *C. sparna*, 5 males; *Diplectrona modesta*, 31 males; **4.776**, *Parapsyche cardis*, 1 male; hydropsychoid females, 47; **7.422**, *Pseudostenophylax uniformis*, 1 male; **7.452**, *Pycnopsyche conspersa*, 1 female; **7.428**, *P. flavata*, 8 males, 1 female; **8.41**, *Molanna blenda*, 3 males, 2 females. 2 female. *Eccoptura xanthenes*; 1 male *Acroneuria abnormis*; 3 male and 2 female *Leuctra ferruginea*; 2 female *Amphinemura wui*.

Entries from here on have the number of males/number of females following binomen. If there is a single number entered, it indicates only males were identified.

52. Fish Camp Prong, 35 36.00'N, 83 34.06'W, GRSM, Sevier Co., TN, 15 Sept. '01, black light, Allison Mains, Thomas Jones. *Rhyacophila carolina*, 6; *R. fuscula*, 6/22; *R. glaberrima*, 1; *Pycnopsyche gentilis*, 1/3; *P. sonso*, 67/7; *Neophylax consimilis*, 1/11; *N. ornatus*, 1/1; **14.131**, *Lepidostoma griseum*, 1.

53. Goshen Branch, 35 35.36'N, 83 53.35'W, GRSM, Sevier Co., TN, 15 Sept. '01, Thomas Jones, Allison Mains, black light. *Rhyacophila carolina*, 1; *R. fuscula*, 1/3; *Pycnopsyche flavata*, 7; *P. gentilis*, 3/2; *P. sonso*, 31/11; *Neophylax mitchelli*, 1.

54. Indian Flats Prong ca. 75 ft above trail crossing south of intersection with Lynn Camp Prong Trail, elev. 3320 ft, GRSM, Sevier Co., TN, 7 Sept. 2001, CA Walker, Ben Sikes, black light, CAW'01-68. (\* = catalogued in 18.47 with unidentified females).

\**Rhyacophila carolina*, 19; \**R. glaberrima*, 4; \**R. teddyi*, 1; \**Dolophilodes distinctus*, 8/3; \**Wormaldia moesta*, 4; \**Lype diversa*, 0/2; \**Diplectrona modesta*, 22; **4.777**, *Parapsyche apicalis*, 3; **14.134**, *Lepidostoma excavatum*, 1; **14.135**, *L. griseum*, 3; *Neophylax ornatus*, 0/4. *Beloneuria stewarti*, *Perlesta frisoni*, 16. *Leuctra ferruginea*, 1. *Stenonema meririvulanum*.

55. CAW'01-66, Stone Camp Branch at Lynn Camp Prong, elev. 2440 ft, GRSM, Sevier Co., TN, 7 Sept. 2001, CA Walker, Ben Sikes, black light. Vouchers of non-boldface entries

are catalogued with mixed females in UT 18.48. *Glossosoma nigrior*, 2; *Rhyacophila carolina*, 15; *R. fuscula* 32/105; 1.759, *R. teddyi*, 1; *Dolophilodes distinctus*, 28/22; *Wormaldia moesta*, 3; 2.119, *W. thyria*, 1; 3.371, *Polycentropus maculatus*, 5; *Lype diversa*, 0/2; *Ceratopsyche sparna*, 19; *Diplectrona modesta*, 48; 5.489, *Palaeagapetus celsus*, 0/1; *Pycnopsyche flavata*, 3/2; *P. sonso*, 84/41 14.132, *Lepidostoma griseum*, 1; 14.133, *L. serratum*, 1., *Paragnetina immarginata*, 3. *Perlesta frisoni*, 3., 4. *Leuctra ferruginea*, *L. tenuis*.

56. CAW '01-64, Shut-In Branch at Thunderhead Prong, GRSM, Blount Co., TN, 2 Sept. '01, CA Walker, black light. *Rhyacophila carolina*, 3; *R. fuscula*, 6/21; *R. glaberrima*, 1; *R. torva*, 1; *Dolophilodes distinctus*, 2; *Diplectrona modesta*, 6; 7.672, *Neophylax kolodskii*, 1/1; *N. ornatus*, 4/5; *Pycnopsyche sonso*, 20/7; *P. flavata*, 4. *Leuctra ferruginea*, 2., .

57. CAW '01-62, Sams Creek, first crossing above metal bridge, GRSM, Blount Co., TN, 2 Sept. 2001, CA Walker. Trap was a candle in a Tupperware container with alcohol. *Rhyacophila fuscula*, 4/50; *Lype diversa*, 0/1; *Diplectrona modesta*, 1/0; *Pycnopsyche flavata*, 2/0; *P. sonso*, 16/5. All discarded.

58. CAW '01-70, Appalachian Trail at spring seep below Derrick Knob shelter, elev. 4720 ft, GRSM, 7 Sept. 2001, CA Walker, Ben Sikes, black light. *Rhyacophila glaberrima*, 1; *Wormaldia moesta*, 4; *Pycnopsyche gentilis*, 1. All discarded.

59. CAW '01-67, Confluence of Doghobble Branch and Lynn Camp Prong, elev. 2880 ft, GRSM, Sevier Co., TN, 7 Sept. 2001, CA Walker, Ben Sikes, black light. *Rhyacophila carolina*, 9; *R. fuscula*, 6/243; *R. glaberrima*, 7; *Dolophilodes distinctus*, 13/5; *Polycentropus cinereus*, 3; *Ceratopsyche sparna*, 5; *Diplectrona modesta*, 29; *Pycnopsyche flavata*, 2/1; *P. gentilis*, 2/0; *P. sonso*, 58/14; *Neophylax consimilis*, 6; *N. ornatus*, 2/2. At least some of all species catalogued with unidentified females in 18.49. *Perlesta frisoni*, 2., 4.; *Paragnetina immarginata*; *Leuctra ferruginea*, 5., 4.

60. CAW '01-69, Small seep crossing Appalachian Trail 1/8 mi n of Sams Gap, elev. 4680 ft, GRSM, TN, CA Walker, Ben Sikes, 7 Sept. 2001, black light. *Rhyacophila glaberrima*, 1; 7.422, *Pseudostenophylax uniformis*, 0/1; 7.688, *Pycnopsyche flavata*, 8/0; 7.689, *P. gentilis*, 5/9

61. CAW '01-65, Thunderhead Prong ca 1/2 mi above Shut-In Branch, GRSM, Blount Co., TN, 2 Sept. 2001, CA Walker, black light. *Rhyacophila carolina*, 1; *R. fuscula*, 19/59 (discarded); *R. glaberrima*, 1; 1.760, *R. teddyi*, 1; 1.761, *R. torva*, 1; *Glossosoma nigrior*, 5; *Lype diversa*, 0/1; 7.673, *Neophylax kolodskii*, 2/2; *N. ornatus*, 1/13; *Pycnopsyche flavata*, 2 (disc.); *P. sonso*, 54/28 (disc.); 14.137, *Lepidostoma griseum*, 3. All non-boldface Trichoptera entries catalogued with unidentified females in UT 18.50 unless listed as discarded. † *Perlesta frisoni*; 5., 6. *Leuctra ferruginea*.

boldface Trichoptera entries catalogued with unidentified females in UT 18.50 unless listed as discarded. † *Perlesta frisoni*; 5, 6. *Leuctra ferruginea*.

62. Sams Creek at campsite ca. 200 m below Starkey Creek, GRSM, Sevier Co., TN, 18 Sept. 2001, black light, G. Shaffer, B. Jones. *Rhyacophila carolina*, 7; *R. fuscula*, 10/64; *R. glaberrima*, 3; *Dolophilodes distinctus*, 5/2; *Wormaldia moesta*, 1; **2.120**, *Wormaldia thyria*, **1**; *Pycnopsyche flavata*, 2; *P. sonso*, 38/18; *Neophylax consimilis*, 0/2; **7.676**, *Neophylax kolodskii*, **0/2**; *N. mitchelli*, 3/2; *N. ornatus*, 2/3. All discarded except boldface entries. *Leuctra truncata*.

63. Sams Creek at third trail crossing above mouth of Thunderhead Prong, GRSM, Blount Co., TN, 18 Sept. 2001, black light, B. Jones, G. Shaffer. *Rhyacophila carolina*, 9; *R. fuscula*, 6/58; *R. glaberrima*, 2; *Dolophilodes distinctus*, 2/1; *Wormaldia moesta*, 1; *Diplectrona modesta*, 1; *Pycnopsyche gentilis*, 2/1; *P. sonso*, 56/20; *Neophylax mitchelli*, 1; **7.677**, *Neophylax ornatus*, **3/13**; all discarded except the last.

64. Sams Creek above Starkey Creek, elev. 3600 ft, GRSM, Sevier Co., TN, 18 Sept. 2001, black light, G. Shaffer, B. Jones. *Rhyacophila fuscula*, 4/11; *R. carolina*, 14; *R. glaberrima*, 8; *Glossosoma nigrior*, 1; *Dolophilodes distinctus*, 8/2; *Wormaldia moesta*, 6; **4.779**, *Parapsyche apicalis*, **2**; *Pycnopsyche flavata*, 3; *P. gentilis*, 2/3; *P. sonso*, 95/53 (five males & five females kept); **7.671**, *Neophylax kolodskii*, **1/8**; *N. mitchelli*, 17/2; *N. ornatus*, 6/8; *Lepidostoma griseum*, 2. All in UT **18.51** except bold entries and 90/48 *Pycnopsyche sonso*.

## Vita

Craig Walker was born in Nashville, TN on February 22, 1958. He grew up in Nashville and went to Una Elementary School and Apollo Junior High School. He graduated from Antioch High School in 1976. From there, he went to the University of Tennessee, Knoxville and received a B.S. in Forestry with a concentration in Recreation in 1983. He has worked for the United States Department of Interior, Office of Surface Mining since 1986. He received an M.S. in Ecology and Evolutionary Biology in 2003.

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