FINAL REPORT
BENTHIC MACROINVERTEBRATE SURVEY
WOLF CREEK RESERVOIR PROJECT

SUMMER 2000

FOR
US ARMY CORPS OF ENGINEERS
NASHVILLE DISTRICT

PREPARED BY

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SUMMARY

On July 27 and 28 and August 22 and 23, 2000, personnel from the Nashville District Corps of Engineers, Water Management Section (Hydrology and Hydraulic Branch, Engineering-Construction Division) collected water quality and benthic macroinvertebrate samples from seven locations (Beaver Creek Mile 21.3, 3WOL10040; Little South Fork Mile 5.2, 3WOL10035; Rockcastle River Mile 24.4, 3WOL10036; Buck Creek Mile 12.4, 3WOL10037; Bark Camp Creek Mile 2.0, 3WOL10023; Big South Fork Cumberland River Mile 45.0, 3WOL10029; and Pitman Creek Mile 4.9, 3WOL10026) in the Wolf Creek Project drainage.

Benthic macroinvertebrate community structure at each location and comparison of the sites were assessed using: taxa richness, Shannon's Index of Diversity, evenness, percent contribution of dominant taxa, EPT taxa, scraper and filtering collectors ratio, EPT to Chironomidae abundance ratio, Hilsenhoff's Biotic Index, Jaccard's Coefficient and percent similarity. Cluster analyses were accomplished using 1-Jaccard's Coefficient and percent dissimilarity. The clusters were interpreted graphically to relate similar communities. The number of organisms and taxa per Hess were also evaluated statistically using analyses of variance and means separation tests.

A minimum of 136 species of benthic macroinvertebrates was taken from all sites within the Wolf Creek Project drainage. The highest number of species was found in Beaver Creek Mile 21.3 with 72, followed by 68 species from Bark Camp Creek Mile 2.0, 57 from Buck Creek Mile 12.4, 53 from Rockcastle River Mile 24.4, 51 from Little South Fork River Mile 5.2, and 49 from both Big South Fork River Mile 45.0 and Pitman Creek Mile 4.9. The greatest densities were found in Buck Creek Mile 12.4 with an estimate of 8,390/m^2, while Bark Camp Creek Mile 2.0 had the least with ~1,890/m^2.

All sites had species rich and diverse benthic macroinvertebrate populations residing under "Good" (Rockcastle River Mile 24.2, Buck Creek Mile 12.4, and Pitman Creek Mile 4.9) to "Very Good" (Beaver Creek Mile 21.3, Little South Fork Mile 5.2, Bark Camp Creek Mile 2.0 and Big South Fork River Mile 45.0) water quality conditions. A statistical comparison of the seven locations using number of individuals/m^2 found no significant differences at the 0.05 confidence level between Beaver Creek Mile 21.3 and Buck Creek Mile 12.4 (Table 3). Buck

Creek Mile 12.4 had population densities significantly greater than the remaining five stations. Densities at Beaver Creek Mile 21.3 and the remaining five stations were equivalent.

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INTRODUCTION

On July 27 and 28 and August 22 and 23, 2000, personnel from the Nashville District, Corps of Engineers Water Management Section (Hydrology and Hydraulics Branch, Engineering-Construction Division) collected water quality and benthic macroinvertebrate samples from seven locations in the Wolf Creek Reservoir drainage. The Water Management Section maintains a baseline, water quality data collection and monitoring program. A wide range of physical, chemical and biological data is collected, analyzed and reported from various locations representing tailwaters, impounded sites and reservoir inflows for the ten Nashville District reservoirs in the Cumberland River Basin. During calendar year 2000, biological data collections included extensive quantitative sampling for benthic macroinvertebrates at all ten Cumberland River Basin projects.

SAMPLING LOCATIONS

Sampling locations in the Wolf Creek Reservoir drainage are shown in Figure 1. The following is a brief description of the seven-benthic macroinvertebrate sampling sites.

3WOL10040 – Beaver Creek Mile 21.3, Latitude $36^0$49'05", Longitude $84^0$52'47", Inflow location,

3WOL10035 – Little South Fork Mile 5.2, Latitude $36^0$48'00", Longitude $84^0$35'48", Inflow location

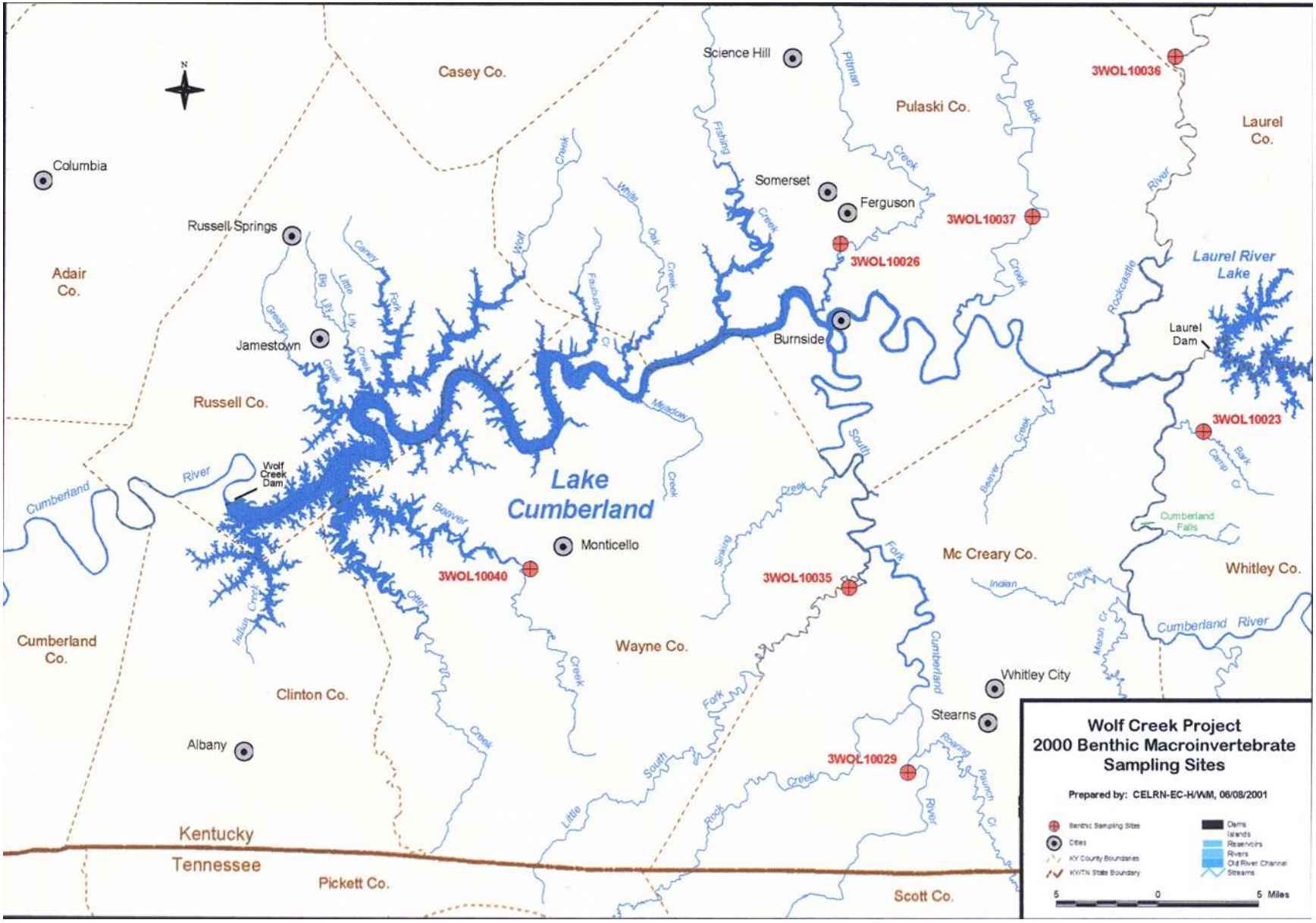
3WOL10036 – Rockcastle River Mile 24.4, Latitude $37^0$10'16", Longitude $84^0$17'45", Inflow location

3WOL10037 – Buck Creek Mile 12.4, Latitude $37^0$03'38", Longitude $84^0$25'34", Inflow location

3WOL10023 – Bark Camp Creek Mile 2.0, Latitude $36^0$54'38", Longitude $84^0$16'44", Inflow location.

3WOL10029 – Big South Fork Cumberland River Mile 45.0, Latitude $36^0$4'03", Longitude $84^0$32'50", Inflow location.

3WOL10026 – Pitman Creek Mile 4.9, Latitude $37^0$02"35", Longitude $84^0$35'42", Inflow location.


Casey Co.
Science Hill
Pulaski Co.
Laurel Co.
3WOL10036
Columbia
Somerset
Ferguson
3WOL10037
Russell Springs
3WOL10026
Laurel River Lake
Adair Co.
Jamestown
Burnside
Laurel Dam
Russell Co.
3WOL10023
Wolf Creek Dam
Lake Cumberland
Monticello
Mc Creary Co.
Whitley Co.
3WOL10040
3WOL10035
Cumberland Co.
Wayne Co.
Clinton Co.
Whitley City
Stearns
Albany
3WOL10029
Kentucky
Tennessee
Pickett Co.
Scott Co.
Wolf Creek Project
2000 Benthic Macroinvertebrate Sampling Sites
Prepared by: CELRN-EC-H/WM, 06/08/2001
Benthic Sampling Sites
Cities
KY County Boundaries
KY/TN State Boundary
Dams
Islands
Reservoirs
Rivers
Old River Channel
Streams
5 0 5 Miles

BACKGROUND

As found in similar studies, the alteration of the physical or chemical norms of an aquatic environment has the potential to influence nearly all organisms residing in that environment (Goodnight 1973). A community represented by numerous species with no particular numerical domination evident in the population is usually indicative of an unstressed environment (Weber 1973, Klemm et al. 1990). Conversely, a benthic community composed of a few species with large numbers of individuals typifies a stressed community from which intolerant species have been reduced or eliminated by a pollutant or substrate change. The populations of tolerant species expand due to reduced competition or increased resources, or both. The often-dramatic benthic community shifts, which can occur in stressed ecosystems, are due to the varying sensitivities of the different macroinvertebrate species. Mayflies (Ephemeroptera), stoneflies (Plecoptera), and caddisflies (Trichoptera), or EPT species, which spend most of their lives in an aquatic environment, are generally less tolerant of most types of pollution, whereas many flies (Diptera) and worms (Oligochaeta) are more tolerant of environmental stress conditions (Brinkhurst 1962, Beck 1977, Mason 1971, and Merritt and Cummins 1996). Stream reaches may be divided into several ecological categories depending upon whether or not they are subject to stressful agents and, if they are, to what extent or type. They can also be divided into these categories on the basis of the benthic fauna that is supported in that reach.

Attention is usually focused on the macroinvertebrate species because they are more indicative of the relative health of a stream. In addition, macroinvertebrates are found in all habitats, less mobile than other groups of aquatic organisms, easily collected, and most have relatively long periods of development in the aquatic environment. Thus, macroinvertebrate species can be used to indicate deleterious events that have occurred in an aquatic system during any stage of their development.

Clean water streams with variable habitat features often have a high diversity of species with each species represented by a few individuals. Streams receiving organic pollution generally show a decrease in diversity and an increase in density (Gaufin and Tarzwell 1956), while streams receiving toxic products frequently show a decrease in both diversity and density (Cairns et al., 1971).

Increased sedimentation in streams is a problem most often the result of poor agriculture practices and construction activity in the vicinity streams (Waters, 1995). The effects of increased sedimentation vary, but the primary effect is habitat loss caused by the filling of cracks and crevices with sand and silt and general decrease in habitat diversity.

MATERIALS AND METHODS

At each station, four replicate quantitative samples were taken with a 500-micron mesh Hess sampler (0.09 m^2) from the riffle/run habitat of the stream. Organisms within each area encompassed by the Hess were collected by physically detaching them from the substrate (usually by hand picking or gently sweeping substrate materials with a brush) and/or by agitating the substrate and allowing the current to carry dislodged organisms into the net. No sorting of organisms and debris was attempted in the field. Organisms and debris were carefully transferred into a storage jar and the entire contents preserved with formalin. Labels bearing unique numbers were applied to the exterior of the jars. These numbers and associated information were then recorded on a chain of custody form. All samples were returned to the Nashville District's Water Management Support Center for storage before delivery to Pennington and Associates, Inc. Storage times ranged from a maximum of five months to a minimum of four months. No deterioration of sample quality was observed during this holding time.

In the laboratory, all benthic samples were washed in a 120-micron mesh screen. After washing, the macroinvertebrates were removed from the detritus under 5x magnification and preserved in 85% ethanol. The organisms were identified to the lowest practical taxonomic level using available keys (Pennington and Associates, Inc. 1994) and counted. Identifications were made with a stereomicroscope (7X to 60X). Slide mounts were made of the chironomids, simuliids, oligochaetes, and small crustaceans, and identifications were made with a compound microscope. The chironomids, simuliids, and oligochaetes were cleared for 24 hours in cold 10% KOH. Temporary mounts were made in glycerin and the animals returned to 80% ethanol after identification. When permanent mounts were desired, the organisms were transferred to 95% ethanol for 30 minutes and mounted in euperol.

SUBSTRATE DETERMINATION

A classification of substrate based on the size scale proposed by Wentworth (Compton 1962) was used to make field observations of the substrate present at each station. This classification of detrital sediments is by grain diameter and is as follows:

Diameters	Approximate Inch Equivalents	Name of Loose Aggregate
>256 mm	>10 inch	Boulder
64 to 256 mm	2.5 to 10 inch	Cobble
2 to 64 mm	0.08 to 2.5 inch	Gravel
1/16 to 2 mm	0.002 to 0.08 inch	Sand
1/256 to 1/16 mm	0.00015 to 0.002 inch	Silt
<1/256 mm	<0.00015 inch	Clay

Substrate types encountered at the seven sites vary somewhat. In general substrate types at the sites are dominated by cobble and gravel on bedrock with relatively minor amounts of finer grained materials (sand, silt and clay).

COMMUNITY STRUCTURE MEASURES

Brower and Zar (1984) provide a detailed discussion of a variety of techniques for measuring community structure. The use of diversity indices is based upon the observation that normally undisturbed environments support communities with large numbers of species having no individuals present in overwhelming abundance. If the species of a disturbed community are ranked by numerical abundance, there may be relatively few species with large numbers of individuals. Mean diversity is affected by both "richness" of species (or abundance of different species) and by the distribution of individuals among the species. High species diversity indicates a highly complex community.

Species diversity was estimated using Shannon's Index of Diversity (H):

$$H = - p_i \log p_i$$

where p_i is the proportion of the total number of individuals occurring in species i ($p_i=n_i/N$), N is the total number of individuals in all species.

Diversity indices take into account both the species richness and the evenness of the individuals' distribution among the species. Separate measures of these two components of diversity are often desirable. Species richness can be expressed simply as the number of species in the community. Evenness may be expressed by considering how close a set of observed species abundance are to those from an aggregation of species having maximum possible diversity for a given N and s (Brower and Zar 1984).

Evenness is calculated as follows:

$$\text{Pielou } J' = H/H_{max}$$

where H is calculated diversity and H_{max} is maximum possible diversity.

Jaccards Coefficient, Community Loss Index, and Percent Similarity measure community similarity between sites.

$$\text{Jaccards Coefficient} = \frac{C}{S_1 + S_2 - C}$$

$$\text{Community Loss Index} = \frac{S_1 - C}{S_2}$$

where S = Species in each community (S_1 is reference Community in Community loss Index)

C = Species common to both communities

The Community Loss Index is an index of dissimilarity with values increasing as the degree of dissimilarity from the reference station (S_1) increases (Plafkin et al. 1989). Values range from 0 to infinity. Community Loss was not calculated because no station was designated as a reference site.

Percent Similarity, for a two-community comparison, is calculated as follows: The number of individuals in each species is calculated as a fractional portion of the total community. The value for species i in community 1 is compared to the value for species i in community 2. The lower of the two is tabulated. This procedure is followed for each species. The tabulated list (of the lower of each pair of values) is summed. The sum is defined as the Percent Similarity of the two communities.

The software package Number Cruncher Statistical Systems version 2000 was used to evaluate community similarity (Hintze 1998). Cluster analysis sorts sampling units into groups based on the overall resemblance to each other (Lundwig and Reynolds 1988). To permit grouping, sampling units are sorted using 1-Jaccards Coefficient and Percent Dissimilarity. The cluster analysis combines the distances between sampling units into a matrix table, and two strategies of clustering are used to calculate a distance for N-1 cycles (N=number of sampling units). The cluster analysis is interpreted graphically on a dendrogram to relate the similar communities (Hintze 1998, Ludwig and Reynolds 1988).

The percent contribution of the numerically dominant taxon to the total number of organisms in the community is a rough measure of community balance at the lowest possible taxonomic level (Plafkin et al. 1989). A community, which is dominated by a few species, may be under environmental stress.

The total number of species within the pollution sensitive groups Ephemeroptera, Plecoptera, and Trichoptera is generally considered a measure of water quality and is listed as the EPT Index (Plafkin et al. 1989). The EPT Index generally increases with increasing water quality.

According to Plafkin et al. (1989) the scraper and filtering collector ratio (Sc/FC) reflects the riffle/run community food base and may provide insights into the nature of potential disturbance factors. The ratio of scraper abundance to the combined totals of scrapers and filtering collectors (scrapers / scrapers and filtering collectors) is an adjustment of the scrapers / filtering collectors from a ratio to a measure of percent contribution (Barbour et al. 1992).

The ratio of shredder functional feeding group and total number of individuals (Sh/Total) in the CPOM sample, allows evaluation of potential impairment as indicated by the shredder community. Shredders are considered sensitive to riparian zone impacts and are believed to be

good indicators of toxic effects when toxicants are absorbed by or associated with the course particulate organic matter (CPOM) (Plafkin et al 1989). This metric was not included in this study because no CPOM samples were obtained at each station.

The EPT and Chironomidae abundance ratio (EPT/Chironomidae) is the relative abundance of the pollution sensitive groups Ephemeroptera, Plecoptera, and Trichoptera to the more tolerant Chironomidae as a measure of community balance (Plafkin et al. 1989). It is believed that good biotic condition is reflected in benthic communities with an even distribution of species among all four major groups and with substantial representation of Ephemeroptera, Plecoptera, and Trichoptera. Populations with a disproportional number of Chironomidae relative to the sensitive groups are most likely an indication of environmental stress (Plafkin et al. 1989).

A scoring approach developed by Plafkin et al. (1989) to estimate community health utilizes many of the community measures previously discussed. This rapid bioassessment is presented in flow chart format in Figure 2.

Metric	Biological Condition Scoring Criteria			
	6	4	2	0
1. Taxa Richness[a]	>80%	60-80%	40-60%	<40%
2. Hilsenhoff Biotic Index (modified)[b]	>85%	70-85%	50-70%	<50%
3. Ratio of Scrapers/Filt. Collectors[a,c]	>50%	35-50%	20-35%	<20%
4. Ratio of EPT and Chironomid Abundance[a]	>75%	50-75%	25-50%	<25%
5. % Contribution of Dominant Taxon[d]	<20%	20-30%	30-40%	>40%
6. EPT Index[a]	>90%	80-90%	70-80%	<70%
7. Community Loss Index[e]	<0.5	0.5-1.5	1.5-4.0	>4.0
8. Ratio of Shredders/Total[a,c]	>50%	35-50%	20-35%	<20%

[a] Score is a ratio of study site to reference site X 100.

[b] Score is a ratio of reference site to study site X 100.

[c] Determination of Functional Feeding Group is independent of taxonomic grouping.

[d] Scoring criteria evaluate actual percent contribution, not percent comparability to the reference station.

[e] Range of values obtained. A comparison to the reference station is incorporated in these indices.

BIOASSESSMENT		
% Comp. to Ref. Score[a]	Biological Condition Category	Attributes
>83%	Nonimpaired	Comparable to the best situation to be expected within an ecoregion. Balanced trophic structure. Optimum community structure (composition and dominance) for stream size and habitat quality.
54-79%	Slightly impaired	Community structure less than expected. Composition (species richness) lower than expected due to loss of some intolerant forms. Percent contribution of tolerant forms increases.
21-50%	Moderately impaired	Fewer species due to loss of most intolerant forms. Reduction in EPT index.
<17%	Severely impaired	Few species present. If high densities of organisms, then dominated by one or two taxa.

[a] Percentage values obtained that are intermediate to the above ranges will require subjective judgment as to the correct placement. Use of the habitat assessment and physiochemical data may be necessary to aid in the decision process.

Figure 2. Biological Condition Scoring Criteria (Plafkin et al. 1989)

BIOTIC INDEX

Both the evenness and diversity indices are based on information of community structure and do not reflect any knowledge of the physiological attributes or ecological affinities of the organisms comprising the community (Howmiller and Scott 1977). Howmiller and Scott (1977) suggest the use of a trophic index for assessing ecological stress using Oligochaete species. After a two-year study of 53 Wisconsin streams, Hilsenhoff (1982) proposed using a biotic index of arthropod populations as a rapid method for evaluating water quality. Hilsenhoff (1987) expanded and improved his biotic index and this index, which is a measure of organic and nutrient pollution, was used in this study.

To calculate the biotic index, species are assigned pollution tolerance values of 0 to 10. A value of 0 is assigned to species found only in unaltered streams of very high water quality, and a value of 10 is assigned to species known to occur in severely polluted or disturbed streams. Intermediate values are assigned to species that occur in streams with intermediate degrees of pollution or disturbance. Where species cannot be identified, genera are assigned values instead. The biotic index is calculated from the formula:

$$BI = \sum \frac{n_i a_i}{N}$$

where n_i is the number of individuals of each species, a_i is the tolerance value assigned to that species and N is the total number of individuals in the sample (Hilsenhoff 1982). The index is an average of tolerance values, and measures saprobity (pertaining to tolerance of organic enrichment) and to some extent trophism.

According to Hilsenhoff (1987) the calculated Biotic Index values reflect the following:

Biotic Index	Water Quality	Degree of Organic Pollution
0.00 - 3.50	Excellent	No apparent organic pollution
3.51 - 4.50	Very Good	Possibly slight organic pollution
4.51 - 5.50	Good	Some organic pollution
5.51 - 6.50	Fair	Fairly significant organic pollution
6.51 - 7.50	Fairly Poor	Significant organic pollution
7.51 - 8.50	Poor	Very significant organic pollution
8.51 - 10.00	Very Poor	Severe organic pollution

Biotic Index values are calculated using tolerance values provided in North Carolina Department of Environment, Health and Natural Resources, Division of Environmental Management Water Quality Section, Standard Operating Procedures Biological Monitoring, Environmental Sciences Branch Ecosystems Analysis Unit, Biological Assessment Group, January, 1997 (North Carolina, Department of Environment, Health and Natural Resources 1997).

Since North Carolina provides water quality classifications for Biotic Index values based on three geographic regions (mountains, piedmont and coastal) it is probably more appropriate to use scoring criteria for the piedmont region. North Carolina's scoring criteria for water quality assessment for the piedmont region are as follows:

NC Biotic Index (Piedmont)	Water Quality
< 5.19	Excellent
5.19 - 5.78	Good
5.79 - 6.48	Good - Fair
6.49 - 7.48	Fair
> 7.48	Poor

STATISTICAL EVALUATION

Sampling efficiency of the field techniques was calculated via a statistical analysis of the quantitative samples using Number Cruncher Statistical Systems Version 2000 (Hintz 1998). The mean number of organisms per sample, the standard deviation, the standard error, and the sampling precision of the mean were calculated for the benthic samples from each station (Elliot 1977). The sampling precision is the primary parameter evaluated and represents the percentage of the actual mean of the population within which the sample mean lies and indicates how accurately the macroinvertebrate community was sampled. According to Elliot (1977), a sampling precision of 20% (80% confidence) or less is usually acceptable in biological studies. The sampling precision (D) is the ratio of the standard error to the arithmetic mean:

$$D = (S.E./Mean)\ 100$$

Since four quantitative samples were taken in each area, some of the population estimates may not be sampled with 80% or greater confidence. As stated by Elliot (1977), the simplest solution to this problem is to take many samples (over 50 samples), but this is not usually an acceptable allocation of resources.

An analysis of variance (F test) was used to compare the stations using the number of organisms and species per sample. According to Sokal and Rohlf (1981), analysis of variance is a technique in statistics where the total variation in a set of data is partitioned into components associated with possible sources of variability. The relative importance of the different sources

is then assessed by F-tests between each component of variation and the "error" variation. If the calculated F-value is greater than the tabular F-value at the 0.05 level of significance, then a difference between data sets is greater than the variation within a data set. Following the approach of Chew (1977), mean separation tests are applied to separate and rank the mean values of each data set developed from benthic enumeration.

RESULTS AND DISCUSSION

A list of all aquatic benthic macroinvertebrate species, assigned tolerance values, functional feeding groups and numbers of individuals of each species collected from each stream location are presented in Table 1. Complete listings of all data by sample, station and month are found in the Appendix. A summary of benthic community measures is presented in Table 2. A statistical analysis of sampling efficiency and a comparison of the stations using mean number of organisms per Hess sampler is presented in Table 3. A similar comparison using mean number of species per Hess sampler is found in Table 4. A comparison of the stations using Percent Dissimilarity is in Figure 3 while similar comparisons using 1-Jaccard's Coefficient is clustered in Figure 4.

A minimum of 136 species of aquatic benthic macroinvertebrates was taken from the seven stations within the Wolf Creek watershed (Table 1). The benthic macroinvertebrate populations from the seven sites represented five phyla and 64 families. As in 1998, the highest number of species (72) was found at Beaver Creek Mile 21.3, followed by 68 from Bark Camp Creek Mile 2.0, 57 from Buck Creek Mile 12.4, 53 species from Rockcastle River Mile 24.4, 51 from Little South Fork River Mile 5.2, and 49 from both Big South Fork River Mile 45.0 and Pitman Creek Mile 4.9 (Table 1). The greatest densities (no./m^2) were found in Buck Creek Mile 12.4 with an estimated ~8,390/m^2 followed by ~6,438/m^2 at Beaver Creek Mile 21.3. The lowest number of species was found at Bark Camp Creek Mile 2.0 with ~1,890/m^2.

Beaver Creek Mile 21.3 (3WOL10040), as in 1998, produced the most species from the four Hess samples with 72. This site also had the second highest density estimates of the seven sites with ~6,438/m^2 (Table 1). This site had high numbers of the snail *Elimia sp*. (35.4%) in the riffle/runs, with the net-spinning caddisfly *Cheumatopsyche spp*. (8.6%) and the chironomid *Rheotanytarsus sp*. (5.1%) also common. The high numbers of individuals belonging to a few species contributed to the lower diversity values (3.76) at this site when compared to the other six locations (Table 2). There were 24 EPT species at this location, which was only slightly less than the high of 26 found at the Bark Camp Creek and Big South Fork Cumberland River locations. The Biotic Index value (4.14) is considered indicative of "Very Good" water quality with possibly slight organic pollution. This site appears to be improved when compared to the 1998 survey.

Little South Fork River Mile 5.2 (3WOL10035), as in 1998, had a minimum of 51 species, including 16 EPT species (slightly less than the 19 found during the 1998 survey), in all the Hess samples taken. This site had the third highest density estimates (3,297/m^2) of the seven locations. No species was dominant in the fauna, but the snail *Elimia sp*. (19.8%), the riffle beetle *Microcylloepus pusillus* (11.9%), the midge *Rheotanytarsus sp*. (10.3%) were all abundant (Table 1). The Biotic Index value (4.08) is considered representative of "Very Good" water quality with possibly slight organic pollution. This site appears to have changed little since 1998.

Rockcastle River Mile 24.4 (3WOL10036) had the forth-highest number of total species (53) and EPT species (21), both just slightly less than that observed in 1998. Density (~2,710m^2) was forth of the seven sites, but similar to that found in 1998. The chironomid *Rheotanytarsus sp*. (16.1%), the snail *Elimia sp*. (14.3%), and the caddisfly *Cheumatopsyche sp*. (13.3%) were all common. The Biotic Index value (4.7) calculated for the fauna of Rockcastle River Mile 24.4 is representative of a fauna existing under "Good" water quality conditions with some organic pollution. This site has changed very little since the 1998 assessment.

Buck Creek Mile 12.4 (3WOL10037) had a minimum of 57 benthic macroinvertebrate species and 24 EPT species, slightly higher than found in 1998. Population densities were again high at this site with an estimated 8,390/m^2 (Table 1). This site had an abundance of the mayflies *Caenis spp*. (23.4%), *Stenonema spp*. (12.4%), and *Isonychia sp*. (12.0%) and the riffle beetle *Optioservus sp*. (12.9%). The Biotic Index value (4.78) calculated for this site is considered indicative of "Good" water quality with some organic pollution. This site is at most only slightly improved from the 1998 survey.

Bark Camp Creek Mile 2.0 (3WOL10023) had 68 species total (second highest) and 26 EPT species, which was the highest number found (Table1 and 2). The population densities were again low at this location with an estimate of 1,890 individuals/m^2. The mayflies *Stenonema spp.* (7.5%), and *Isonychia spp*. (7.1%), the caddisfly *Psychomyia flavida* (7.9%) and the chironomid *Tanytarsus sp*. (7.1%) were the most common species. The value of diversity for this location was very high (5.09). The Biotic Index value 4.05 is indicative of a fauna existing under "Very Good" water quality with only possibly slight organic pollution. This site has changed little since the 1998 survey.

The Big South Fork River Mile 45.0 (3WOL10029) site again had the fewest total species (46) but unlike 1998 had the highest EPT species (26) (Table 1). Density estimates of the various populations were approximately 2,702/m^2. The mayfly *Stenonema sp*. (27.8%), the caddisfly *Chimarra sp*. (12.3%), and the clam *Corbicula fluminea* (10.8%), were the most common species at this site. The Biotic Index value (4.20) for this location is indicative of "Very good" water quality conditions with only possibly slight organic pollution.

Pitman Creek Mile 4.9 (3WOL10026) had a low of 49 species and the lowest number of EPT species (15) of any station (Table 1). Estimates of population densities were also low at this location with 2,338 individuals/m^2. The chironomids *Cricotopus sp*. (16.6%) was the most abundant species followed by the snail *Elimia sp*. (9.7%), the beetles *Stenelmis sp*. (9.6%) and *Psephenus herricki* (9.4%) and the mayfly *Caenis sp*. (9.0%). Diversity was high (4.20) and the Biotic Index value (5.33) for this site is indicative of "Good" water quality. This site was not sampled in 1998.

Statistical comparisons of the seven sites in the Wolf Creek drainage using mean number of individuals/Hess sample (Table 3) found Buck Creek Mile 12.4 equivalent with Beaver Creek Mile 21.3 but significantly greater than the other five locations. A comparison of the sites using mean number of species/Hess sample (Table 4) found no significant differences between the seven sites at the 0.05 confidence level.

A comparison of the seven sites using percent dissimilarity (species shared including a density component) is presented in Figure 3. Rockcastle River Mile 24.4 and Little South Fork River Mile 5.2 are the most similar and cluster first. Pitman Creek Mile 4.9 and Beaver Creek Mile 21.3 form secondary clusters with Rockcastle River Mile 24.4 and Little South Fork River Mile 5.2. Buck Creek Mile 12.4 and Big South Fork CRM 45.0 formed a separate distinct cluster. Bark Camp Creek clusters last.

A similar comparison using only species shared (Jaccards Coefficient) is presented in Figure 4. In terms of species shared, Buck Creek Mile 12.4 and Big South Fork CRM 45.0 clustered first followed by Little South Fork Mile 5.2 and Beaver Creek Mile 21.3, Pitman Creek Mile 4.9 and Rockcastle River Mile 24.4, and last, Bark Camp Creek Mile 2.0.

TABLE 1. SUMMARY OF BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR, SUMMER 2000.

SPECIES	T.V.**	F.F.G.***	BEAVER CREEK MILE 21.3 3WOL10040		LITTLE SO. FORK MILE 5.2 3WOL10035		ROCKCASTLE RIVER MILE 24.4 3WOL10036	
			TOTAL	Density No./m^2	TOTAL	Density No./m^2	TOTAL	Density No./m^2
PLATYHELMINTHES								
Turbellaria								
Tricladida								
Planariidae								
Dugesia tigrina	**7.23**		5	13.9	7	19.46		
NEMATODA	**6.02**				1	2.78		
MOLLUSCA								
Bivalvia								
Veneroida								
Corbiculidae								
Corbicula fluminea	**6.12**	**FC**	36	100.08	3	8.34	18	50.04
Sphaeriidae		**FC**						
Pisidium sp.	**6.48**	**FC**	3	8.34				
Gastropoda								
Basommatophora								
Ancylidae								
Ferrissia rivularis	**6.55**	**SC**					4	11.12
Physidae								
Physella sp.	**8.84**	**CG**	1	2.78				
Mesogastropoda								
Pleuroceridae								
Elimia sp.	**2.46**	**SC**	821	2282.38	235	653.3	139	386.42
ANNELIDA								
Oligochaeta								
Haplotaxida								
Enchytraidae	**9.84**	**CG**						
Lumbricidae			1	2.78	9	25.02	1	2.78
Naididae	***8**	**CG**			4	11.12		
Nais bretscheri	**8.88**	**CG**	1	2.78				
Nais communis	**8.81**	**CG**	2	5.56				
Paranais sp.			1	2.78				
Tubificidae w.o.h.c.	**7.11**	**CG**	17	47.26	1	2.78		
Limnodrilus hoffmeisteri	**9.47**	**CG**	2	5.56				
Tubificidae w.h.c.	**7.11**	**CG**						
Lumbriculida								
Lumbriculidae	**7.03**	**CG**					1	2.78
Hirudinea	***8**	**P**			2	5.56		
ARTHROPODA								
Arachnoida								
Acariformes			2	5.56	3	8.34		

TABLE 1. SUMMARY OF BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR, SUMMER 2000.

SPECIES	T.V.**	F.F.G.***	BEAVER CREEK MILE 21.3 3WOL10040		LITTLE SO. FORK MILE 5.2 3WOL10035		ROCKCASTLE RIVER MILE 24.4 3WOL10036	
			TOTAL	Density No./m^2	TOTAL	Density No./m^2	TOTAL	Density No./m^2
Lebertiidae								
Lebertia sp.	**5.53**							
Crustacea								
Isopoda								
Asellidae								
Caecidotea sp.	**9.11**	**CG**	4	11.12				
Crangonyctidae								
Crangonyx sp.	**7.87**	**CG**	13	36.14	3	8.34	2	5.56
Decapoda								
Cambaridae			1	2.78				
Orconectes sp.	**2.6**	**SH**	3	8.34			3	8.34
Gammaridae								
Gammarus sp.	**9.1**	**SH**	13	36.14				
Insecta								
Ephemeroptera								
Baetidae								
Acentrella ampla	**3.61**	**CG**						
Baetis sp.	***4**	**CG**	16	44.48				
Baetis intercalaris	**4.99**	**CG**	46	127.88	6	16.68	34	94.52
Plauditus sp.	***4**	**CG**			7	19.46	2	5.56
Procloeon sp.	***5**	**CG**						
Baetiscidae								
Baetisca carolina	**3.47**	**CG**						
Caenidae								
Caenis sp.	**7.41**	**CG**			16	44.48	41	113.98
Ephemeridae		**CG**						
Ephemera sp.	***3**	**CG**	1	2.78			1	2.78
Ephemerellidae	***1**							
Serratella sp.	***1**	**SC**						
Heptageniidae	***4**	**SC**	1	2.78				
Epeorus sp.	**1.27**	**SC**						
Epeorus dispar	**1.27**	**CG**						
Heptagenia sp.	**2.57**	**SC**	7	19.46	1	2.78		
Leucrocuta sp.	**2.4**	**SC**	2	5.56	6	16.68		
Stenacron sp.	***4**	**SC**						
Stenacron interpunctatum	**6.87**	**SC**	16	44.48			2	5.56
Stenonema sp.	***4**	**SC**	60	166.8	37	102.86	57	158.46
Stenonema mediopunctatum	**3.77**	**SC**	1	2.78				
Stenonema modestum	**5.5**	**SC**	5	13.9	4	11.12		
Stenonema terminatum	**4.1**	**SC**						

TABLE 1. SUMMARY OF BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR, SUMMER 2000.

SPECIES	T.V.**	F.F.G.***	BEAVER CREEK MILE 21.3 3WOL10040		LITTLE SO. FORK MILE 5.2 3WOL10035		ROCKCASTLE RIVER MILE 24.4 3WOL10036	
			TOTAL	Density No./m²	TOTAL	Density No./m²	TOTAL	Density No./m²
Isonychiidae								
Isonychia sp.	**3.45**	**FC**	61	169.58	27	75.06	40	111.2
Leptophlebiidae	***2**	**CG**						
Paraleptophlebia sp.	**0.94**	**CG**						
Polymitarcyidae	***2**	**CG**						
Ephoron leukon	***2**	**CG**						
Tricorythidae	***4**	**CG**						
Tricorythodes sp.	**5.06**	**CG**	7	19.46	25	69.5	3	8.34
Odonata								
Aeshnidae	***3**	**P**						
Boyeria grafiana	**6.05**	**P**						
Coenagrionidae	***9**	**P**					6	16.68
Argia sp.	**8.17**	**P**	5	13.9	15	41.7		
Calopterygidae	***5**	**P**						
Gomphidae	***1**	**P**					1	2.78
Gomphus sp.	**5.8**	**P**						
Ophiogomphus sp.	**5.54**	**P**	1	2.78				
Stylogomphus albistylus	**4.72**	**P**	1	2.78				
Plecoptera								
Leuctridae	***0**	**SH**						
Leuctra sp.	**0.67**	**SH**						
Perlidae	***1**	**P**						
Acroneuria sp.	***1**	**P**						
Acroneuria abnormis	**2.06**	**P**	2	5.56	7	19.46		
Agnetina capitata	**0**	**P**						
Neoperla sp.	**1.49**	**P**					1	2.78
Perlodidae	***2**	**P**						
Hemiptera								
Gerridae		**P**						
Veliidae		**P**						
Megaloptera								
Corydalidae								
Corydalus cornutus	**5.16**	**P**	3	8.34	35	97.3	19	52.82
Nigronia sp.	***2**	**P**						
Nigronia serricornis	**4.95**	**P**	4	11.12	7	19.46	12	33.36
Sialidae	***4**	**P**						
Sialis sp.	**7.17**	**P**						
Trichoptera								
Brachycentridae	***1**	**SH**						
Micrasema sp.	***2**	**SH**	3	8.34				

TABLE 1. SUMMARY OF BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR, SUMMER 2000.

SPECIES	T.V.**	F.F.G.***	BEAVER CREEK MILE 21.3 3WOL10040		LITTLE SO. FORK MILE 5.2 3WOL10035		ROCKCASTLE RIVER MILE 24.4 3WOL10036	
			TOTAL	Density No./m²	TOTAL	Density No./m²	TOTAL	Density No./m²
Glossosomatidae	*0	SC						
Glossosoma sp.	1.55	SC					4	11.12
Protoptila sp.	2.55	SC					77	214.06
Helicopsychidae	*3	SC						
Helicopsyche borealis	0	SC	22	61.16				
Hydropsychidae	*4	FC	2	5.56	36	100.08	3	8.34
Ceratopsyche sp.	*4	FC	1	2.78				
Ceratopsyche morosa	2.63	FC	1	2.78				
Cheumatopsyche sp.	6.22	FC	200	556	48	133.44	130	361.4
Hydropsyche sp.	*5	FC	13	36.14	74	205.72	5	13.9
Hydropsyche venularis	4.96	FC						
Macrostemum sp.	3.52	FC					9	25.02
Hydroptilidae	*4	PI	1	2.78				
Hydroptila sp.	6.22	FC	51	141.78	4	11.12	6	16.68
Lepidostomatidae	*1	SH						
Lepidostoma sp.	6.22	FC					5	13.9
Leptoceridae	*4	CG						
Oecetis sp.	4.7	P	1	2.78			2	5.56
Limnephilidae	*4	SH						
Goera sp.	0.13	SC						
Philopotamidae	*3	FC						
Chimarra sp.	2.76	FC					1	2.78
Chimarra aterrima	2.76	FC						
Chimarra obscurus	2.76	FC			75	208.5		
Chimarra socia	2.76	FC						
Polycentropodidae	*6	FC						
Polycentropus sp.	3.53	FC	1	2.78	5	13.9	1	2.78
Psychomyiidae	*2	CG						
Psychomyia flavida	2.91	CG					35	97.3
Rhyacophilidae	0	P						
Rhyacophila sp.	*1	P						
Lepidoptera								
Pyralidae								
Petrophila sp.	2.09	SC	2	5.56	6	16.68	2	5.56
Coleoptera								
Dryopidae	*5							
Helichus lithophilus	4.63	SC	1	2.78				
Elmidae								
Dubiraphia sp.	5.93	SC	1	2.78	1	2.78		
Macronychus glabratus	4.58	SH					1	2.78

TABLE 1. SUMMARY OF BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR, SUMMER 2000.

SPECIES	T.V.**	F.F.G.***	BEAVER CREEK MILE 21.3 3WOL10040		LITTLE SO. FORK MILE 5.2 3WOL10035		ROCKCASTLE RIVER MILE 24.4 3WOL10036	
			TOTAL	Density No./m²	TOTAL	Density No./m²	TOTAL	Density No./m²
Microcylloepus pusillus	**2.11**	**CG**			141	391.98		
Optioservus sp.	**2.36**	**SC**	52	144.56	3	8.34	13	36.14
Optioservus ovalis	**2.36**	**CG**	2	5.56	2	5.56		
Optioservus trivittatus	**2.36**	**SC**					4	11.12
Oulimnius latiusculus	**1.78**	**CG**						
Promoresia elegans	***2**	**SC**						
Promoresia tardella	**0**	**SC**						
Stenelmis sp.	**5.1**	**SC**	324	900.72	31	86.18	5	13.9
Gyrinidae								
Dineutus sp.	**5.54**	**P**						
Limnichidae								
Lutrochus sp.		**SC**			39	108.42		
Psephenidae								
Ectopria sp.	**4.16**	**SC**	5	13.9	1	2.78		
Psephenus herricki	**2.35**	**SC**	120	333.6	6	16.68	13	36.14
Diptera								
Athericidae								
Atherix lantha	**2.07**	**P**						
Ceratopogonidae	***5**	**P**						
Bezzia/Palpomyia gp.	**6.86**	**P**						
Chironomidae			40	111.2	4	11.12	5	13.9
Cardiocladius obscurus	**5.87**	**P**	1	2.78			33	91.74
Chironomus sp.	**9.63**	**CG**						
Cricotopus sp.	***7**	**CG**	34	94.52	18	50.04	31	86.18
Cricotopus bicinctus	**8.54**	**CG**					1	2.78
Cryptochironomus fulvus	**6.38**	**P**	2	5.56				
Dicrotendipes sp.	**8.1**	**CG**	8	22.24			1	2.78
Eukiefferiella sp..	***4**	**CG**						
Lopescladius sp.	**1.67**							
Microtendipes sp.	**5.53**	**CG**	6	16.68				
Nanocladius sp.	**7.07**	**CG**						
Nilotanypus sp.	**3.9**	**P**			1	2.78		
Parachaetocladius hudsoni	**0**	**CG**						
Parametriocnemus lundbecki	**3.65**	**CG**	4	11.12				
Paratendipes sp.	**5.11**	**CG**	3	8.34				
Polypedilum sp.	***6**	**SH**						
Polypedilum flavum (convictum)	**4.93**	**SH**	52	144.56	5	13.9	5	13.9
Polypedilum illinoense	**9**	**SH**			2	5.56		
Psectrocladius sp.	**3.59**	**SH**						
Pseudochironomus sp.	**5.36**	**CG**					5	13.9

TABLE 1. SUMMARY OF BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR, SUMMER 2000.

SPECIES	T.V.**	F.F.G.***	BEAVER CREEK MILE 21.3 3WOL10040		LITTLE SO. FORK MILE 5.2 3WOL10035		ROCKCASTLE RIVER MILE 24.4 3WOL10036	
			TOTAL	Density No./m^2	TOTAL	Density No./m^2	TOTAL	Density No./m^2
Rheotanytarsus sp.	**5.89**	**FC**	118	328.04	122	339.16	157	436.46
Stenochironomus sp.	**6.45**	**SH**	8	22.24			2	5.56
Sublettea coffmani	**1.6**							
Synorthocladius semivirens	**4.36**	**CG**					1	2.78
Tanytarsus sp.	**6.76**	**FC**	19	52.82	6	16.68		
Thienemanniella xena	**5.86**	**CG**	3	8.34	16	44.48	10	27.8
Thienemannimyia gp.	**8.42**	**P**	9	25.02	8	22.24	1	2.78
Tvetenia discoloripes gp.	**3.61**	**CG**			6	16.68		
Zavrelia sp.	**5.3**	**CG**	18	50.04				
Dolichopodidae	***5**	**P**					2	5.56
Empididae	**7.57**	**P**						
Hemerodromia sp.	**7.57**	**P**	17	47.26	2	5.56	4	11.12
Neoplasta sp.			1	2.78				
Simuliidae	***6**	**FC**						
Simulium sp.	**4**	**FC**			62	172.36	14	38.92
Tipulidae	***3**	**SH**						
Antocha sp.	**4.25**	**SH**	5	13.9	1	2.78		
Dicranota sp.	**0**	**P**						
Hexatoma sp.	**4.31**	**P**						
TOTAL NO. OF ORGANISMS			**2316**	**6438.48**	**1186**	**3297.08**	**975**	**2710.5**
TOTAL NO. OF TAXA			**72**	**72**	**51**	**51**	**53**	**53**

TABLE 1. SUMMARY OF BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR, SUMMER 2000.

SPECIES	T.V.**	F.F.G.***	BUCK CREEK MILE 12.4 3WOL10037		BARK CAMP CREEK MILE 2.0 3WOL10023		BIG SOUTH FORK CUMB. RM 45.0 3WOL10029	
			TOTAL	Density No./m²	TOTAL	Density No./m²	TOTAL	Density No./m²
PLATYHELMINTHES								
Turbellaria								
Tricladida								
Planariidae								
Dugesia tigrina	**7.23**		1	2.78				
NEMATODA	**6.02**							
MOLLUSCA								
Bivalvia								
Veneroida								
Corbiculidae								
Corbicula fluminea	**6.12**	**FC**	109	303.02			105	291.9
Sphaeriidae		**FC**			1	2.78		
Pisidium sp.	**6.48**	**FC**						
Gastropoda								
Basommatophora								
Ancylidae								
Ferrissia rivularis	**6.55**	**SC**	1	2.78				
Physidae								
Physella sp.	**8.84**	**CG**						
Mesogastropoda								
Pleuroceridae								
Elimia sp.	**2.46**	**SC**	64	177.92			6	16.68
ANNELIDA								
Oligochaeta								
Haplotaxida								
Enchytraidae	**9.84**	**CG**			1	2.78		
Lumbricidae					6	16.68		
Naididae	***8**	**CG**						
Nais bretscheri	**8.88**	**CG**						
Nais communis	**8.81**	**CG**						
Paranais sp.								
Tubificidae w.o.h.c.	**7.11**	**CG**						
Limnodrilus hoffmeisteri	**9.47**	**CG**						
Tubificidae w.h.c.	**7.11**	**CG**			2	5.56		
Lumbriculida								
Lumbriculidae	**7.03**	**CG**	2	5.56	8	22.24	8	22.24
Hirudinea	***8**	**P**	6	16.68	3	8.34		
ARTHROPODA								
Arachnoida								

TABLE 1. SUMMARY OF BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR, SUMMER 2000.

SPECIES	T.V.**	F.F.G.***	BUCK CREEK MILE 12.4 3WOL10037		BARK CAMP CREEK MILE 2.0 3WOL10023		BIG SOUTH FORK CUMB. RM 45.0 3WOL10029	
			TOTAL	Density No./m²	TOTAL	Density No./m²	TOTAL	Density No./m²
Acariformes			1	2.78				
Lebertiidae								
Lebertia sp.	**5.53**				5	13.9		
Crustacea								
Isopoda								
Asellidae								
Caecidotea sp.	**9.11**	**CG**						
Crangonyctidae								
Crangonyx sp.	**7.87**	**CG**						
Decapoda								
Cambaridae								
Orconectes sp.	**2.6**	**SH**						
Gammaridae								
Gammarus sp.	**9.1**	**SH**						
Insecta								
Ephemeroptera								
Baetidae								
Acentrella ampla	**3.61**	**CG**	2	5.56			3	8.34
Baetis sp.	***4**	**CG**					3	8.34
Baetis intercalaris	**4.99**	**CG**	108	300.24	2	5.56	23	63.94
Plauditus sp.	***4**	**CG**			8	22.24	3	8.34
Procloeon sp.	***5**	**CG**			1	2.78		
Baetiscidae								
Baetisca carolina	**3.47**	**CG**			1	2.78		
Caenidae								
Caenis sp.	**7.41**	**CG**	705	1959.9			14	38.92
Ephemeridae		**CG**						
Ephemera sp.	***3**	**CG**			1	2.78		
Ephemerellidae	***1**							
Serratella sp.	***1**	**SC**					5	13.9
Heptageniidae	***4**	**SC**	8	22.24			8	22.24
Epeorus sp.	**1.27**	**SC**			10	27.8		
Epeorus dispar	**1.27**	**CG**			1	2.78		
Heptagenia sp.	**2.57**	**SC**			1	2.78		
Leucrocuta sp.	**2.4**	**SC**	17	47.26				
Stenacron sp.	***4**	**SC**			1	2.78		
Stenacron interpunctatum	**6.87**	**SC**						
Stenonema sp.	***4**	**SC**	354	984.12	51	141.78	202	561.56
Stenonema mediopunctatum	**3.77**	**SC**	6	16.68			59	164.02

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SPECIES	T.V.**	F.F.G.***	BUCK CREEK MILE 12.4 3WOL10037		BARK CAMP CREEK MILE 2.0 3WOL10023		BIG SOUTH FORK CUMB. RM 45.0 3WOL10029	
			TOTAL	Density No./m²	TOTAL	Density No./m²	TOTAL	Density No./m²
Stenonema modestum	**5.5**	**SC**	14	38.92			3	8.34
Stenonema terminatum	**4.1**	**SC**					6	16.68
Isonychiidae								
Isonychia sp.	**3.45**	**FC**	362	1006.4	48	133.44	82	227.96
Leptophlebiidae	***2**	**CG**						
Paraleptophlebia sp.	**0.94**	**CG**			20	55.6		
Polymitarcyidae	***2**	**CG**						
Ephoron leukon	***2**	**CG**	4	11.12				
Tricorythidae	***4**	**CG**						
Tricorythodes sp.	**5.06**	**CG**	1	2.78	1	2.78	2	5.56
Odonata								
Aeshnidae	***3**	**P**						
Boyeria grafiana	**6.05**	**P**			1	2.78		
Coenagrionidae	***9**	**P**	1	2.78				
Argia sp.	**8.17**	**P**	3	8.34			1	2.78
Calopterygidae	***5**	**P**	3	8.34				
Gomphidae	***1**	**P**					1	2.78
Gomphus sp.	**5.8**	**P**			3	8.34		
Ophiogomphus sp.	**5.54**	**P**						
Stylogomphus albistylus	**4.72**	**P**						
Plecoptera								
Leuctridae	***0**	**SH**						
Leuctra sp.	**0.67**	**SH**			43	119.54		
Perlidae	***1**	**P**	4	11.12				
Acroneuria sp.	***1**	**P**			3	8.34	2	5.56
Acroneuria abnormis	**2.06**	**P**			16	44.48		
Agnetina capitata	**0**	**P**	8	22.24				
Neoperla sp.	**1.49**	**P**						
Perlodidae	***2**	**P**	2	5.56				
Hemiptera								
Gerridae		**P**			1	2.78		
Veliidae		**P**			1	2.78		
Megaloptera								
Corydalidae								
Corydalus cornutus	**5.16**	**P**	64	177.92	2	5.56	21	58.38
Nigronia sp.	***2**	**P**	5	13.9			3	8.34
Nigronia serricornis	**4.95**	**P**	1	2.78	40	111.2		
Sialidae	***4**	**P**						
Sialis sp.	**7.17**	**P**			2	5.56		

TABLE 1. SUMMARY OF BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR, SUMMER 2000.

SPECIES	T.V.**	F.F.G.***	BUCK CREEK MILE 12.4 3WOL10037		BARK CAMP CREEK MILE 2.0 3WOL10023		BIG SOUTH FORK CUMB. RM 45.0 3WOL10029	
			TOTAL	Density No./m²	TOTAL	Density No./m²	TOTAL	Density No./m²
Trichoptera								
Brachycentridae	***1**	**SH**						
Micrasema sp.	***2**	**SH**					1	2.78
Glossosomatidae	***0**	**SC**	3	8.34	2	5.56	1	2.78
Glossosoma sp.	**1.55**	**SC**						
Protoptila sp.	**2.55**	**SC**	36	100.08			10	27.8
Helicopsychidae	***3**	**SC**						
Helicopsyche borealis	**0**	**SC**						
Hydropsychidae	***4**	**FC**	20	55.6	15	41.7	3	8.34
Ceratopsyche sp.	***4**	**FC**						
Ceratopsyche morosa	**2.63**	**FC**	33	91.74				
Cheumatopsyche sp.	**6.22**	**FC**	165	458.7	26	72.28	41	113.98
Hydropsyche sp.	***5**	**FC**	1	2.78	10	27.8	2	5.56
Hydropsyche venularis	**4.96**	**FC**					1	2.78
Macrostemum sp.	**3.52**	**FC**	63	175.14			12	33.36
Hydroptilidae	***4**	**PI**						
Hydroptila sp.	**6.22**	**FC**					1	2.78
Lepidostomatidae	***1**	**SH**						
Lepidostoma sp.	**6.22**	**FC**	8	22.24				
Leptoceridae	***4**	**CG**						
Oecetis sp.	**4.7**	**P**						
Limnephilidae	***4**	**SH**						
Goera sp.	**0.13**	**SC**			1	2.78		
Philopotamidae	***3**	**FC**					8	22.24
Chimarra sp.	**2.76**	**FC**						
Chimarra aterrima	**2.76**	**FC**			1	2.78		
Chimarra obscurus	**2.76**	**FC**	27	75.06			120	333.6
Chimarra socia	**2.76**	**FC**					66	183.48
Polycentropodidae	***6**	**FC**						
Polycentropus sp.	**3.53**	**FC**			1	2.78		
Psychomyiidae	***2**	**CG**						
Psychomyia flavida	**2.91**	**CG**	1	2.78	50	139		
Rhyacophilidae	**0**	**P**						
Rhyacophila sp.	***1**	**P**			1	2.78		
Lepidoptera								
Pyralidae								
Petrophila sp.	**2.09**	**SC**						
Coleoptera								
Dryopidae	***5**							

TABLE 1. SUMMARY OF BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR, SUMMER 2000.

SPECIES	T.V.**	F.F.G.***	BUCK CREEK MILE 12.4 3WOL10037		BARK CAMP CREEK MILE 2.0 3WOL10023		BIG SOUTH FORK CUMB. RM 45.0 3WOL10029	
			TOTAL	Density No./m²	TOTAL	Density No./m²	TOTAL	Density No./m²
Helichus lithophilus	**4.63**	**SC**						
Elmidae								
Dubiraphia sp.	**5.93**	**SC**						
Macronychus glabratus	**4.58**	**SH**						
Microcylloepus pusillus	**2.11**	**CG**	1	2.78			26	72.28
Optioservus sp.	**2.36**	**SC**	387	1075.9	25	69.5	1	2.78
Optioservus ovalis	**2.36**	**CG**			3	8.34		
Optioservus trivittatus	**2.36**	**SC**	66	183.48				
Oulimnius latiusculus	**1.78**	**CG**			15	41.7		
Promoresia elegans	***2**	**SC**						
Promoresia tardella	**0**	**SC**			1	2.78		
Stenelmis sp.	**5.1**	**SC**	119	330.82	7	19.46	22	61.16
Gyrinidae								
Dineutus sp.	**5.54**	**P**	2	5.56				
Limnichidae								
Lutrochus sp.		**SC**						
Psephenidae								
Ectopria sp.	**4.16**	**SC**						
Psephenus herricki	**2.35**	**SC**	49	136.22	5	13.9	3	8.34
Diptera								
Athericidae								
Atherix lantha	**2.07**	**P**	20	55.6				
Ceratopogonidae	***5**	**P**						
Bezzia/Palpomyia gp.	**6.86**	**P**	1	2.78	2	5.56		
Chironomidae			19	52.82	6	16.68	4	11.12
Cardiocladius obscurus	**5.87**	**P**	3	8.34	1	2.78	4	11.12
Chironomus sp.	**9.63**	**CG**						
Cricotopus sp.	***7**	**CG**	35	97.3	19	52.82	2	5.56
Cricotopus bicinctus	**8.54**	**CG**						
Cryptochironomus fulvus	**6.38**	**P**						
Dicrotendipes sp.	**8.1**	**CG**						
Eukiefferiella sp..	***4**	**CG**	1	2.78	1	2.78	3	8.34
Lopescladius sp.	**1.67**				17	47.26		
Microtendipes sp.	**5.53**	**CG**			40	111.2		
Nanocladius sp.	**7.07**	**CG**	4	11.12	2	5.56		
Nilotanypus sp.	**3.9**	**P**						
Parachaetocladius hudsoni	**0**	**CG**			2	5.56		
Parametriocnemus lundbecki	**3.65**	**CG**			5	13.9		
Paratendipes sp.	**5.11**	**CG**						

TABLE 1. SUMMARY OF BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR, SUMMER 2000.

SPECIES	T.V.**	F.F.G.***	BUCK CREEK MILE 12.4 3WOL10037		BARK CAMP CREEK MILE 2.0 3WOL10023		BIG SOUTH FORK CUMB. RM 45.0 3WOL10029	
			TOTAL	Density No./m²	TOTAL	Density No./m²	TOTAL	Density No./m²
Polypedilum sp.	***6**	**SH**						
Polypedilum flavum (convictum)	**4.93**	**SH**	22	61.16	13	36.14	2	5.56
Polypedilum illinoense	**9**	**SH**						
Psectrocladius sp.	**3.59**	**SH**			2	5.56		
Pseudochironomus sp.	**5.36**	**CG**						
Rheotanytarsus sp.	**5.89**	**FC**	40	111.2	27	75.06	60	166.8
Stenochironomus sp.	**6.45**	**SH**					1	2.78
Sublettea coffmani	**1.6**				1	2.78		
Synorthocladius semivirens	**4.36**	**CG**						
Tanytarsus sp.	**6.76**	**FC**	12	33.36	48	133.44	1	2.78
Thienemanniella xena	**5.86**	**CG**	1	2.78	1	2.78		
Thienemannimyia gp.	**8.42**	**P**	19	52.82	5	13.9		
Tvetenia discoloripes gp.	**3.61**	**CG**					5	13.9
Zavrelia sp.	**5.3**	**CG**			14	38.92		
Dolichopodidae	***5**	**P**						
Empididae	**7.57**	**P**						
Hemerodromia sp.	**7.57**	**P**	2	5.56	5	13.9	3	8.34
Neoplasta sp.								
Simuliidae	***6**	**FC**						
Simulium sp.	**4**	**FC**	2	5.56	1	2.78	5	13.9
Tipulidae	***3**	**SH**						
Antocha sp.	**4.25**	**SH**			11	30.58	4	11.12
Dicranota sp.	**0**	**P**			5	13.9		
Hexatoma sp.	**4.31**	**P**			5	13.9		
TOTAL NO. OF ORGANISMS			**3018**	**8390**	**680**	**1890.4**	**972**	**2702.2**
TOTAL NO. OF TAXA			**57**	**57**	**68**	**68**	**49**	**49**

TABLE 1. SUMMARY OF BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR, SUMMER 2000.

SPECIES	T.V.**	F.F.G.***	PITMAN CREEK Mile 4.9 3WOL10026 TOTAL	Density No./m²
PLATYHELMINTHES				
Turbellaria				
Tricladida				
Planariidae				
Dugesia tigrina	**7.23**			
NEMATODA	**6.02**			
MOLLUSCA				
Bivalvia				
Veneroida				
Corbiculidae				
Corbicula fluminea	**6.12**	**FC**	9	25.02
Sphaeriidae		**FC**		
Pisidium sp.	**6.48**	**FC**	1	2.78
Gastropoda				
Basommatophora				
Ancylidae				
Ferrissia rivularis	**6.55**	**SC**	2	5.56
Physidae				
Physella sp.	**8.84**	**CG**		
Mesogastropoda				
Pleuroceridae				
Elimia sp.	**2.46**	**SC**	82	227.96
ANNELIDA				
Oligochaeta				
Haplotaxida				
Enchytraidae	**9.84**	**CG**		
Lumbricidae			3	8.34
Naididae	***8**	**CG**		
Nais bretscheri	**8.88**	**CG**		
Nais communis	**8.81**	**CG**		
Paranais sp.				
Tubificidae w.o.h.c.	**7.11**	**CG**	1	2.78
Limnodrilus hoffmeisteri	**9.47**	**CG**		
Tubificidae w.h.c.	**7.11**	**CG**		
Lumbriculida				
Lumbriculidae	**7.03**	**CG**		
Hirudinea	***8**	**P**	2	5.56
ARTHROPODA				
Arachnoida				

TABLE 1. SUMMARY OF BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR, SUMMER 2000.

SPECIES	T.V.**	F.F.G.***	PITMAN CREEK Mile 4.9 3WOL10026 TOTAL	Density No./m²
Acariformes				
Lebertiidae				
Lebertia sp.	**5.53**			
Crustacea				
Isopoda				
Asellidae				
Caecidotea sp.	**9.11**	**CG**		
Crangonyctidae				
Crangonyx sp.	**7.87**	**CG**		
Decapoda				
Cambaridae				
Orconectes sp.	**2.6**	**SH**	1	2.78
Gammaridae				
Gammarus sp.	**9.1**	**SH**		
Insecta				
Ephemeroptera				
Baetidae				
Acentrella ampla	**3.61**	**CG**		
Baetis sp.	***4**	**CG**		
Baetis intercalaris	**4.99**	**CG**	6	16.68
Plauditus sp.	***4**	**CG**		
Procloeon sp.	***5**	**CG**		
Baetiscidae				
Baetisca carolina	**3.47**	**CG**		
Caenidae				
Caenis sp.	**7.41**	**CG**	76	211.28
Ephemeridae		**CG**		
Ephemera sp.	***3**	**CG**		
Ephemerellidae	***1**			
Serratella sp.	***1**	**SC**		
Heptageniidae	***4**	**SC**		
Epeorus sp.	**1.27**	**SC**		
Epeorus dispar	**1.27**	**CG**		
Heptagenia sp.	**2.57**	**SC**		
Leucrocuta sp.	**2.4**	**SC**		
Stenacron sp.	***4**	**SC**		
Stenacron interpunctatum	**6.87**	**SC**	7	19.46
Stenonema sp.	***4**	**SC**	16	44.48
Stenonema mediopunctatum	**3.77**	**SC**		

TABLE 1. SUMMARY OF BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR, SUMMER 2000.

SPECIES	T.V.**	F.F.G.***	PITMAN CREEK Mile 4.9 3WOL10026 TOTAL	Density No./m²
Stenonema modestum	**5.5**	**SC**		
Stenonema terminatum	**4.1**	**SC**	27	75.06
Isonychiidae				
Isonychia sp.	**3.45**	**FC**	5	13.9
Leptophlebiidae	***2**	**CG**		
Paraleptophlebia sp.	**0.94**	**CG**		
Polymitarcyidae	***2**	**CG**		
Ephoron leukon	***2**	**CG**		
Tricorythidae	***4**	**CG**		
Tricorythodes sp.	**5.06**	**CG**	2	5.56
Odonata				
Aeshnidae	***3**	**P**		
Boyeria grafiana	**6.05**	**P**		
Coenagrionidae	***9**	**P**		
Argia sp.	**8.17**	**P**	6	16.68
Calopterygidae	***5**	**P**		
Gomphidae	***1**	**P**		
Gomphus sp.	**5.8**	**P**		
Ophiogomphus sp.	**5.54**	**P**		
Stylogomphus albistylus	**4.72**	**P**		
Plecoptera				
Leuctridae	***0**	**SH**		
Leuctra sp.	**0.67**	**SH**		
Perlidae	***1**	**P**		
Acroneuria sp.	***1**	**P**		
Acroneuria abnormis	**2.06**	**P**		
Agnetina capitata	**0**	**P**		
Neoperla sp.	**1.49**	**P**		
Perlodidae	***2**	**P**		
Hemiptera				
Gerridae		**P**		
Veliidae		**P**		
Megaloptera				
Corydalidae				
Corydalus cornutus	**5.16**	**P**	5	13.9
Nigronia sp.	***2**	**P**		
Nigronia serricornis	**4.95**	**P**	4	11.12
Sialidae	***4**	**P**		
Sialis sp.	**7.17**	**P**		

TABLE 1. SUMMARY OF BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR, SUMMER 2000.

SPECIES	T.V.**	F.F.G.***	PITMAN CREEK Mile 4.9 3WOL10026 TOTAL	Density No./m²
Trichoptera				
Brachycentridae	*1	SH		
Micrasema sp.	*2	SH		
Glossosomatidae	*0	SC		
Glossosoma sp.	1.55	SC		
Protoptila sp.	2.55	SC		
Helicopsychidae	*3	SC		
Helicopsyche borealis	0	SC		
Hydropsychidae	*4	FC	1	2.78
Ceratopsyche sp.	*4	FC	1	2.78
Ceratopsyche morosa	2.63	FC	7	19.46
Cheumatopsyche sp.	6.22	FC	66	183.48
Hydropsyche sp.	*5	FC	1	2.78
Hydropsyche venularis	4.96	FC		
Macrostemum sp.	3.52	FC		
Hydroptilidae	*4	PI	1	2.78
Hydroptila sp.	6.22	FC	2	5.56
Lepidostomatidae	*1	SH		
Lepidostoma sp.	6.22	FC		
Leptoceridae	*4	CG		
Oecetis sp.	4.7	P		
Limnephilidae	*4	SH		
Goera sp.	0.13	SC		
Philopotamidae	*3	FC		
Chimarra sp.	2.76	FC		
Chimarra aterrima	2.76	FC		
Chimarra obscurus	2.76	FC		
Chimarra socia	2.76	FC		
Polycentropodidae	*6	FC		
Polycentropus sp.	3.53	FC		
Psychomyiidae	*2	CG		
Psychomyia flavida	2.91	CG	1	2.78
Rhyacophilidae	0	P		
Rhyacophila sp.	*1	P		
Lepidoptera				
Pyralidae				
Petrophila sp.	2.09	SC		
Coleoptera				
Dryopidae	*5			

TABLE 1. SUMMARY OF BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR, SUMMER 2000.

SPECIES	T.V.**	F.F.G.***	PITMAN CREEK Mile 4.9 3WOL10026 TOTAL	Density No./m²
Helichus lithophilus	**4.63**	**SC**		
Elmidae				
Dubiraphia sp.	**5.93**	**SC**		
Macronychus glabratus	**4.58**	**SH**		
Microcylloepus pusillus	**2.11**	**CG**		
Optioservus sp.	**2.36**	**SC**	29	80.62
Optioservus ovalis	**2.36**	**CG**		
Optioservus trivittatus	**2.36**	**SC**		
Oulimnius latiusculus	**1.78**	**CG**		
Promoresia elegans	***2**	**SC**	1	2.78
Promoresia tardella	**0**	**SC**		
Stenelmis sp.	**5.1**	**SC**	81	225.18
Gyrinidae				
Dineutus sp.	**5.54**	**P**		
Limnichidae				
Lutrochus sp.		**SC**		
Psephenidae				
Ectopria sp.	**4.16**	**SC**		
Psephenus herricki	**2.35**	**SC**	79	219.62
Diptera				
Athericidae				
Atherix lantha	**2.07**	**P**		
Ceratopogonidae	***5**	**P**		
Bezzia/Palpomyia gp.	**6.86**	**P**		
Chironomidae			26	72.28
Cardiocladius obscurus	**5.87**	**P**	12	33.36
Chironomus sp.	**9.63**	**CG**	1	2.78
Cricotopus sp.	***7**	**CG**	140	389.2
Cricotopus bicinctus	**8.54**	**CG**	13	36.14
Cryptochironomus fulvus	**6.38**	**P**		
Dicrotendipes sp.	**8.1**	**CG**	17	47.26
Eukiefferiella sp..	***4**	**CG**	3	8.34
Lopescladius sp.	**1.67**			
Microtendipes sp.	**5.53**	**CG**		
Nanocladius sp.	**7.07**	**CG**		
Nilotanypus sp.	**3.9**	**P**		
Parachaetocladius hudsoni	**0**	**CG**		
Parametriocnemus lundbecki	**3.65**	**CG**	1	2.78
Paratendipes sp.	**5.11**	**CG**	1	2.78

TABLE 1. SUMMARY OF BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR, SUMMER 2000.

SPECIES	T.V.**	F.F.G.***	PITMAN CREEK Mile 4.9 3WOL10026 TOTAL	Density No./m²
Polypedilum sp.	***6**	**SH**	1	2.78
Polypedilum flavum (convictum)	**4.93**	**SH**	10	27.8
Polypedilum illinoense	**9**	**SH**	3	8.34
Psectrocladius sp.	**3.59**	**SH**		
Pseudochironomus sp.	**5.36**	**CG**	3	8.34
Rheotanytarsus sp.	**5.89**	**FC**	61	169.58
Stenochironomus sp.	**6.45**	**SH**		
Sublettea coffmani	**1.6**			
Synorthocladius semivirens	**4.36**	**CG**		
Tanytarsus sp.	**6.76**	**FC**	9	25.02
Thienemanniella xena	**5.86**	**CG**		
Thienemannimyia gp.	**8.42**	**P**	9	25.02
Tvetenia discoloripes gp.	**3.61**	**CG**		
Zavrelia sp.	**5.3**	**CG**	1	2.78
Dolichopodidae	***5**	**P**		
Empididae	**7.57**	**P**		
Hemerodromia sp.	**7.57**	**P**	2	5.56
Neoplasta sp.				
Simuliidae	***6**	**FC**		
Simulium sp.	**4**	**FC**		
Tipulidae	***3**	**SH**		
Antocha sp.	**4.25**	**SH**	3	8.34
Dicranota sp.	**0**	**P**		
Hexatoma sp.	**4.31**	**P**		
TOTAL NO. OF ORGANISMS			**841**	**2337.98**
TOTAL NO. OF TAXA			**49**	**49**

TABLE 2. SUMMARY OF METRICS FOR THE WOLF CREEK RESERVOIR PROJECT, SUMMER 2000.							
METRIC	BEAVER CREEK MILE 21.3 3WOL10040	LITTLE SO. FORK MILE 5.2 3WOL10035	ROCKCASTLE RIVER MILE 24.4 3WOL10036	BUCK CREEK MILE 12.4 3WOL10037	BARK CAMP CREEK MILE 2.0 3WOL10023	BIG SOUTH FORK CRM 45.0 3WOL10029	PITMAN CREEK Mile 4.9 3WOL10026
Taxa richness	72	51	53	57	69	49	49
Biotic index	4.14	4.08	4.70	4.78	4.05	4.20	5.33
Ratio of Scrapers/Filt. Collectors	2.86	0.80	0.82	1.33	0.58	0.64	2.00
Ratio of EPT to Chironomidae abundance	1.60	2.01	1.82	12.51	1.54	8.30	0.70
Percent Contribution of Dominant Taxon	35.45%	19.81%	16.10%	23.36%	7.50%	20.78%	16.65%
EPT Index	24	16	21	24	26	26	15
Shannon Diversity	3.76	4.31	4.43	3.93	5.09	4.08	4.20
Pielou Evenness	0.61	0.76	0.74	0.67	0.83	0.73	0.75

TABLE 3. STATISTICAL ANALYSES OF SAMPLING EFFICIENCY AND COMPARISON OF THE STATIONS USING MEAN NUMBER OF ORGANISMS, WOLF CREEK RESERVOIR PROJECT, SUMMER 2000.					
STATION	**NO. OF SAMPLES**	**MEAN NO. OF ORGANISMS**	**STANDARD DEVIATION**	**STANDARD ERROR OF THE MEAN**	**PRECISION OF SAMPLING MEAN**
Beaver Creek Mile 21.3 3WOL10040	4	579	314.28	157.14	27.1%
Little South Fork Mile 5.2 3WOL10035	4	296.5	213.0	106.49	35.9%
Rockcastle River Mile 24.4 3WOL10036	4	243.75	70.5	35.26	14.5%
Buck Creek Mile 12.4 3WOL10037	4	754.2	476.31	238.16	31.6%
Bark Camp Creek Mile 2.0 3WOL10023	4	170	109.28	54.64	32.1%
Big South Fork Cumberland River Mile 45.0 3WOL10029	4	243	93.59	46.80	19.2%
Pitman Creek Mile 4.9 3WOL10026	4	210.25	57.31	28.65	13.6%

Calculated F= 3.42

Buck Creek Mile 12.4	Beaver Creek Mile 21.3	Little South Fork Mile 5.2	Rockcastle River Mile 24.4	Big South Fork Cumberland River Mile 45.0	Pitman Creek Mile 4.9	Bark Camp Creek Mile 2.0
754.5	579	296.5	243.75	243	210.25	170

* Stations underlined are statistically comparable at a 0.05 confidence level.

TABLE 4. STATISTICAL ANALYSES OF SAMPLING EFFICIENCY AND COMPARISON OF THE STATIONS USING MEAN NUMBER OF SPECIES, WOLF CREEK RESERVOIR PROJECT, SUMMER 2000.					
STATION	**NO. OF SAMPLES**	**MEAN NO. OF SPECIES**	**STANDARD DEVIATION**	**STANDARD ERROR OF THE MEAN**	**PRECISION OF SAMPLING MEAN**
Beaver Creek Mile 21.3 3WOL10040	4	36.25	14.22	7.11	19.6%
Little south Fork Mile 5.2 3WOL10035	4	28.75	6.13	3.07	10.7%
Rockcastle River Mile 24.4 3WOL10036	4	31.25	2.63	1.31	4.2%
Buck Creek Mile 12.4 3WOL10037	4	33.0	2.95	1.47	4.5%
Bark Camp Creek Mile 2.0 3WOL10023	4	36.0	9.28	4.64	12.9%
Big South Fork Cumberland River Mile 45.0 3WOL10029	4	29.75	3.77	1.89	6.3%
Pitman Creek Mile 4.9 3WOL10026	4	27	8.12	4.06	15.0%

Calculated F = 0.84

Beaver Creek Mile 21.3	Bark Camp Creek Mile 2.0	Buck Creek Mile 12.4	Rockcastle River Mile 24.4	Big South Fork Cumberland River Mile 45.0	Little South Fork Mile 5.2	Pitman Creek Mile 4.9
36.25	36	33	31.25	29.75	28.75	27

* Stations underlined are statistically comparable at a 0.05 confidence level.

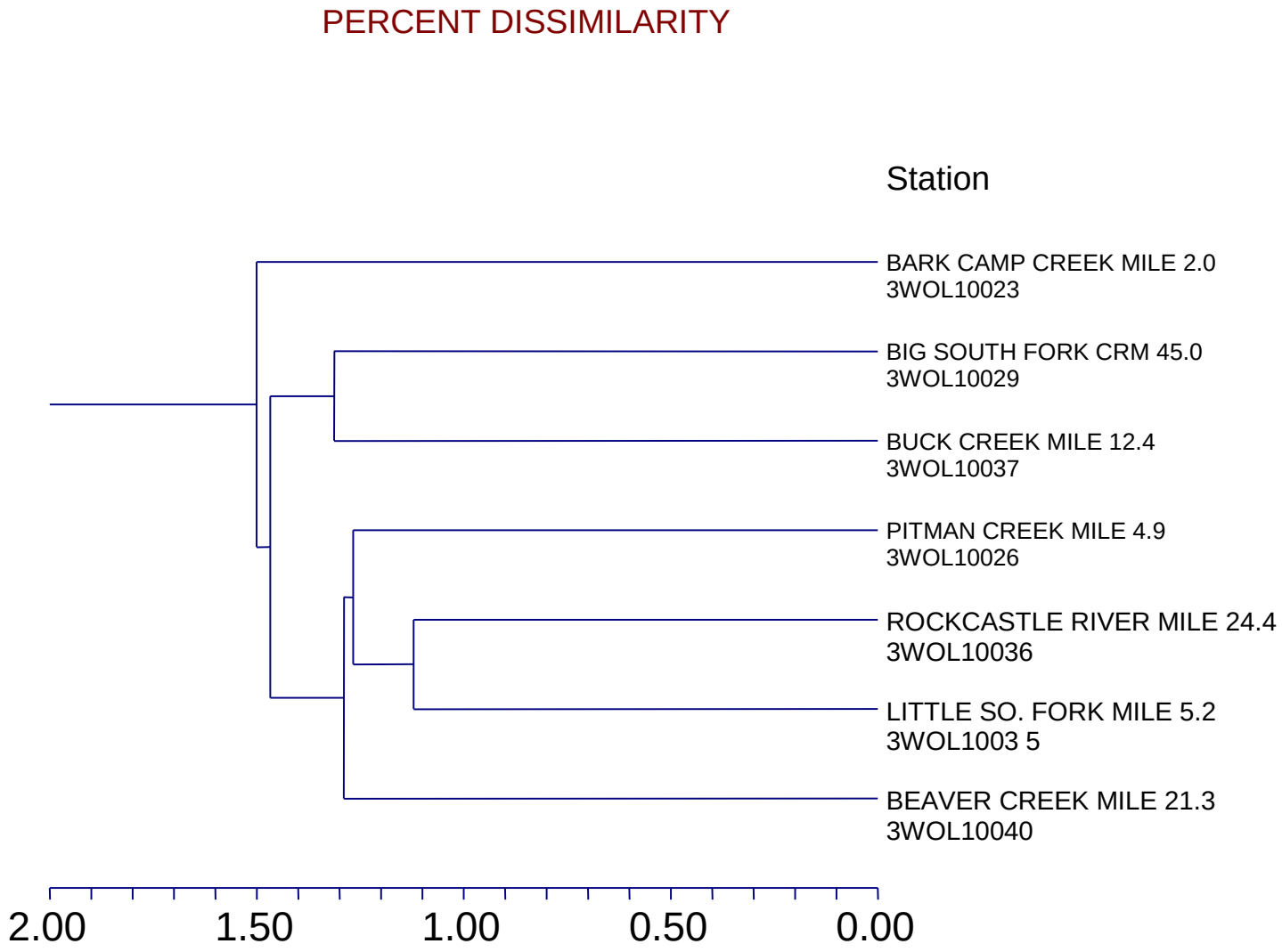

Figure 3. Percent Dissimilarity (Bray-Curtis) Cluster Analysis, Wolf Creek Reservoir Project, 2000.

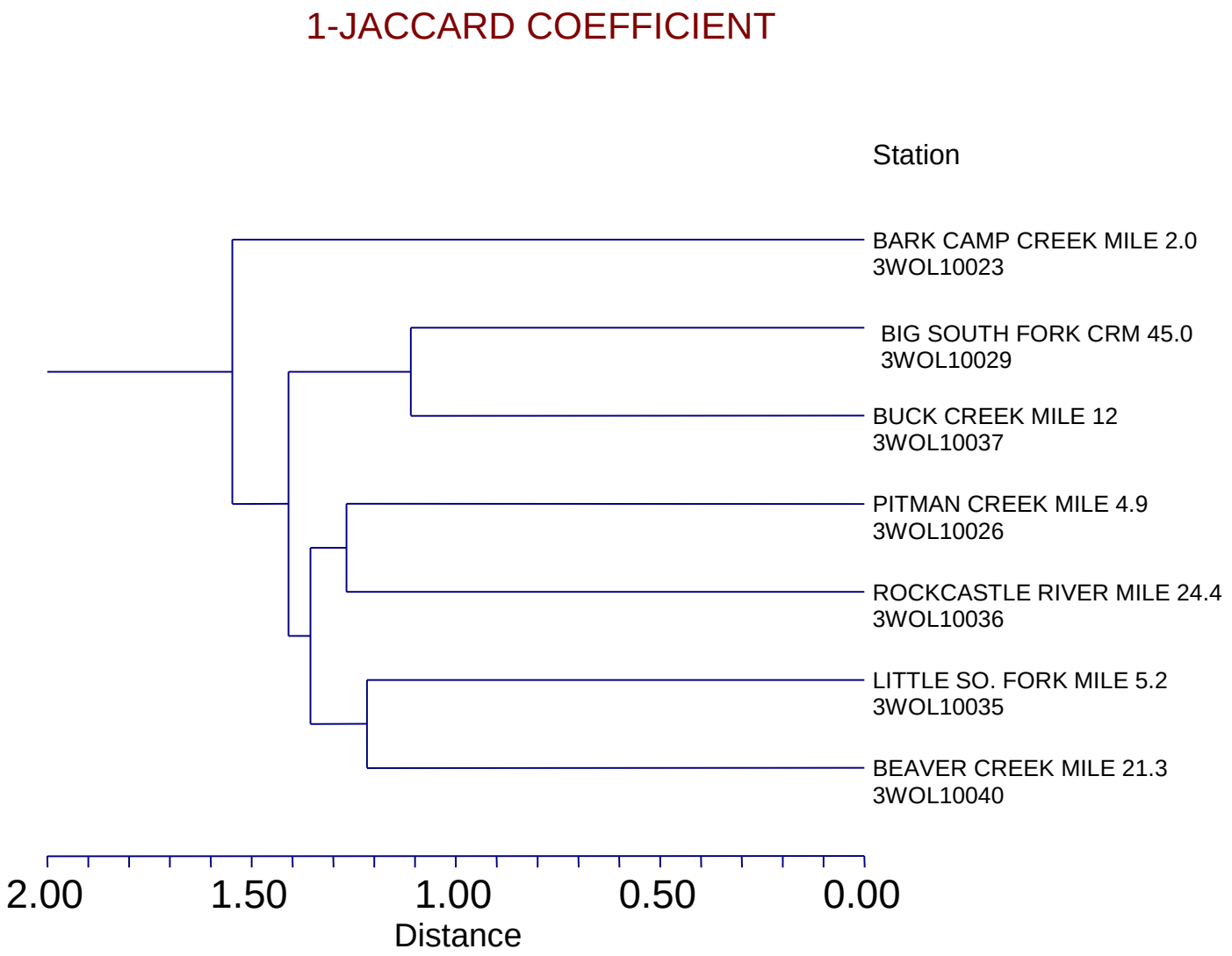

Figure 4. 1-Jaccard's Coefficient Cluster Analysis, Wolf Creek Reservoir Project, 2000.

Figure 4. 1-Jaccard's Coefficient Cluster Analysis, Wolf Creek Reservoir Project, September 1998.

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APPENDIX

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	BEAVER CREEK MILE 21.3 3WOL10040				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
PLATYHELMINTHES							
Turbellaria							
Tricladida							
Planariidae							
Dugesia tigrina	**7.23**			3		2	5
NEMATODA	**6.02**						
MOLLUSCA							
Bivalvia							
Veneroida							
Corbiculidae							
Corbicula fluminea	**6.12**	**FC**		19	2	15	36
Sphaeriidae		**FC**					
Pisidium sp.	**6.48**	**FC**				3	3
Gastropoda							
Basommatophora							
Ancylidae							
Ferrissia rivularis	**6.55**	**SC**					
Physidae							
Physella sp.	**8.84**	**CG**				1	1
Mesogastropoda							
Pleuroceridae							
Elimia sp.	**2.46**	**SC**	288	194	137	202	821
ANNELIDA							
Oligochaeta							
Haplotaxida							
Enchytraidae	**9.84**	**CG**					
Lumbricidae						1	1
Naididae	***8**	**CG**					
Nais bretscheri	**8.88**	**CG**	1				1
Nais communis	**8.81**	**CG**	2				2
Paranais sp.						1	1
Tubificidae w.o.h.c.	**7.11**	**CG**		9	1	7	17
Limnodrilus hoffmeisteri	**9.47**	**CG**		1		1	2
Tubificidae w.h.c.	**7.11**	**CG**					
Lumbriculida							
Lumbriculidae	**7.03**	**CG**					
Hirudinea	***8**	**P**					
ARTHROPODA							
Arachnoida							

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	BEAVER CREEK MILE 21.3 3WOL10040				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Acariformes				1		1	2
Lebertiidae							
Lebertia sp.	**5.53**						
Crustacea							
Isopoda							
Asellidae							
Caecidotea sp.	**9.11**	**CG**		2	1	1	4
Crangonyctidae							
Crangonyx sp.	**7.87**	**CG**			5	8	13
Decapoda							
Cambaridae						1	1
Orconectes sp.	**2.6**	**SH**				3	3
Gammaridae							
Gammarus sp.	**9.1**	**SH**		13			13
Insecta							
Ephemeroptera							
Baetidae							
Acentrella ampla	**3.61**	**CG**					
Baetis sp.	***4**	**CG**				16	16
Baetis intercalaris	**4.99**	**CG**	3	40	3		46
Plauditus sp.	***4**	**CG**					
Procloeon sp.	***5**	**CG**					
Baetiscidae							
Baetisca carolina	**3.47**	**CG**					
Caenidae							
Caenis sp.	**7.41**	**CG**					
Ephemeridae		**CG**					
Ephemera sp.	***3**	**CG**				1	1
Ephemerellidae	***1**						
Serratella sp.	***1**	**SC**					
Heptageniidae	***4**	**SC**			1		1
Epeorus sp.	**1.27**	**SC**					
Epeorus dispar	**1.27**	**CG**					
Heptagenia sp.	**2.57**	**SC**		3	3	1	7
Leucrocuta sp.	**2.4**	**SC**				2	2
Stenacron sp.	***4**	**SC**					
Stenacron interpunctatum	**6.87**	**SC**		4	2	10	16
Stenonema sp.	***4**	**SC**		20	6	34	60
Stenonema mediopunctatum	**3.77**	**SC**		1			1

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	BEAVER CREEK MILE 21.3 3WOL10040				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Stenonema modestum	**5.5**	**SC**		1	4		5
Stenonema terminatum	**4.1**	**SC**					
Isonychiidae							
Isonychia sp.	**3.45**	**FC**		33	6	22	61
Leptophlebiidae	***2**	**CG**					
Paraleptophlebia sp.	**0.94**	**CG**					
Polymitarcyidae	***2**	**CG**					
Ephoron leukon	***2**	**CG**					
Tricorythidae	***4**	**CG**					
Tricorythodes sp.	**5.06**	**CG**		5		2	7
Odonata							
Aeshnidae	***3**	**P**					
Boyeria grafiana	**6.05**	**P**					
Coenagrionidae	***9**	**P**					
Argia sp.	**8.17**	**P**		1		4	5
Calopterygidae	***5**	**P**					
Gomphidae	***1**	**P**					
Gomphus sp.	**5.8**	**P**					
Ophiogomphus sp.	**5.54**	**P**		1			1
Stylogomphus albistylus	**4.72**	**P**				1	1
Plecoptera							
Leuctridae	***0**	**SH**					
Leuctra sp.	**0.67**	**SH**					
Perlidae	***1**	**P**					
Acroneuria sp.	***1**	**P**					
Acroneuria abnormis	**2.06**	**P**				2	2
Agnetina capitata	**0**	**P**					
Neoperla sp.	**1.49**	**P**					
Perlodidae	***2**	**P**					
Hemiptera							
Gerridae		**P**					
Veliidae		**P**					
Megaloptera							
Corydalidae							
Corydalus cornutus	**5.16**	**P**		3			3
Nigronia sp.	***2**	**P**					
Nigronia serricornis	**4.95**	**P**		1	1	2	4
Sialidae	***4**	**P**					
Sialis sp.	**7.17**	**P**					

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	BEAVER CREEK MILE 21.3 3WOL10040				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Trichoptera							
Brachycentridae	***1**	**SH**					
Micrasema sp.	***2**	**SH**	1	2			3
Glossosomatidae	***0**	**SC**					
Glossosoma sp.	**1.55**	**SC**					
Protoptila sp.	**2.55**	**SC**					
Helicopsychidae	***3**	**SC**					
Helicopsyche borealis	**0**	**SC**	12	2		8	22
Hydropsychidae	***4**	**FC**		2			2
Ceratopsyche sp.	***4**	**FC**		1			1
Ceratopsyche morosa	**2.63**	**FC**		1			1
Cheumatopsyche sp.	**6.22**	**FC**	2	137	21	40	200
Hydropsyche sp.	***5**	**FC**	4	9			13
Hydropsyche venularis	**4.96**	**FC**					
Macrostemum sp.	**3.52**	**FC**					
Hydroptilidae	***4**	**PI**				1	1
Hydroptila sp.	**6.22**	**FC**	27	11	1	12	51
Lepidostomatidae	***1**	**SH**					
Lepidostoma sp.	**6.22**	**FC**					
Leptoceridae	***4**	**CG**					
Oecetis sp.	**4.7**	**P**	1				1
Limnephilidae	***4**	**SH**					
Goera sp.	**0.13**	**SC**					
Philopotamidae	***3**	**FC**					
Chimarra sp.	**2.76**	**FC**					
Chimarra aterrima	**2.76**	**FC**					
Chimarra obscurus	**2.76**	**FC**					
Chimarra socia	**2.76**	**FC**					
Polycentropodidae	***6**	**FC**					
Polycentropus sp.	**3.53**	**FC**				1	1
Psychomyiidae	***2**	**CG**					
Psychomyia flavida	**2.91**	**CG**					
Rhyacophilidae	**0**	**P**					
Rhyacophila sp.	***1**	**P**					
Lepidoptera							
Pyralidae							
Petrophila sp.	**2.09**	**SC**		2			2
Coleoptera							
Dryopidae	***5**						

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	BEAVER CREEK MILE 21.3 3WOL10040				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Helichus lithophilus	**4.63**	**SC**				1	1
Elmidae							
Dubiraphia sp.	**5.93**	**SC**				1	1
Macronychus glabratus	**4.58**	**SH**					
Microcylloepus pusillus	**2.11**	**CG**					
Optioservus sp.	**2.36**	**SC**	2	25		25	52
Optioservus ovalis	**2.36**	**CG**		1		1	2
Optioservus trivittatus	**2.36**	**SC**					
Oulimnius latiusculus	**1.78**	**CG**					
Promoresia elegans	***2**	**SC**					
Promoresia tardella	**0**	**SC**					
Stenelmis sp.	**5.1**	**SC**		56	2	266	324
Gyrinidae							
Dineutus sp.	**5.54**	**P**					
Limnichidae							
Lutrochus sp.		**SC**					
Psephenidae							
Ectopria sp.	**4.16**	**SC**	2	1		2	5
Psephenus herricki	**2.35**	**SC**	1	27		92	120
Diptera							
Athericidae							
Atherix lantha	**2.07**	**P**					
Ceratopogonidae	***5**	**P**					
Bezzia/Palpomyia gp.	**6.86**	**P**					
Chironomidae			13	20	1	6	40
Cardiocladius obscurus	**5.87**	**P**	1				1
Chironomus sp.	**9.63**	**CG**					
Cricotopus sp.	***7**	**CG**	17	9	3	5	34
Cricotopus bicinctus	**8.54**	**CG**					
Cryptochironomus fulvus	**6.38**	**P**				2	2
Dicrotendipes sp.	**8.1**	**CG**	7			1	8
Eukiefferiella sp..	***4**	**CG**					
Lopescladius sp.	**1.67**						
Microtendipes sp.	**5.53**	**CG**		5	1		6
Nanocladius sp.	**7.07**	**CG**					
Nilotanypus sp.	**3.9**	**P**					
Parachaetocladius hudsoni	**0**	**CG**					
Parametriocnemus lundbecki	**3.65**	**CG**		4			4
Paratendipes sp.	**5.11**	**CG**		2		1	3

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	BEAVER CREEK MILE 21.3 3WOL10040				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Polypedilum sp.	***6**	**SH**					
Polypedilum flavum (convictum)	**4.93**	**SH**	14	34	1	3	52
Polypedilum illinoense	**9**	**SH**					
Psectrocladius sp.	**3.59**	**SH**					
Pseudochironomus sp.	**5.36**	**CG**					
Rheotanytarsus sp.	**5.89**	**FC**	12	98	3	5	118
Stenochironomus sp.	**6.45**	**SH**		7		1	8
Sublettea coffmani	**1.6**						
Synorthocladius semivirens	**4.36**	**CG**					
Tanytarsus sp.	**6.76**	**FC**	5	7	1	6	19
Thienemanniella xena	**5.86**	**CG**	1			2	3
Thienemannimyia gp.	**8.42**	**P**	1	7	1		9
Tvetenia discoloripes gp.	**3.61**	**CG**					
Zavrelia sp.	**5.3**	**CG**		5		13	18
Dolichopodidae	***5**	**P**					
Empididae	**7.57**	**P**					
Hemerodromia sp.	**7.57**	**P**	10	4		3	17
Neoplasta sp.			1				1
Simuliidae	***6**	**FC**					
Simulium sp.	**4**	**FC**					
Tipulidae	***3**	**SH**					
Antocha sp.	**4.25**	**SH**	2	3			5
Dicranota sp.	**0**	**P**					
Hexatoma sp.	**4.31**	**P**					
TOTAL NO. OF ORGANISMS			**430**	**837**	**207**	**842**	**2316**
TOTAL NO. OF TAXA			**25**	**47**	**23**	**50**	**72**

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	LITTLE SO. FORK MILE 5.2 3WOL10035				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
PLATYHELMINTHES							
Turbellaria							
Tricladida							
Planariidae							
Dugesia tigrina	**7.23**					7	7
NEMATODA	**6.02**			1			1
MOLLUSCA							
Bivalvia							
Veneroida							
Corbiculidae							
Corbicula fluminea	**6.12**	**FC**	1	1	1		3
Sphaeriidae		**FC**					
Pisidium sp.	**6.48**	**FC**					
Gastropoda							
Basommatophora							
Ancylidae							
Ferrissia rivularis	**6.55**	**SC**					
Physidae							
Physella sp.	**8.84**	**CG**					
Mesogastropoda							
Pleuroceridae							
Elimia sp.	**2.46**	**SC**	81	69	79	6	235
ANNELIDA							
Oligochaeta							
Haplotaxida							
Enchytraidae	**9.84**	**CG**					
Lumbricidae			5		2	2	9
Naididae	***8**	**CG**				4	4
Nais bretscheri	**8.88**	**CG**					
Nais communis	**8.81**	**CG**					
Paranais sp.							
Tubificidae w.o.h.c.	**7.11**	**CG**	1				1
Limnodrilus hoffmeisteri	**9.47**	**CG**					
Tubificidae w.h.c.	**7.11**	**CG**					
Lumbriculida							
Lumbriculidae	**7.03**	**CG**					
Hirudinea	***8**	**P**				2	2
ARTHROPODA							
Arachnoida							

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	LITTLE SO. FORK MILE 5.2 3WOL10035				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Acariformes			2	1			3
Lebertiidae							
Lebertia sp.	**5.53**						
Crustacea							
Isopoda							
Asellidae							
Caecidotea sp.	**9.11**	**CG**					
Crangonyctidae							
Crangonyx sp.	**7.87**	**CG**		3			3
Decapoda							
Cambaridae							
Orconectes sp.	**2.6**	**SH**					
Gammaridae							
Gammarus sp.	**9.1**	**SH**					
Insecta							
Ephemeroptera							
Baetidae							
Acentrella ampla	**3.61**	**CG**					
Baetis sp.	***4**	**CG**					
Baetis intercalaris	**4.99**	**CG**	1	2		3	6
Plauditus sp.	***4**	**CG**	2	3	2		7
Procloeon sp.	***5**	**CG**					
Baetiscidae							
Baetisca carolina	**3.47**	**CG**					
Caenidae							
Caenis sp.	**7.41**	**CG**		2		14	16
Ephemeridae		**CG**					
Ephemera sp.	***3**	**CG**					
Ephemerellidae	***1**						
Serratella sp.	***1**	**SC**					
Heptageniidae	***4**	**SC**					
Epeorus sp.	**1.27**	**SC**					
Epeorus dispar	**1.27**	**CG**					
Heptagenia sp.	**2.57**	**SC**				1	1
Leucrocuta sp.	**2.4**	**SC**	1	4		1	6
Stenacron sp.	***4**	**SC**					
Stenacron interpunctatum	**6.87**	**SC**					
Stenonema sp.	***4**	**SC**	2		2	33	37
Stenonema mediopunctatum	**3.77**	**SC**					

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	LITTLE SO. FORK MILE 5.2 3WOL10035				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Stenonema modestum	**5.5**	**SC**			1	3	4
Stenonema terminatum	**4.1**	**SC**					
Isonychiidae							
Isonychia sp.	**3.45**	**FC**	3	5	1	18	27
Leptophlebiidae	***2**	**CG**					
Paraleptophlebia sp.	**0.94**	**CG**					
Polymitarcyidae	***2**	**CG**					
Ephoron leukon	***2**	**CG**					
Tricorythidae	***4**	**CG**					
Tricorythodes sp.	**5.06**	**CG**	5	19	1		25
Odonata							
Aeshnidae	***3**	**P**					
Boyeria grafiana	**6.05**	**P**					
Coenagrionidae	***9**	**P**					
Argia sp.	**8.17**	**P**	8	3	4		15
Calopterygidae	***5**	**P**					
Gomphidae	***1**	**P**					
Gomphus sp.	**5.8**	**P**					
Ophiogomphus sp.	**5.54**	**P**					
Stylogomphus albistylus	**4.72**	**P**					
Plecoptera							
Leuctridae	***0**	**SH**					
Leuctra sp.	**0.67**	**SH**					
Perlidae	***1**	**P**					
Acroneuria sp.	***1**	**P**					
Acroneuria abnormis	**2.06**	**P**	1			6	7
Agnetina capitata	**0**	**P**					
Neoperla sp.	**1.49**	**P**					
Perlodidae	***2**	**P**					
Hemiptera							
Gerridae		**P**					
Veliidae		**P**					
Megaloptera							
Corydalidae							
Corydalus cornutus	**5.16**	**P**	3	3	5	24	35
Nigronia sp.	***2**	**P**					
Nigronia serricornis	**4.95**	**P**	1	1	5		7
Sialidae	***4**	**P**					
Sialis sp.	**7.17**	**P**					

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	LITTLE SO. FORK MILE 5.2 3WOL10035				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Trichoptera							
Brachycentridae	***1**	**SH**					
Micrasema sp.	***2**	**SH**					
Glossosomatidae	***0**	**SC**					
Glossosoma sp.	**1.55**	**SC**					
Protoptila sp.	**2.55**	**SC**					
Helicopsychidae	***3**	**SC**					
Helicopsyche borealis	**0**	**SC**					
Hydropsychidae	***4**	**FC**	5		3	28	36
Ceratopsyche sp.	***4**	**FC**					
Ceratopsyche morosa	**2.63**	**FC**					
Cheumatopsyche sp.	**6.22**	**FC**	9	4	2	33	48
Hydropsyche sp.	***5**	**FC**	10	8	6	50	74
Hydropsyche venularis	**4.96**	**FC**					
Macrostemum sp.	**3.52**	**FC**					
Hydroptilidae	***4**	**PI**					
Hydroptila sp.	**6.22**	**FC**		2		2	4
Lepidostomatidae	***1**	**SH**					
Lepidostoma sp.	**6.22**	**FC**					
Leptoceridae	***4**	**CG**					
Oecetis sp.	**4.7**	**P**					
Limnephilidae	***4**	**SH**					
Goera sp.	**0.13**	**SC**					
Philopotamidae	***3**	**FC**					
Chimarra sp.	**2.76**	**FC**					
Chimarra aterrima	**2.76**	**FC**					
Chimarra obscurus	**2.76**	**FC**				75	75
Chimarra socia	**2.76**	**FC**					
Polycentropodidae	***6**	**FC**					
Polycentropus sp.	**3.53**	**FC**	2		3		5
Psychomyiidae	***2**	**CG**					
Psychomyia flavida	**2.91**	**CG**					
Rhyacophilidae	**0**	**P**					
Rhyacophila sp.	***1**	**P**					
Lepidoptera							
Pyralidae							
Petrophila sp.	**2.09**	**SC**	1	2		3	6
Coleoptera							
Dryopidae	***5**						

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	LITTLE SO. FORK MILE 5.2 3WOL10035				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Helichus lithophilus	**4.63**	**SC**					
Elmidae							
Dubiraphia sp.	**5.93**	**SC**	1				1
Macronychus glabratus	**4.58**	**SH**					
Microcylloepus pusillus	**2.11**	**CG**	33	28	25	55	141
Optioservus sp.	**2.36**	**SC**	1	1		1	3
Optioservus ovalis	**2.36**	**CG**		2			2
Optioservus trivittatus	**2.36**	**SC**					
Oulimnius latiusculus	**1.78**	**CG**					
Promoresia elegans	***2**	**SC**					
Promoresia tardella	**0**	**SC**					
Stenelmis sp.	**5.1**	**SC**	7	5	5	14	31
Gyrinidae							
Dineutus sp.	**5.54**	**P**					
Limnichidae							
Lutrochus sp.		**SC**	20	19			39
Psephenidae							
Ectopria sp.	**4.16**	**SC**	1				1
Psephenus herricki	**2.35**	**SC**	1	4	1		6
Diptera							
Athericidae							
Atherix lantha	**2.07**	**P**					
Ceratopogonidae	***5**	**P**					
Bezzia/Palpomyia gp.	**6.86**	**P**					
Chironomidae						4	4
Cardiocladius obscurus	**5.87**	**P**					
Chironomus sp.	**9.63**	**CG**					
Cricotopus sp.	***7**	**CG**	3	3	2	10	18
Cricotopus bicinctus	**8.54**	**CG**					
Cryptochironomus fulvus	**6.38**	**P**					
Dicrotendipes sp.	**8.1**	**CG**					
Eukiefferiella sp..	***4**	**CG**					
Lopescladius sp.	**1.67**						
Microtendipes sp.	**5.53**	**CG**					
Nanocladius sp.	**7.07**	**CG**					
Nilotanypus sp.	**3.9**	**P**	1				1
Parachaetocladius hudsoni	**0**	**CG**					
Parametriocnemus lundbecki	**3.65**	**CG**					
Paratendipes sp.	**5.11**	**CG**					

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	LITTLE SO. FORK MILE 5.2 3WOL10035				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Polypedilum sp.	***6**	**SH**					
Polypedilum flavum (convictum)	**4.93**	**SH**				5	5
Polypedilum illinoense	**9**	**SH**				2	2
Psectrocladius sp.	**3.59**	**SH**					
Pseudochironomus sp.	**5.36**	**CG**					
Rheotanytarsus sp.	**5.89**	**FC**	2	2		118	122
Stenochironomus sp.	**6.45**	**SH**					
Sublettea coffmani	**1.6**						
Synorthocladius semivirens	**4.36**	**CG**					
Tanytarsus sp.	**6.76**	**FC**	1			5	6
Thienemanniella xena	**5.86**	**CG**				16	16
Thienemannimyia gp.	**8.42**	**P**	3	4	1		8
Tvetenia discoloripes gp.	**3.61**	**CG**				6	6
Zavrelia sp.	**5.3**	**CG**					
Dolichopodidae	***5**	**P**					
Empididae	**7.57**	**P**					
Hemerodromia sp.	**7.57**	**P**	1			1	2
Neoplasta sp.							
Simuliidae	***6**	**FC**					
Simulium sp.	**4**	**FC**		1		61	62
Tipulidae	***3**	**SH**					
Antocha sp.	**4.25**	**SH**		1			1
Dicranota sp.	**0**	**P**					
Hexatoma sp.	**4.31**	**P**					
TOTAL NO. OF ORGANISMS			**219**	**203**	**151**	**613**	**1186**
TOTAL NO. OF TAXA			**33**	**29**	**20**	**33**	**51**

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	ROCKCASTLE RIVER MILE 24.4 3WOL10036				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
PLATYHELMINTHES							
Turbellaria							
Tricladida							
Planariidae							
Dugesia tigrina	**7.23**						
NEMATODA	**6.02**						
MOLLUSCA							
Bivalvia							
Veneroida							
Corbiculidae							
Corbicula fluminea	**6.12**	**FC**	5	2	10	1	18
Sphaeriidae		**FC**					
Pisidium sp.	**6.48**	**FC**					
Gastropoda							
Basommatophora							
Ancylidae							
Ferrissia rivularis	**6.55**	**SC**			4		4
Physidae							
Physella sp.	**8.84**	**CG**					
Mesogastropoda							
Pleuroceridae							
Elimia sp.	**2.46**	**SC**	27	15	66	31	139
ANNELIDA							
Oligochaeta							
Haplotaxida							
Enchytraidae	**9.84**	**CG**					
Lumbricidae					1		1
Naididae	***8**	**CG**					
Nais bretscheri	**8.88**	**CG**					
Nais communis	**8.81**	**CG**					
Paranais sp.							
Tubificidae w.o.h.c.	**7.11**	**CG**					
Limnodrilus hoffmeisteri	**9.47**	**CG**					
Tubificidae w.h.c.	**7.11**	**CG**					
Lumbriculida							
Lumbriculidae	**7.03**	**CG**	1				1
Hirudinea	***8**	**P**					
ARTHROPODA							
Arachnoida							

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	ROCKCASTLE RIVER MILE 24.4 3WOL10036				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Acariformes							
Lebertiidae							
Lebertia sp.	**5.53**						
Crustacea							
Isopoda							
Asellidae							
Caecidotea sp.	**9.11**	**CG**					
Crangonyctidae							
Crangonyx sp.	**7.87**	**CG**		1	1		2
Decapoda							
Cambaridae							
Orconectes sp.	**2.6**	**SH**		1	1	1	3
Gammaridae							
Gammarus sp.	**9.1**	**SH**					
Insecta							
Ephemeroptera							
Baetidae							
Acentrella ampla	**3.61**	**CG**					
Baetis sp.	***4**	**CG**					
Baetis intercalaris	**4.99**	**CG**	12	5	14	3	34
Plauditus sp.	***4**	**CG**	2				2
Procloeon sp.	***5**	**CG**					
Baetiscidae							
Baetisca carolina	**3.47**	**CG**					
Caenidae							
Caenis sp.	**7.41**	**CG**	15	4	17	5	41
Ephemeridae		**CG**					
Ephemera sp.	***3**	**CG**			1		1
Ephemerellidae	***1**						
Serratella sp.	***1**	**SC**					
Heptageniidae	***4**	**SC**					
Epeorus sp.	**1.27**	**SC**					
Epeorus dispar	**1.27**	**CG**					
Heptagenia sp.	**2.57**	**SC**					
Leucrocuta sp.	**2.4**	**SC**					
Stenacron sp.	***4**	**SC**					
Stenacron interpunctatum	**6.87**	**SC**			2		2
Stenonema sp.	***4**	**SC**	13	7	23	14	57
Stenonema mediopunctatum	**3.77**	**SC**					

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	ROCKCASTLE RIVER MILE 24.4 3WOL10036				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Stenonema modestum	**5.5**	**SC**					
Stenonema terminatum	**4.1**	**SC**					
Isonychiidae							
Isonychia sp.	**3.45**	**FC**	8	1	23	8	40
Leptophlebiidae	***2**	**CG**					
Paraleptophlebia sp.	**0.94**	**CG**					
Polymitarcyidae	***2**	**CG**					
Ephoron leukon	***2**	**CG**					
Tricorythidae	***4**	**CG**					
Tricorythodes sp.	**5.06**	**CG**		1		2	3
Odonata							
Aeshnidae	***3**	**P**					
Boyeria grafiana	**6.05**	**P**					
Coenagrionidae	***9**	**P**	1	1	4		6
Argia sp.	**8.17**	**P**					
Calopterygidae	***5**	**P**					
Gomphidae	***1**	**P**				1	1
Gomphus sp.	**5.8**	**P**					
Ophiogomphus sp.	**5.54**	**P**					
Stylogomphus albistylus	**4.72**	**P**					
Plecoptera							
Leuctridae	***0**	**SH**					
Leuctra sp.	**0.67**	**SH**					
Perlidae	***1**	**P**					
Acroneuria sp.	***1**	**P**					
Acroneuria abnormis	**2.06**	**P**					
Agnetina capitata	**0**	**P**					
Neoperla sp.	**1.49**	**P**		1			1
Perlodidae	***2**	**P**					
Hemiptera							
Gerridae		**P**					
Veliidae		**P**					
Megaloptera							
Corydalidae							
Corydalus cornutus	**5.16**	**P**	7	3	4	5	19
Nigronia sp.	***2**	**P**					
Nigronia serricornis	**4.95**	**P**	3	2	5	2	12
Sialidae	***4**	**P**					
Sialis sp.	**7.17**	**P**					

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	ROCKCASTLE RIVER MILE 24.4 3WOL10036				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Trichoptera							
Brachycentridae	***1**	**SH**					
Micrasema sp.	***2**	**SH**					
Glossosomatidae	***0**	**SC**					
Glossosoma sp.	**1.55**	**SC**	4				4
Protoptila sp.	**2.55**	**SC**		22	46	9	77
Helicopsychidae	***3**	**SC**					
Helicopsyche borealis	**0**	**SC**					
Hydropsychidae	***4**	**FC**			3		3
Ceratopsyche sp.	***4**	**FC**					
Ceratopsyche morosa	**2.63**	**FC**					
Cheumatopsyche sp.	**6.22**	**FC**	26	28	35	41	130
Hydropsyche sp.	***5**	**FC**	2	3			5
Hydropsyche venularis	**4.96**	**FC**					
Macrostemum sp.	**3.52**	**FC**	2	3	3	1	9
Hydroptilidae	***4**	**PI**					
Hydroptila sp.	**6.22**	**FC**	1		5		6
Lepidostomatidae	***1**	**SH**					
Lepidostoma sp.	**6.22**	**FC**			2	3	5
Leptoceridae	***4**	**CG**					
Oecetis sp.	**4.7**	**P**			2		2
Limnephilidae	***4**	**SH**					
Goera sp.	**0.13**	**SC**					
Philopotamidae	***3**	**FC**					
Chimarra sp.	**2.76**	**FC**			1		1
Chimarra aterrima	**2.76**	**FC**					
Chimarra obscurus	**2.76**	**FC**					
Chimarra socia	**2.76**	**FC**					
Polycentropodidae	***6**	**FC**					
Polycentropus sp.	**3.53**	**FC**		1			1
Psychomyiidae	***2**	**CG**					
Psychomyia flavida	**2.91**	**CG**	14	10	4	7	35
Rhyacophilidae	**0**	**P**					
Rhyacophila sp.	***1**	**P**					
Lepidoptera							
Pyralidae							
Petrophila sp.	**2.09**	**SC**	2				2
Coleoptera							
Dryopidae	***5**						

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	ROCKCASTLE RIVER MILE 24.4 3WOL10036				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Helichus lithophilus	**4.63**	**SC**					
Elmidae							
Dubiraphia sp.	**5.93**	**SC**					
Macronychus glabratus	**4.58**	**SH**		1			1
Microcylloepus pusillus	**2.11**	**CG**					
Optioservus sp.	**2.36**	**SC**	2	2	3	6	13
Optioservus ovalis	**2.36**	**CG**					
Optioservus trivittatus	**2.36**	**SC**		1	3		4
Oulimnius latiusculus	**1.78**	**CG**					
Promoresia elegans	***2**	**SC**					
Promoresia tardella	**0**	**SC**					
Stenelmis sp.	**5.1**	**SC**	3		1	1	5
Gyrinidae							
Dineutus sp.	**5.54**	**P**					
Limnichidae							
Lutrochus sp.		**SC**					
Psephenidae							
Ectopria sp.	**4.16**	**SC**					
Psephenus herricki	**2.35**	**SC**	4		4	5	13
Diptera							
Athericidae							
Atherix lantha	**2.07**	**P**					
Ceratopogonidae	***5**	**P**					
Bezzia/Palpomyia gp.	**6.86**	**P**					
Chironomidae				2	1	2	5
Cardiocladius obscurus	**5.87**	**P**	3	7	3	20	33
Chironomus sp.	**9.63**	**CG**					
Cricotopus sp.	***7**	**CG**	7	6	2	16	31
Cricotopus bicinctus	**8.54**	**CG**				1	1
Cryptochironomus fulvus	**6.38**	**P**					
Dicrotendipes sp.	**8.1**	**CG**				1	1
Eukiefferiella sp..	***4**	**CG**					
Lopescladius sp.	**1.67**						
Microtendipes sp.	**5.53**	**CG**					
Nanocladius sp.	**7.07**	**CG**					
Nilotanypus sp.	**3.9**	**P**					
Parachaetocladius hudsoni	**0**	**CG**					
Parametriocnemus lundbecki	**3.65**	**CG**					
Paratendipes sp.	**5.11**	**CG**					

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	ROCKCASTLE RIVER MILE 24.4 3WOL10036				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Polypedilum sp.	***6**	**SH**					
Polypedilum flavum (convictum)	**4.93**	**SH**		4	1		5
Polypedilum illinoense	**9**	**SH**					
Psectrocladius sp.	**3.59**	**SH**					
Pseudochironomus sp.	**5.36**	**CG**	1	1		3	5
Rheotanytarsus sp.	**5.89**	**FC**	39	42	44	32	157
Stenochironomus sp.	**6.45**	**SH**				2	2
Sublettea coffmani	**1.6**						
Synorthocladius semivirens	**4.36**	**CG**	1				1
Tanytarsus sp.	**6.76**	**FC**					
Thienemanniella xena	**5.86**	**CG**	4		3	3	10
Thienemannimyia gp.	**8.42**	**P**	1				1
Tvetenia discoloripes gp.	**3.61**	**CG**					
Zavrelia sp.	**5.3**	**CG**					
Dolichopodidae	***5**	**P**				2	2
Empididae	**7.57**	**P**					
Hemerodromia sp.	**7.57**	**P**	2	1		1	4
Neoplasta sp.							
Simuliidae	***6**	**FC**					
Simulium sp.	**4**	**FC**		4	2	8	14
Tipulidae	***3**	**SH**					
Antocha sp.	**4.25**	**SH**					
Dicranota sp.	**0**	**P**					
Hexatoma sp.	**4.31**	**P**					
TOTAL NO. OF ORGANISMS			**212**	**182**	**344**	**237**	**975**
TOTAL NO. OF TAXA			**29**	**30**	**35**	**31**	**53**

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	BUCK CREEK MILE 12.4 3WOL10037				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
PLATYHELMINTHES							
Turbellaria							
Tricladida							
Planariidae							
Dugesia tigrina	**7.23**				1		1
NEMATODA	**6.02**						
MOLLUSCA							
Bivalvia							
Veneroida							
Corbiculidae							
Corbicula fluminea	**6.12**	**FC**	62	18	16	13	109
Sphaeriidae		**FC**					
Pisidium sp.	**6.48**	**FC**					
Gastropoda							
Basommatophora							
Ancylidae							
Ferrissia rivularis	**6.55**	**SC**		1			1
Physidae							
Physella sp.	**8.84**	**CG**					
Mesogastropoda							
Pleuroceridae							
Elimia sp.	**2.46**	**SC**	22	2	31	9	64
ANNELIDA							
Oligochaeta							
Haplotaxida							
Enchytraidae	**9.84**	**CG**					
Lumbricidae							
Naididae	***8**	**CG**					
Nais bretscheri	**8.88**	**CG**					
Nais communis	**8.81**	**CG**					
Paranais sp.							
Tubificidae w.o.h.c.	**7.11**	**CG**					
Limnodrilus hoffmeisteri	**9.47**	**CG**					
Tubificidae w.h.c.	**7.11**	**CG**					
Lumbriculida							
Lumbriculidae	**7.03**	**CG**			2		2
Hirudinea	***8**	**P**	5		1		6
ARTHROPODA							
Arachnoida							

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	BUCK CREEK MILE 12.4 3WOL10037				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Acariformes					1		1
Lebertiidae							
Lebertia sp.	**5.53**						
Crustacea							
Isopoda							
Asellidae							
Caecidotea sp.	**9.11**	**CG**					
Crangonyctidae							
Crangonyx sp.	**7.87**	**CG**					
Decapoda							
Cambaridae							
Orconectes sp.	**2.6**	**SH**					
Gammaridae							
Gammarus sp.	**9.1**	**SH**					
Insecta							
Ephemeroptera							
Baetidae							
Acentrella ampla	**3.61**	**CG**			2		2
Baetis sp.	***4**	**CG**					
Baetis intercalaris	**4.99**	**CG**	68	3	18	19	108
Plauditus sp.	***4**	**CG**					
Procloeon sp.	***5**	**CG**					
Baetiscidae							
Baetisca carolina	**3.47**	**CG**					
Caenidae							
Caenis sp.	**7.41**	**CG**	278	120	144	163	705
Ephemeridae		**CG**					
Ephemera sp.	***3**	**CG**					
Ephemerellidae	***1**						
Serratella sp.	***1**	**SC**					
Heptageniidae	***4**	**SC**				8	8
Epeorus sp.	**1.27**	**SC**					
Epeorus dispar	**1.27**	**CG**					
Heptagenia sp.	**2.57**	**SC**					
Leucrocuta sp.	**2.4**	**SC**		9	3	5	17
Stenacron sp.	***4**	**SC**					
Stenacron interpunctatum	**6.87**	**SC**					
Stenonema sp.	***4**	**SC**	123	71	98	62	354
Stenonema mediopunctatum	**3.77**	**SC**		6			6

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	BUCK CREEK MILE 12.4 3WOL10037				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Stenonema modestum	**5.5**	**SC**		4		10	14
Stenonema terminatum	**4.1**	**SC**					
Isonychiidae							
Isonychia sp.	**3.45**	**FC**	206	45	58	53	362
Leptophlebiidae	***2**	**CG**					
Paraleptophlebia sp.	**0.94**	**CG**					
Polymitarcyidae	***2**	**CG**					
Ephoron leukon	***2**	**CG**	2	2			4
Tricorythidae	***4**	**CG**					
Tricorythodes sp.	**5.06**	**CG**		1			1
Odonata							
Aeshnidae	***3**	**P**					
Boyeria grafiana	**6.05**	**P**					
Coenagrionidae	***9**	**P**				1	1
Argia sp.	**8.17**	**P**			3		3
Calopterygidae	***5**	**P**		3			3
Gomphidae	***1**	**P**					
Gomphus sp.	**5.8**	**P**					
Ophiogomphus sp.	**5.54**	**P**					
Stylogomphus albistylus	**4.72**	**P**					
Plecoptera							
Leuctridae	***0**	**SH**					
Leuctra sp.	**0.67**	**SH**					
Perlidae	***1**	**P**			4		4
Acroneuria sp.	***1**	**P**					
Acroneuria abnormis	**2.06**	**P**					
Agnetina capitata	**0**	**P**	6			2	8
Neoperla sp.	**1.49**	**P**					
Perlodidae	***2**	**P**		2			2
Hemiptera							
Gerridae		**P**					
Veliidae		**P**					
Megaloptera							
Corydalidae							
Corydalus cornutus	**5.16**	**P**	28	5	9	22	64
Nigronia sp.	***2**	**P**	5				5
Nigronia serricornis	**4.95**	**P**				1	1
Sialidae	***4**	**P**					
Sialis sp.	**7.17**	**P**					

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	BUCK CREEK MILE 12.4 3WOL10037				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Trichoptera							
Brachycentridae	***1**	**SH**					
Micrasema sp.	***2**	**SH**					
Glossosomatidae	***0**	**SC**				3	3
Glossosoma sp.	**1.55**	**SC**					
Protoptila sp.	**2.55**	**SC**	15	1	7	13	36
Helicopsychidae	***3**	**SC**					
Helicopsyche borealis	**0**	**SC**					
Hydropsychidae	***4**	**FC**	20				20
Ceratopsyche sp.	***4**	**FC**					
Ceratopsyche morosa	**2.63**	**FC**	25	1	3	4	33
Cheumatopsyche sp.	**6.22**	**FC**	78	6	31	50	165
Hydropsyche sp.	***5**	**FC**				1	1
Hydropsyche venularis	**4.96**	**FC**					
Macrostemum sp.	**3.52**	**FC**	30		6	27	63
Hydroptilidae	***4**	**PI**					
Hydroptila sp.	**6.22**	**FC**					
Lepidostomatidae	***1**	**SH**					
Lepidostoma sp.	**6.22**	**FC**	5	1	2		8
Leptoceridae	***4**	**CG**					
Oecetis sp.	**4.7**	**P**					
Limnephilidae	***4**	**SH**					
Goera sp.	**0.13**	**SC**					
Philopotamidae	***3**	**FC**					
Chimarra sp.	**2.76**	**FC**					
Chimarra aterrima	**2.76**	**FC**					
Chimarra obscurus	**2.76**	**FC**	13	1		13	27
Chimarra socia	**2.76**	**FC**					
Polycentropodidae	***6**	**FC**					
Polycentropus sp.	**3.53**	**FC**					
Psychomyiidae	***2**	**CG**					
Psychomyia flavida	**2.91**	**CG**				1	1
Rhyacophilidae	**0**	**P**					
Rhyacophila sp.	***1**	**P**					
Lepidoptera							
Pyralidae							
Petrophila sp.	**2.09**	**SC**					
Coleoptera							
Dryopidae	***5**						

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	BUCK CREEK MILE 12.4 3WOL10037				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Helichus lithophilus	**4.63**	**SC**					
Elmidae							
Dubiraphia sp.	**5.93**	**SC**					
Macronychus glabratus	**4.58**	**SH**					
Microcylloepus pusillus	**2.11**	**CG**	1				1
Optioservus sp.	**2.36**	**SC**	214	36	46	91	387
Optioservus ovalis	**2.36**	**CG**					
Optioservus trivittatus	**2.36**	**SC**	45	1	9	11	66
Oulimnius latiusculus	**1.78**	**CG**					
Promoresia elegans	***2**	**SC**					
Promoresia tardella	**0**	**SC**					
Stenelmis sp.	**5.1**	**SC**	64	13	13	29	119
Gyrinidae							
Dineutus sp.	**5.54**	**P**		2			2
Limnichidae							
Lutrochus sp.		**SC**					
Psephenidae							
Ectopria sp.	**4.16**	**SC**					
Psephenus herricki	**2.35**	**SC**	30	2	8	9	49
Diptera							
Athericidae							
Atherix lantha	**2.07**	**P**	10	5	4	1	20
Ceratopogonidae	***5**	**P**					
Bezzia/Palpomyia gp.	**6.86**	**P**			1		1
Chironomidae			15	1	2	1	19
Cardiocladius obscurus	**5.87**	**P**		2	1		3
Chironomus sp.	**9.63**	**CG**					
Cricotopus sp.	***7**	**CG**	25	5	3	2	35
Cricotopus bicinctus	**8.54**	**CG**					
Cryptochironomus fulvus	**6.38**	**P**					
Dicrotendipes sp.	**8.1**	**CG**					
Eukiefferiella sp..	***4**	**CG**			1		1
Lopescladius sp.	**1.67**						
Microtendipes sp.	**5.53**	**CG**					
Nanocladius sp.	**7.07**	**CG**			1	3	4
Nilotanypus sp.	**3.9**	**P**					
Parachaetocladius hudsoni	**0**	**CG**					
Parametriocnemus lundbecki	**3.65**	**CG**					
Paratendipes sp.	**5.11**	**CG**					

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	BUCK CREEK MILE 12.4 3WOL10037				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Polypedilum sp.	***6**	**SH**					
Polypedilum flavum (convictum)	**4.93**	**SH**	15		3	4	22
Polypedilum illinoense	**9**	**SH**					
Psectrocladius sp.	**3.59**	**SH**					
Pseudochironomus sp.	**5.36**	**CG**					
Rheotanytarsus sp.	**5.89**	**FC**	15	7	8	10	40
Stenochironomus sp.	**6.45**	**SH**					
Sublettea coffmani	**1.6**						
Synorthocladius semivirens	**4.36**	**CG**					
Tanytarsus sp.	**6.76**	**FC**	10		2		12
Thienemanniella xena	**5.86**	**CG**			1		1
Thienemannimyia gp.	**8.42**	**P**	15	2	1	1	19
Tvetenia discoloripes gp.	**3.61**	**CG**					
Zavrelia sp.	**5.3**	**CG**					
Dolichopodidae	***5**	**P**					
Empididae	**7.57**	**P**					
Hemerodromia sp.	**7.57**	**P**		1		1	2
Neoplasta sp.							
Simuliidae	***6**	**FC**					
Simulium sp.	**4**	**FC**			2		2
Tipulidae	***3**	**SH**					
Antocha sp.	**4.25**	**SH**					
Dicranota sp.	**0**	**P**					
Hexatoma sp.	**4.31**	**P**					
TOTAL NO. OF ORGANISMS			**1450**	**379**	**546**	**643**	**3018**
TOTAL NO. OF TAXA			**30**	**32**	**37**	**33**	**57**

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	BARK CAMP CREEK MILE 2.0 3WOL10023				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
PLATYHELMINTHES							
Turbellaria							
Tricladida							
Planariidae							
Dugesia tigrina	**7.23**						
NEMATODA	**6.02**						
MOLLUSCA							
Bivalvia							
Veneroida							
Corbiculidae							
Corbicula fluminea	**6.12**	**FC**					
Sphaeriidae		**FC**		1			1
Pisidium sp.	**6.48**	**FC**					
Gastropoda							
Basommatophora							
Ancylidae							
Ferrissia rivularis	**6.55**	**SC**					
Physidae							
Physella sp.	**8.84**	**CG**					
Mesogastropoda							
Pleuroceridae							
Elimia sp.	**2.46**	**SC**					
ANNELIDA							
Oligochaeta							
Haplotaxida							
Enchytraidae	**9.84**	**CG**			1		1
Lumbricidae				6			6
Naididae	***8**	**CG**					
Nais bretscheri	**8.88**	**CG**					
Nais communis	**8.81**	**CG**					
Paranais sp.							
Tubificidae w.o.h.c.	**7.11**	**CG**					
Limnodrilus hoffmeisteri	**9.47**	**CG**					
Tubificidae w.h.c.	**7.11**	**CG**		1		1	2
Lumbriculida							
Lumbriculidae	**7.03**	**CG**			5	3	8
Hirudinea	***8**	**P**		1	2		3
ARTHROPODA							
Arachnoida							

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	BARK CAMP CREEK MILE 2.0 3WOL10023				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Acariformes							
Lebertiidae							
Lebertia sp.	**5.53**			5			5
Crustacea							
Isopoda							
Asellidae							
Caecidotea sp.	**9.11**	**CG**					
Crangonyctidae							
Crangonyx sp.	**7.87**	**CG**					
Decapoda							
Cambaridae							
Orconectes sp.	**2.6**	**SH**					
Gammaridae							
Gammarus sp.	**9.1**	**SH**					
Insecta							
Ephemeroptera							
Baetidae							
Acentrella ampla	**3.61**	**CG**					
Baetis sp.	***4**	**CG**					
Baetis intercalaris	**4.99**	**CG**			2		2
Plauditus sp.	***4**	**CG**	4	2	1	1	8
Procloeon sp.	***5**	**CG**			1		1
Baetiscidae							
Baetisca carolina	**3.47**	**CG**			1		1
Caenidae							
Caenis sp.	**7.41**	**CG**					
Ephemeridae		**CG**					
Ephemera sp.	***3**	**CG**		1			1
Ephemerellidae	***1**						
Serratella sp.	***1**	**SC**					
Heptageniidae	***4**	**SC**					
Epeorus sp.	**1.27**	**SC**		7	1	2	10
Epeorus dispar	**1.27**	**CG**			1		1
Heptagenia sp.	**2.57**	**SC**				1	1
Leucrocuta sp.	**2.4**	**SC**					
Stenacron sp.	***4**	**SC**				1	1
Stenacron interpunctatum	**6.87**	**SC**					
Stenonema sp.	***4**	**SC**	8	16	20	7	51
Stenonema mediopunctatum	**3.77**	**SC**					

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	BARK CAMP CREEK MILE 2.0 3WOL10023				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Stenonema modestum	**5.5**	**SC**					
Stenonema terminatum	**4.1**	**SC**					
Isonychiidae							
Isonychia sp.	**3.45**	**FC**	12	5	28	3	48
Leptophlebiidae	***2**	**CG**					
Paraleptophlebia sp.	**0.94**	**CG**	1	10	8	1	20
Polymitarcyidae	***2**	**CG**					
Ephoron leukon	***2**	**CG**					
Tricorythidae	***4**	**CG**					
Tricorythodes sp.	**5.06**	**CG**				1	1
Odonata							
Aeshnidae	***3**	**P**					
Boyeria grafiana	**6.05**	**P**			1		1
Coenagrionidae	***9**	**P**					
Argia sp.	**8.17**	**P**					
Calopterygidae	***5**	**P**					
Gomphidae	***1**	**P**					
Gomphus sp.	**5.8**	**P**		1	2		3
Ophiogomphus sp.	**5.54**	**P**					
Stylogomphus albistylus	**4.72**	**P**					
Plecoptera							
Leuctridae	***0**	**SH**					
Leuctra sp.	**0.67**	**SH**	3	10	21	9	43
Perlidae	***1**	**P**					
Acroneuria sp.	***1**	**P**				3	3
Acroneuria abnormis	**2.06**	**P**	3	5	8		16
Agnetina capitata	**0**	**P**					
Neoperla sp.	**1.49**	**P**					
Perlodidae	***2**	**P**					
Hemiptera							
Gerridae		**P**		1			1
Veliidae		**P**	1				1
Megaloptera							
Corydalidae							
Corydalus cornutus	**5.16**	**P**		1	1		2
Nigronia sp.	***2**	**P**					
Nigronia serricornis	**4.95**	**P**	1	15	21	3	40
Sialidae	***4**	**P**					
Sialis sp.	**7.17**	**P**		1		1	2

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	BARK CAMP CREEK MILE 2.0 3WOL10023				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Trichoptera							
Brachycentridae	***1**	**SH**					
Micrasema sp.	***2**	**SH**					
Glossosomatidae	***0**	**SC**			2		2
Glossosoma sp.	**1.55**	**SC**					
Protoptila sp.	**2.55**	**SC**					
Helicopsychidae	***3**	**SC**					
Helicopsyche borealis	**0**	**SC**					
Hydropsychidae	***4**	**FC**	2	4	9		15
Ceratopsyche sp.	***4**	**FC**					
Ceratopsyche morosa	**2.63**	**FC**					
Cheumatopsyche sp.	**6.22**	**FC**	9	8	8	1	26
Hydropsyche sp.	***5**	**FC**		6	4		10
Hydropsyche venularis	**4.96**	**FC**					
Macrostemum sp.	**3.52**	**FC**					
Hydroptilidae	***4**	**PI**					
Hydroptila sp.	**6.22**	**FC**					
Lepidostomatidae	***1**	**SH**					
Lepidostoma sp.	**6.22**	**FC**					
Leptoceridae	***4**	**CG**					
Oecetis sp.	**4.7**	**P**					
Limnephilidae	***4**	**SH**					
Goera sp.	**0.13**	**SC**	1				1
Philopotamidae	***3**	**FC**					
Chimarra sp.	**2.76**	**FC**					
Chimarra aterrima	**2.76**	**FC**			1		1
Chimarra obscurus	**2.76**	**FC**					
Chimarra socia	**2.76**	**FC**					
Polycentropodidae	***6**	**FC**					
Polycentropus sp.	**3.53**	**FC**			1		1
Psychomyiidae	***2**	**CG**					
Psychomyia flavida	**2.91**	**CG**	11	18	18	3	50
Rhyacophilidae	**0**	**P**					
Rhyacophila sp.	***1**	**P**	1				1
Lepidoptera							
Pyralidae							
Petrophila sp.	**2.09**	**SC**					
Coleoptera							
Dryopidae	***5**						

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	BARK CAMP CREEK MILE 2.0 3WOL10023				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Helichus lithophilus	**4.63**	**SC**					
Elmidae							
Dubiraphia sp.	**5.93**	**SC**					
Macronychus glabratus	**4.58**	**SH**					
Microcylloepus pusillus	**2.11**	**CG**					
Optioservus sp.	**2.36**	**SC**		9	15	1	25
Optioservus ovalis	**2.36**	**CG**		3			3
Optioservus trivittatus	**2.36**	**SC**					
Oulimnius latiusculus	**1.78**	**CG**		8	6	1	15
Promoresia elegans	***2**	**SC**					
Promoresia tardella	**0**	**SC**			1		1
Stenelmis sp.	**5.1**	**SC**	1	5	1		7
Gyrinidae							
Dineutus sp.	**5.54**	**P**					
Limnichidae							
Lutrochus sp.		**SC**					
Psephenidae							
Ectopria sp.	**4.16**	**SC**					
Psephenus herricki	**2.35**	**SC**		2	3		5
Diptera							
Athericidae							
Atherix lantha	**2.07**	**P**					
Ceratopogonidae	***5**	**P**					
Bezzia/Palpomyia gp.	**6.86**	**P**		2			2
Chironomidae				1	4	1	6
Cardiocladius obscurus	**5.87**	**P**	1				1
Chironomus sp.	**9.63**	**CG**					
Cricotopus sp.	***7**	**CG**	2	15	1	1	19
Cricotopus bicinctus	**8.54**	**CG**					
Cryptochironomus fulvus	**6.38**	**P**					
Dicrotendipes sp.	**8.1**	**CG**					
Eukiefferiella sp..	***4**	**CG**	1				1
Lopescladius sp.	**1.67**		2	14		1	17
Microtendipes sp.	**5.53**	**CG**	2	32	3	3	40
Nanocladius sp.	**7.07**	**CG**			1	1	2
Nilotanypus sp.	**3.9**	**P**					
Parachaetocladius hudsoni	**0**	**CG**		1	1		2
Parametriocnemus lundbecki	**3.65**	**CG**		4		1	5
Paratendipes sp.	**5.11**	**CG**					

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	BARK CAMP CREEK MILE 2.0 3WOL10023				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Polypedilum sp.	***6**	**SH**					
Polypedilum flavum (convictum)	**4.93**	**SH**	4	7	1	1	13
Polypedilum illinoense	**9**	**SH**					
Psectrocladius sp.	**3.59**	**SH**	2				2
Pseudochironomus sp.	**5.36**	**CG**					
Rheotanytarsus sp.	**5.89**	**FC**	15	6	4	2	27
Stenochironomus sp.	**6.45**	**SH**					
Sublettea coffmani	**1.6**					1	1
Synorthocladius semivirens	**4.36**	**CG**					
Tanytarsus sp.	**6.76**	**FC**	2	34	11	1	48
Thienemanniella xena	**5.86**	**CG**		1			1
Thienemannimyia gp.	**8.42**	**P**	1	2	2		5
Tvetenia discoloripes gp.	**3.61**	**CG**					
Zavrelia sp.	**5.3**	**CG**		6	5	3	14
Dolichopodidae	***5**	**P**					
Empididae	**7.57**	**P**					
Hemerodromia sp.	**7.57**	**P**	2	2	1		5
Neoplasta sp.							
Simuliidae	***6**	**FC**					
Simulium sp.	**4**	**FC**			1		1
Tipulidae	***3**	**SH**					
Antocha sp.	**4.25**	**SH**	4	3	4		11
Dicranota sp.	**0**	**P**		1	4		5
Hexatoma sp.	**4.31**	**P**	1	4			5
TOTAL NO. OF ORGANISMS			**97**	**287**	**237**	**59**	**680**
TOTAL NO. OF TAXA			**27**	**44**	**44**	**29**	**69**

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	BIG SOUTH FORK CUMB. RM 45.0 3WOL10029				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
PLATYHELMINTHES							
Turbellaria							
Tricladida							
Planariidae							
Dugesia tigrina	**7.23**						
NEMATODA	**6.02**						
MOLLUSCA							
Bivalvia							
Veneroida							
Corbiculidae							
Corbicula fluminea	**6.12**	**FC**	17	12	48	28	105
Sphaeriidae		**FC**					
Pisidium sp.	**6.48**	**FC**					
Gastropoda							
Basommatophora							
Ancylidae							
Ferrissia rivularis	**6.55**	**SC**					
Physidae							
Physella sp.	**8.84**	**CG**					
Mesogastropoda							
Pleuroceridae							
Elimia sp.	**2.46**	**SC**	2		3	1	6
ANNELIDA							
Oligochaeta							
Haplotaxida							
Enchytraidae	**9.84**	**CG**					
Lumbricidae							
Naididae	***8**	**CG**					
Nais bretscheri	**8.88**	**CG**					
Nais communis	**8.81**	**CG**					
Paranais sp.							
Tubificidae w.o.h.c.	**7.11**	**CG**					
Limnodrilus hoffmeisteri	**9.47**	**CG**					
Tubificidae w.h.c.	**7.11**	**CG**					
Lumbriculida							
Lumbriculidae	**7.03**	**CG**	5		3		8
Hirudinea	***8**	**P**					
ARTHROPODA							
Arachnoida							

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	BIG SOUTH FORK CUMB. RM 45.0 3WOL10029				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Acariformes							
Lebertiidae							
Lebertia sp.	**5.53**						
Crustacea							
Isopoda							
Asellidae							
Caecidotea sp.	**9.11**	**CG**					
Crangonyctidae							
Crangonyx sp.	**7.87**	**CG**					
Decapoda							
Cambaridae							
Orconectes sp.	**2.6**	**SH**					
Gammaridae							
Gammarus sp.	**9.1**	**SH**					
Insecta							
Ephemeroptera							
Baetidae							
Acentrella ampla	**3.61**	**CG**	1	2			3
Baetis sp.	***4**	**CG**			3		3
Baetis intercalaris	**4.99**	**CG**		5	9	9	23
Plauditus sp.	***4**	**CG**	2			1	3
Procloeon sp.	***5**	**CG**					
Baetiscidae							
Baetisca carolina	**3.47**	**CG**					
Caenidae							
Caenis sp.	**7.41**	**CG**	3	2	3	6	14
Ephemeridae		**CG**					
Ephemera sp.	***3**	**CG**					
Ephemerellidae	***1**						
Serratella sp.	***1**	**SC**		1	3	1	5
Heptageniidae	***4**	**SC**			8		8
Epeorus sp.	**1.27**	**SC**					
Epeorus dispar	**1.27**	**CG**					
Heptagenia sp.	**2.57**	**SC**					
Leucrocuta sp.	**2.4**	**SC**					
Stenacron sp.	***4**	**SC**					
Stenacron interpunctatum	**6.87**	**SC**					
Stenonema sp.	***4**	**SC**	27	38	85	52	202
Stenonema mediopunctatum	**3.77**	**SC**	9	5	12	33	59

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	BIG SOUTH FORK CUMB. RM 45.0 3WOL10029				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Stenonema modestum	**5.5**	**SC**		1	2		3
Stenonema terminatum	**4.1**	**SC**	5		1		6
Isonychiidae							
Isonychia sp.	**3.45**	**FC**	5	22	31	24	82
Leptophlebiidae	***2**	**CG**					
Paraleptophlebia sp.	**0.94**	**CG**					
Polymitarcyidae	***2**	**CG**					
Ephoron leukon	***2**	**CG**					
Tricorythidae	***4**	**CG**					
Tricorythodes sp.	**5.06**	**CG**	2				2
Odonata							
Aeshnidae	***3**	**P**					
Boyeria grafiana	**6.05**	**P**					
Coenagrionidae	***9**	**P**					
Argia sp.	**8.17**	**P**				1	1
Calopterygidae	***5**	**P**					
Gomphidae	***1**	**P**				1	1
Gomphus sp.	**5.8**	**P**					
Ophiogomphus sp.	**5.54**	**P**					
Stylogomphus albistylus	**4.72**	**P**					
Plecoptera							
Leuctridae	***0**	**SH**					
Leuctra sp.	**0.67**	**SH**					
Perlidae	***1**	**P**					
Acroneuria sp.	***1**	**P**		1		1	2
Acroneuria abnormis	**2.06**	**P**					
Agnetina capitata	**0**	**P**					
Neoperla sp.	**1.49**	**P**					
Perlodidae	***2**	**P**					
Hemiptera							
Gerridae		**P**					
Veliidae		**P**					
Megaloptera							
Corydalidae							
Corydalus cornutus	**5.16**	**P**	7	2	10	2	21
Nigronia sp.	***2**	**P**	1	2			3
Nigronia serricornis	**4.95**	**P**					
Sialidae	***4**	**P**					
Sialis sp.	**7.17**	**P**					

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	BIG SOUTH FORK CUMB. RM 45.0 3WOL10029				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Trichoptera							
Brachycentridae	***1**	**SH**					
Micrasema sp.	***2**	**SH**		1			1
Glossosomatidae	***0**	**SC**				1	1
Glossosoma sp.	**1.55**	**SC**					
Protoptila sp.	**2.55**	**SC**	1		5	4	10
Helicopsychidae	***3**	**SC**					
Helicopsyche borealis	**0**	**SC**					
Hydropsychidae	***4**	**FC**	1		2		3
Ceratopsyche sp.	***4**	**FC**					
Ceratopsyche morosa	**2.63**	**FC**					
Cheumatopsyche sp.	**6.22**	**FC**	5	15	13	8	41
Hydropsyche sp.	***5**	**FC**			2		2
Hydropsyche venularis	**4.96**	**FC**		1			1
Macrostemum sp.	**3.52**	**FC**	1	3	8		12
Hydroptilidae	***4**	**PI**					
Hydroptila sp.	**6.22**	**FC**				1	1
Lepidostomatidae	***1**	**SH**					
Lepidostoma sp.	**6.22**	**FC**					
Leptoceridae	***4**	**CG**					
Oecetis sp.	**4.7**	**P**					
Limnephilidae	***4**	**SH**					
Goera sp.	**0.13**	**SC**					
Philopotamidae	***3**	**FC**		1	3	4	8
Chimarra sp.	**2.76**	**FC**					
Chimarra aterrima	**2.76**	**FC**					
Chimarra obscurus	**2.76**	**FC**	10	72	21	17	120
Chimarra socia	**2.76**	**FC**	9	25	13	19	66
Polycentropodidae	***6**	**FC**					
Polycentropus sp.	**3.53**	**FC**					
Psychomyiidae	***2**	**CG**					
Psychomyia flavida	**2.91**	**CG**					
Rhyacophilidae	**0**	**P**					
Rhyacophila sp.	***1**	**P**					
Lepidoptera							
Pyralidae							
Petrophila sp.	**2.09**	**SC**					
Coleoptera							
Dryopidae	***5**						

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	BIG SOUTH FORK CUMB. RM 45.0 3WOL10029				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Helichus lithophilus	**4.63**	**SC**					
Elmidae							
Dubiraphia sp.	**5.93**	**SC**					
Macronychus glabratus	**4.58**	**SH**					
Microcylloepus pusillus	**2.11**	**CG**	9	4	12	1	26
Optioservus sp.	**2.36**	**SC**			1		1
Optioservus ovalis	**2.36**	**CG**					
Optioservus trivittatus	**2.36**	**SC**					
Oulimnius latiusculus	**1.78**	**CG**					
Promoresia elegans	***2**	**SC**					
Promoresia tardella	**0**	**SC**					
Stenelmis sp.	**5.1**	**SC**	6	3	9	4	22
Gyrinidae							
Dineutus sp.	**5.54**	**P**					
Limnichidae							
Lutrochus sp.		**SC**					
Psephenidae							
Ectopria sp.	**4.16**	**SC**					
Psephenus herricki	**2.35**	**SC**		2	1		3
Diptera							
Athericidae							
Atherix lantha	**2.07**	**P**					
Ceratopogonidae	***5**	**P**					
Bezzia/Palpomyia gp.	**6.86**	**P**					
Chironomidae					2	2	4
Cardiocladius obscurus	**5.87**	**P**	2	1		1	4
Chironomus sp.	**9.63**	**CG**					
Cricotopus sp.	***7**	**CG**			1	1	2
Cricotopus bicinctus	**8.54**	**CG**					
Cryptochironomus fulvus	**6.38**	**P**					
Dicrotendipes sp.	**8.1**	**CG**					
Eukiefferiella sp..	***4**	**CG**		1	2		3
Lopescladius sp.	**1.67**						
Microtendipes sp.	**5.53**	**CG**					
Nanocladius sp.	**7.07**	**CG**					
Nilotanypus sp.	**3.9**	**P**					
Parachaetocladius hudsoni	**0**	**CG**					
Parametriocnemus lundbecki	**3.65**	**CG**					
Paratendipes sp.	**5.11**	**CG**					

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	BIG SOUTH FORK CUMB. RM 45.0 3WOL10029				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Polypedilum sp.	***6**	**SH**					
Polypedilum flavum (convictum)	**4.93**	**SH**	1			1	2
Polypedilum illinoense	**9**	**SH**					
Psectrocladius sp.	**3.59**	**SH**					
Pseudochironomus sp.	**5.36**	**CG**					
Rheotanytarsus sp.	**5.89**	**FC**	3	8	44	5	60
Stenochironomus sp.	**6.45**	**SH**			1		1
Sublettea coffmani	**1.6**						
Synorthocladius semivirens	**4.36**	**CG**					
Tanytarsus sp.	**6.76**	**FC**				1	1
Thienemanniella xena	**5.86**	**CG**					
Thienemannimyia gp.	**8.42**	**P**					
Tvetenia discoloripes gp.	**3.61**	**CG**	2	2	1		5
Zavrelia sp.	**5.3**	**CG**					
Dolichopodidae	***5**	**P**					
Empididae	**7.57**	**P**					
Hemerodromia sp.	**7.57**	**P**		1	1	1	3
Neoplasta sp.							
Simuliidae	***6**	**FC**					
Simulium sp.	**4**	**FC**		4	1		5
Tipulidae	***3**	**SH**					
Antocha sp.	**4.25**	**SH**	1	2	1		4
Dicranota sp.	**0**	**P**					
Hexatoma sp.	**4.31**	**P**					
TOTAL NO. OF ORGANISMS			**137**	**239**	**365**	**231**	**972**
TOTAL NO. OF TAXA			**26**	**29**	**35**	**29**	**49**

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	PITMAN CREEK MILE 4.9 3WOL10026				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
PLATYHELMINTHES							
Turbellaria							
Tricladida							
Planariidae							
Dugesia tigrina	**7.23**						
NEMATODA	**6.02**						
MOLLUSCA							
Bivalvia							
Veneroida							
Corbiculidae							
Corbicula fluminea	**6.12**	**FC**	2	3	3	1	9
Sphaeriidae		**FC**					
Pisidium sp.	**6.48**	**FC**			1		1
Gastropoda							
Basommatophora							
Ancylidae							
Ferrissia rivularis	**6.55**	**SC**		1	1		2
Physidae							
Physella sp.	**8.84**	**CG**					
Mesogastropoda							
Pleuroceridae							
Elimia sp.	**2.46**	**SC**	23	7	38	14	82
ANNELIDA							
Oligochaeta							
Haplotaxida							
Enchytraidae	**9.84**	**CG**					
Lumbricidae					3		3
Naididae	***8**	**CG**					
Nais bretscheri	**8.88**	**CG**					
Nais communis	**8.81**	**CG**					
Paranais sp.							
Tubificidae w.o.h.c.	**7.11**	**CG**			1		1
Limnodrilus hoffmeisteri	**9.47**	**CG**					
Tubificidae w.h.c.	**7.11**	**CG**					
Lumbriculida							
Lumbriculidae	**7.03**	**CG**					
Hirudinea	***8**	**P**			2		2
ARTHROPODA							
Arachnoida							
Acariformes							
Lebertiidae							
Lebertia sp.	**5.53**						
Crustacea							
Isopoda							

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	PITMAN CREEK MILE 4.9 3WOL10026				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Asellidae							
Caecidotea sp.	**9.11**	**CG**					
Crangonyctidae							
Crangonyx sp.	**7.87**	**CG**					
Decapoda							
Cambaridae							
Orconectes sp.	**2.6**	**SH**				1	1
Gammaridae							
Gammarus sp.	**9.1**	**SH**					
Insecta							
Ephemeroptera							
Baetidae							
Acentrella ampla	**3.61**	**CG**					
Baetis sp.	***4**	**CG**					
Baetis intercalaris	**4.99**	**CG**		2	4		6
Plauditus sp.	***4**	**CG**					
Procloeon sp.	***5**	**CG**					
Baetiscidae							
Baetisca carolina	**3.47**	**CG**					
Caenidae							
Caenis sp.	**7.41**	**CG**	19	25	14	18	76
Ephemeridae		**CG**					
Ephemera sp.	***3**	**CG**					
Ephemerellidae	***1**						
Serratella sp.	***1**	**SC**					
Heptageniidae	***4**	**SC**					
Epeorus sp.	**1.27**	**SC**					
Epeorus dispar	**1.27**	**CG**					
Heptagenia sp.	**2.57**	**SC**					
Leucrocuta sp.	**2.4**	**SC**					
Stenacron sp.	***4**	**SC**					
Stenacron interpunctatum	**6.87**	**SC**			7		7
Stenonema sp.	***4**	**SC**	6	3	7		16
Stenonema mediopunctatum	**3.77**	**SC**					
Stenonema modestum	**5.5**	**SC**					
Stenonema terminatum	**4.1**	**SC**	10	5		12	27
Isonychiidae							
Isonychia sp.	**3.45**	**FC**	2	2	1		5
Leptophlebiidae	***2**	**CG**					
Paraleptophlebia sp.	**0.94**	**CG**					
Polymitarcyidae	***2**	**CG**					
Ephoron leukon	***2**	**CG**					
Tricorythidae	***4**	**CG**					
Tricorythodes sp.	**5.06**	**CG**		2			2

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	PITMAN CREEK MILE 4.9 3WOL10026				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Odonata							
Aeshnidae	***3**	**P**					
Boyeria grafiana	**6.05**	**P**					
Coenagrionidae	***9**	**P**					
Argia sp.	**8.17**	**P**		1	2	3	6
Calopterygidae	***5**	**P**					
Gomphidae	***1**	**P**					
Gomphus sp.	**5.8**	**P**					
Ophiogomphus sp.	**5.54**	**P**					
Stylogomphus albistylus	**4.72**	**P**					
Plecoptera							
Leuctridae	***0**	**SH**					
Leuctra sp.	**0.67**	**SH**					
Perlidae	***1**	**P**					
Acroneuria sp.	***1**	**P**					
Acroneuria abnormis	**2.06**	**P**					
Agnetina capitata	**0**	**P**					
Neoperla sp.	**1.49**	**P**					
Perlodidae	***2**	**P**					
Hemiptera							
Gerridae		**P**					
Veliidae		**P**					
Megaloptera							
Corydalidae							
Corydalus cornutus	**5.16**	**P**	4			1	5
Nigronia sp.	***2**	**P**					
Nigronia serricornis	**4.95**	**P**	2	1	1		4
Sialidae	***4**	**P**					
Sialis sp.	**7.17**	**P**					
Trichoptera							
Brachycentridae	***1**	**SH**					
Micrasema sp.	***2**	**SH**					
Glossosomatidae	***0**	**SC**					
Glossosoma sp.	**1.55**	**SC**					
Protoptila sp.	**2.55**	**SC**					
Helicopsychidae	***3**	**SC**					
Helicopsyche borealis	**0**	**SC**					
Hydropsychidae	***4**	**FC**			1		1
Ceratopsyche sp.	***4**	**FC**			1		1
Ceratopsyche morosa	**2.63**	**FC**	2	3	1	1	7
Cheumatopsyche sp.	**6.22**	**FC**	16	20	15	15	66
Hydropsyche sp.	***5**	**FC**			1		1
Hydropsyche venularis	**4.96**	**FC**					
Macrostemum sp.	**3.52**	**FC**					

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	PITMAN CREEK MILE 4.9 3WOL10026				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Hydroptilidae	*4	PI			1		1
Hydroptila sp.	6.22	FC		2			2
Lepidostomatidae	*1	SH					
Lepidostoma sp.	6.22	FC					
Leptoceridae	*4	CG					
Oecetis sp.	4.7	P					
Limnephilidae	*4	SH					
Goera sp.	0.13	SC					
Philopotamidae	*3	FC					
Chimarra sp.	2.76	FC					
Chimarra aterrima	2.76	FC					
Chimarra obscurus	2.76	FC					
Chimarra socia	2.76	FC					
Polycentropodidae	*6	FC					
Polycentropus sp.	3.53	FC					
Psychomyiidae	*2	CG					
Psychomyia sp.	*2	CG					
Psychomyia flavida	2.91	CG				1	1
Rhyacophilidae	0	P					
Rhyacophila sp.	*1	P					
Lepidoptera							
Pyralidae							
Petrophila sp.	2.09	SC					
Coleoptera							
Dryopidae	*5						
Helichus lithophilus	4.63	SC					
Elmidae							
Dubiraphia sp.	5.93	SC					
Macronychus glabratus	4.58	SH					
Microcylloepus pusillus	2.11	CG					
Optioservus sp.	2.36	SC		7	3	19	29
Optioservus ovalis	2.36	CG					
Optioservus trivittatus	2.36	SC					
Oulimnius latiusculus	1.78	CG					
Promoresia elegans	*2	SC			1		1
Promoresia tardella	0	SC					
Stenelmis sp.	5.1	SC	14	26	27	14	81
Gyrinidae							
Dineutus sp.	5.54	P					
Limnichidae							
Lutrochus sp.		SC					
Psephenidae							
Ectopria sp.	4.16	SC					
Psephenus herricki	2.35	SC	8	15	19	37	79

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	PITMAN CREEK MILE 4.9 3WOL10026				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Diptera							
Athericidae							
Atherix lantha	**2.07**	**P**					
Ceratopogonidae	***5**	**P**					
Bezzia/Palpomyia gp.	**6.86**	**P**					
Chironomidae				19	7		26
Cardiocladius obscurus	**5.87**	**P**	7	1	4		12
Chironomus sp.	**9.63**	**CG**			1		1
Cricotopus sp.	***7**	**CG**	5	78	19	38	140
Cricotopus bicinctus	**8.54**	**CG**		4	4	5	13
Cryptochironomus fulvus	**6.38**	**P**					
Dicrotendipes sp.	**8.1**	**CG**		10	4	3	17
Eukiefferiella sp..	***4**	**CG**	3				3
Lopescladius sp.	**1.67**						
Microtendipes sp.	**5.53**	**CG**					
Nanocladius sp.	**7.07**	**CG**					
Nilotanypus sp.	**3.9**	**P**					
Parachaetocladius hudsoni	**0**	**CG**					
Parametriocnemus lundbecki	**3.65**	**CG**		1			1
Paratendipes sp.	**5.11**	**CG**	1				1
Polypedilum sp.	***6**	**SH**			1		1
Polypedilum flavum (convictum)	**4.93**	**SH**	3	4	2	1	10
Polypedilum illinoense	**9**	**SH**		1	1	1	3
Psectrocladius sp.	**3.59**	**SH**					
Pseudochironomus sp.	**5.36**	**CG**		1		2	3
Rheotanytarsus sp.	**5.89**	**FC**	3	20	24	14	61
Stenochironomus sp.	**6.45**	**SH**					
Sublettea coffmani	**1.6**						
Synorthocladius semivirens	**4.36**	**CG**					
Tanytarsus sp.	**6.76**	**FC**		2	1	6	9
Thienemanniella xena	**5.86**	**CG**					
Thienemannimyia gp.	**8.42**	**P**		2	4	3	9
Tvetenia discoloripes gp.	**3.61**	**CG**					
Zavrelia sp.	**5.3**	**CG**			1		1
Dolichopodidae	***5**	**P**					
Empididae	**7.57**	**P**					
Hemerodromia sp.	**7.57**	**P**		2			2
Neoplasta sp.							
Simuliidae	***6**	**FC**					
Simulium sp.	**4**	**FC**					
Tipulidae	***3**	**SH**					
Antocha sp.	**4.25**	**SH**	3				3
Dicranota sp.	**0**	**P**					

TABLE 1A. BENTHIC MACROINVERTEBRATES COLLECTED FROM WOLF CREEK RESERVOIR PROJECT, 2000.

SPECIES	T.V.**	F.F.G.***	PITMAN CREEK MILE 4.9 3WOL10026				
			HESS-1	HESS-2	HESS-3	HESS-4	TOTAL
Hexatoma sp.	4.31	P					
CHORDATA							
Osteichthyes							
Percidae							
TOTAL NO. OF ORGANISMS			133	270	228	210	841
TOTAL NO. OF TAXA			19	30	37	22	49