

DATA COMPILATION OF BENTHIC INVERTEBRATES FROM TRIBUTARY STREAMS OF  
THE YAMPA AND NORTH PLATTE RIVER BASINS, NORTHWESTERN COLORADO

By Linda J. Britton

---

U.S. GEOLOGICAL SURVEY

OPEN-FILE REPORT 83-140

Lakewood, Colorado  
1983



UNITED STATES DEPARTMENT OF THE INTERIOR

JAMES G. WATT, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

---

For additional information  
write to:

Colorado District Chief  
U.S. Geological Survey, MS 415  
Box 25046, Denver Federal Center  
Lakewood, CO 80225

For sale by:

Open-File Services Section  
Western Distribution Branch  
U.S. Geological Survey, MS 306  
Box 25425, Federal Center  
Denver, CO 80225  
Telephone: (303) 234-5888

## CONTENTS

	Page
Abstract-----	1
Introduction-----	1
Background-----	1
Purpose and scope-----	2
Methods and sampling-site locations-----	2
Collection and analysis-----	2
Sampling sites-----	4
Results-----	4
References cited-----	4

## ILLUSTRATIONS

	Page
Figures 1-5. Maps showing location of:	
1. Study area-----	3
2. Trout Creek, Fish Creek, sampling sites and numbers-----	5
3. Williams Fork, sampling sites and numbers-----	6
4. Canadian River, sampling sites and numbers-----	7
5. Little Grizzly and Grizzly Creeks, sampling sites and numbers-----	8

## TABLES

	Page
Table 1. Sampling-site locations-----	9
2. Water-quality field measurements and instantaneous discharge of streams sampled in the Yampa River basin-----	10
3. Water-quality field measurements and instantaneous discharge of streams sampled in the North Platte River basin-----	13
4-18. Taxa and densities of benthic invertebrates, per square meter, collected from:	
4. Trout Creek (Tr-1)-----	15
5. Trout Creek (Tr-2)-----	21
6. Trout Creek (Tr-3)-----	27
7. Fish Creek (F-1)-----	33
8. Fish Creek (F-2)-----	38
9. Fish Creek (F-3)-----	44
10. East Fork Williams Fork (WF-1)-----	50
11. South Fork Williams Fork (WF-2)-----	56
12. Williams Fork (WF-3)-----	62
13. Williams Fork (WF-4)-----	68
14. Canadian River (CR-1)-----	74
15. Canadian River (CR-2)-----	79
16. Little Grizzly Creek (LGr-1)-----	84
17. Little Grizzly Creek (LGr-2)-----	90
18. Grizzly Creek (Gr-1)-----	96

## METRIC CONVERSIONS

Inch-pound units used in this report may be converted to International System of Units (SI) by the following conversion factors:

<i>Multiply inch-pound unit</i>	<i>By</i>	<i>To obtain SI unit</i>
foot (ft)	0.3048	meter
inch (in.)	25.40	millimeter
cubic foot per second (ft <sup>3</sup> /s)	0.02832	cubic meter per second
mile (mi)	1.609	kilometer
square foot (ft <sup>2</sup> )	0.09290	square meter

DATA COMPILATION OF BENTHIC INVERTEBRATES FROM TRIBUTARY STREAMS OF THE  
YAMPA AND NORTH PLATTE RIVER BASINS, NORTHWESTERN COLORADO

---

By Linda J. Britton

---

ABSTRACT

Benthic invertebrates were collected with a 210-micrometer mesh net Surber sampler in tributary streams of the Yampa River basin (Trout Creek, Fish Creek, and Williams Fork) and North Platte River basin (Canadian River and Little Grizzly and Grizzly Creeks). The purpose of the study was to describe and quantify the benthic invertebrate communities in selected streams in coal mining areas. Field water-quality measurements of water temperature, specific conductance, pH, and dissolved oxygen also were made to aid in assessing stream water-quality conditions. This report describes the methods of data collection and presents qualitative and quantitative results of benthic invertebrates and associated water-quality data collected on a near bimonthly basis during the growing season, beginning in April 1980 and ending in September 1981.

INTRODUCTION

Background

Energy resource development can have a profound effect on local water quality of streams. In general, potential water-related problems associated with development are: (1) Excessive use of available surface waters, (2) increases in dissolved solids and sediment loads in surface waters, and (3) changes in stream morphometry. As a result of these environmental changes, benthic invertebrate communities may be altered. Stream insects may provide a means for detecting gradual changes in the aquatic environment because some species are sensitive to pollution.

## Purpose and Scope

Benthic invertebrates were sampled in two drainage basins in Colorado where coal is presently or has been previously mined (fig. 1). Sampling objectives were to describe and quantify the benthic invertebrate communities in selected streams in coal-mining areas. A secondary objective was to compare the results with other data collected prior to this study and to assess possible changes in water quality reflected in the benthic invertebrate community composition. Generally, sampling provided quantitative and qualitative data on density and relative abundance of various benthic invertebrate species. In addition, field water-quality constituents and properties, consisting of temperature, specific conductance, pH, and dissolved oxygen, were measured.

Sampling began in April 1980, continued on a near bimonthly basis during the growing (open-water) season (April-November), and was completed in September 1981. Because of streamflow conditions and the timing of periods of maximum productivity, data were collected mainly after ice-out in late spring and during the low-flow periods of summer and early autumn.

This report describes site selection, methods of data collection and analyses, and presents qualitative and quantitative findings of benthic invertebrates with associated water-quality data. An interpretive discussion of the biological and water-quality data, including statistical relations is in Britton (1983).

## METHODS AND SAMPLING-SITE LOCATIONS

### Collection and Analyses

Beginning in April 1980, benthic invertebrates were collected at selected sites using a square-foot Surber sampler having a 210- $\mu\text{m}$  (micrometer) mesh net, and the methods described by Greeson and others (1977). In most instances, three replicate samples were collected in riffle areas at each site. According to Gaufin and others (1956), three Surber samples generally will contain one-half to two-thirds of the species observed in ten samples. In addition, the separate analysis of each sample indicates differences in distribution of numbers and taxa at a site.

Field water-quality measurements of water temperature, specific conductance, pH, and dissolved oxygen were made with a multiparameter unit. At sites having staff gages, streamflow was determined from a rating curve.

Benthic invertebrates were identified and counted by a private laboratory. The first set of benthic invertebrate samples (collected April and May 1980) was analyzed by a different laboratory than were the other sets of samples. Although the results from the first set of samples are given in this report, they are not included as a part of the summaries or calculations in Britton (1983).

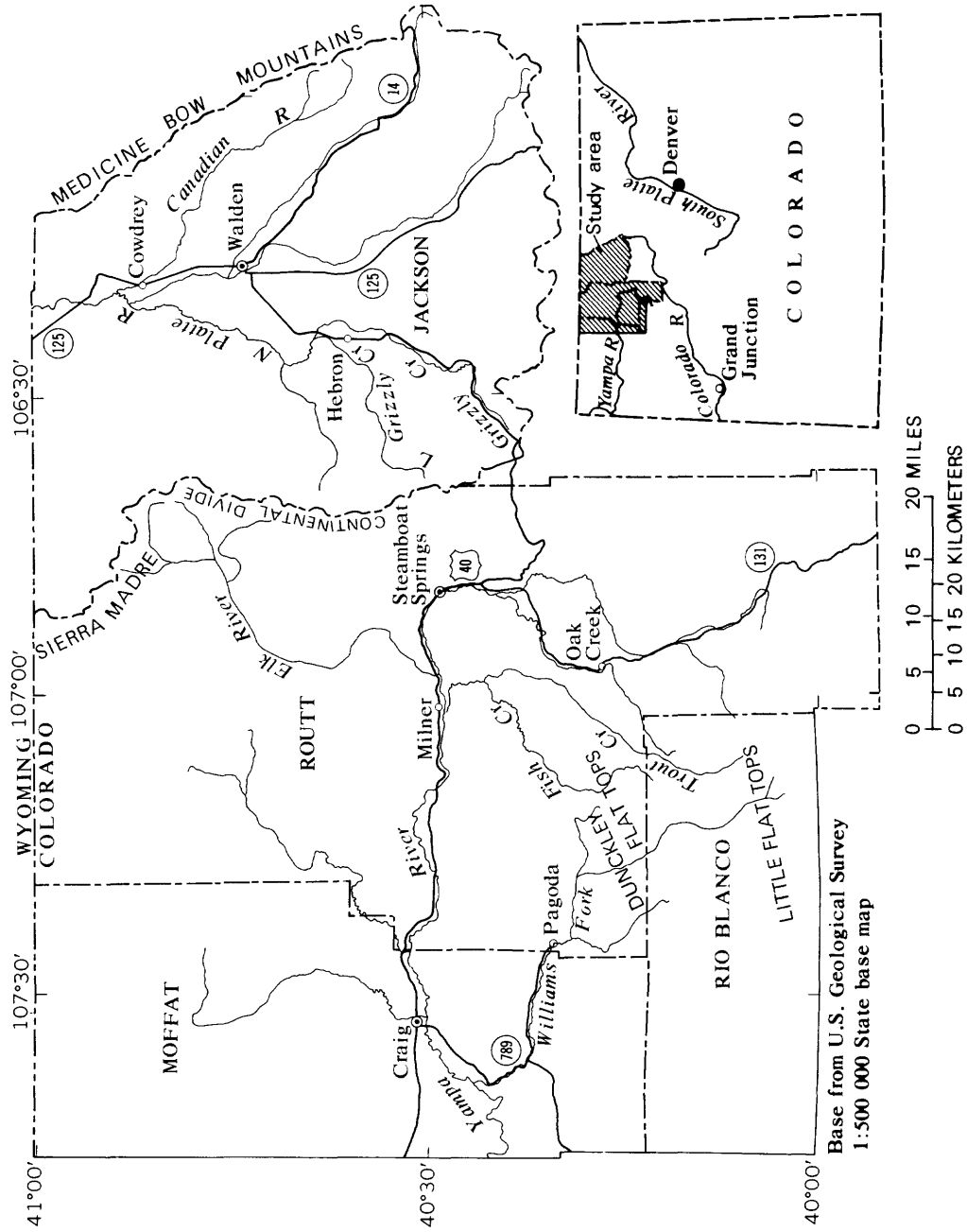


Figure 1.-- Location of study area.

### Sampling Sites

Biological and water-quality sampling sites were selected in areas where coal was being mined or where mining was expected (fig. 1). Control sites were selected upstream from all mining and at least one site on each stream was located downstream from each mine or suspected mining area. Sites also were selected in conjunction with an ongoing study determining traveltime and reaeration rates on the same stream reaches. Whenever possible, biological sampling sites were located at existing U.S. Geological Survey water-quality stations or streamflow-gaging stations.

Table 1 shows stream sampling sites, including latitude and longitude, and sampling site numbers (Tr-1, for example) that correspond to the numbers on the location maps (figs. 2-5).

### RESULTS

Listed in tables 2 and 3 are the water-quality field data measured at all stream sites in the Yampa and North Platte River basins. The field-collected data include water temperature, specific conductance, pH, dissolved oxygen, and instantaneous discharge, where available. Tables 4-18 present the results of taxa and numbers of benthic invertebrates collected from all the stream sites in the two river basins. The total number of taxa, number of organisms, and diversity-index calculation are provided for individual sampling dates at the end of each table.

### REFERENCES CITED

- Britton, L. J., 1983, Reconnaissance of benthic invertebrates in tributary streams of the Yampa and North Platte River basins, Northwestern Colorado: U.S. Geological Survey Water Resources Investigations 83-4191, [in press].
- Gaufin, A. R., Harris, E. K., and Walter, H. J., 1956, A statistical evaluation of stream bottom sampling data obtained from three standard samplers: *Ecology*, v. 37, no. 4, p. 643-648.
- Greeson, E. E., Ehlike, T. A., Irwin, G. A., Luim, B. W., and Slack, K. V., 1977, Methods for collection and analyses of aquatic biological and microbiological samples: U.S. Geological Survey Techniques of Water Resources Investigations, Book 5, Chapter A4, 332 p.



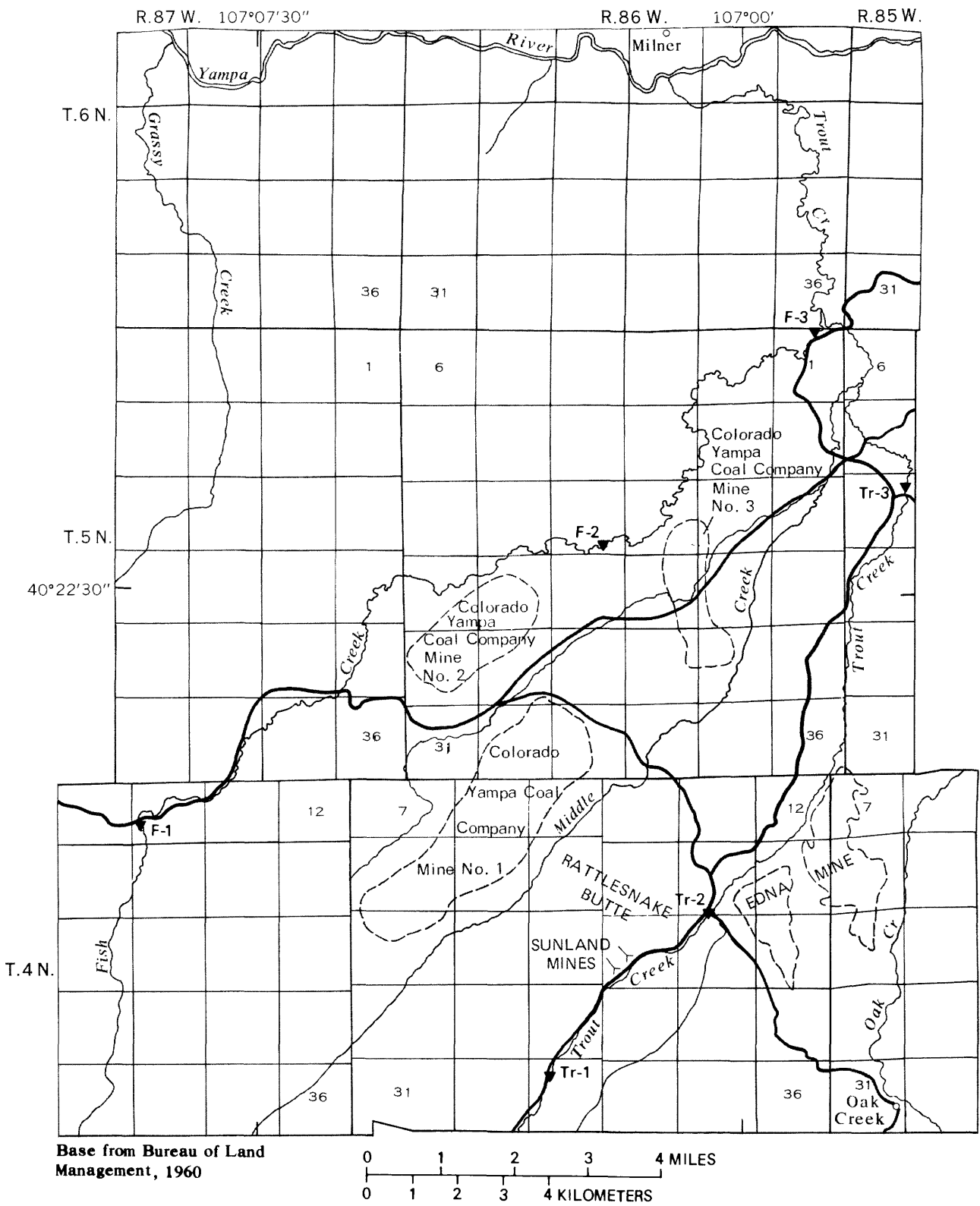


Figure 2.-- Location of Trout Creek, Fish Creek, sampling sites and numbers.

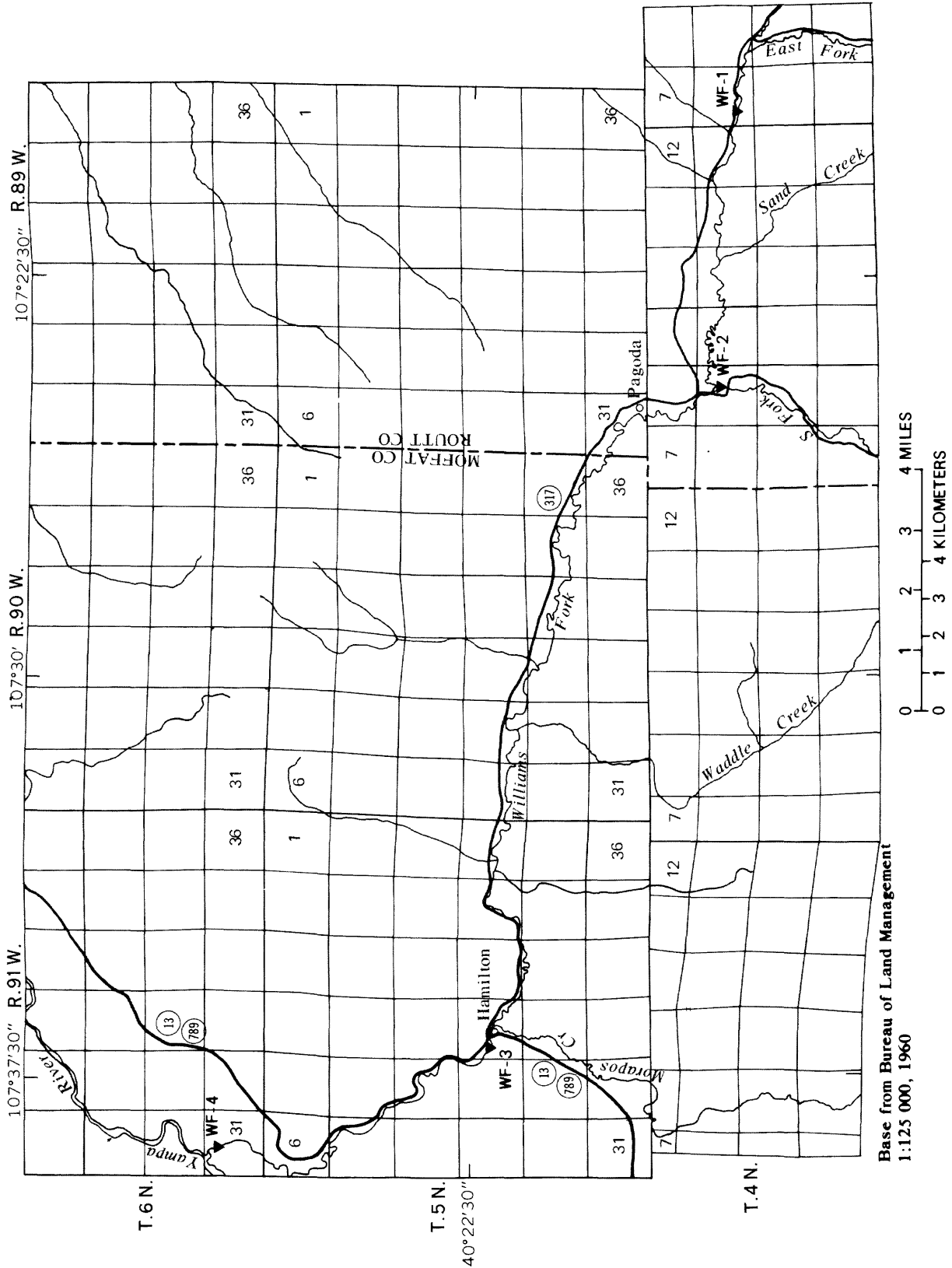


Figure 3.--Location of Williams Fork, sampling sites and numbers.

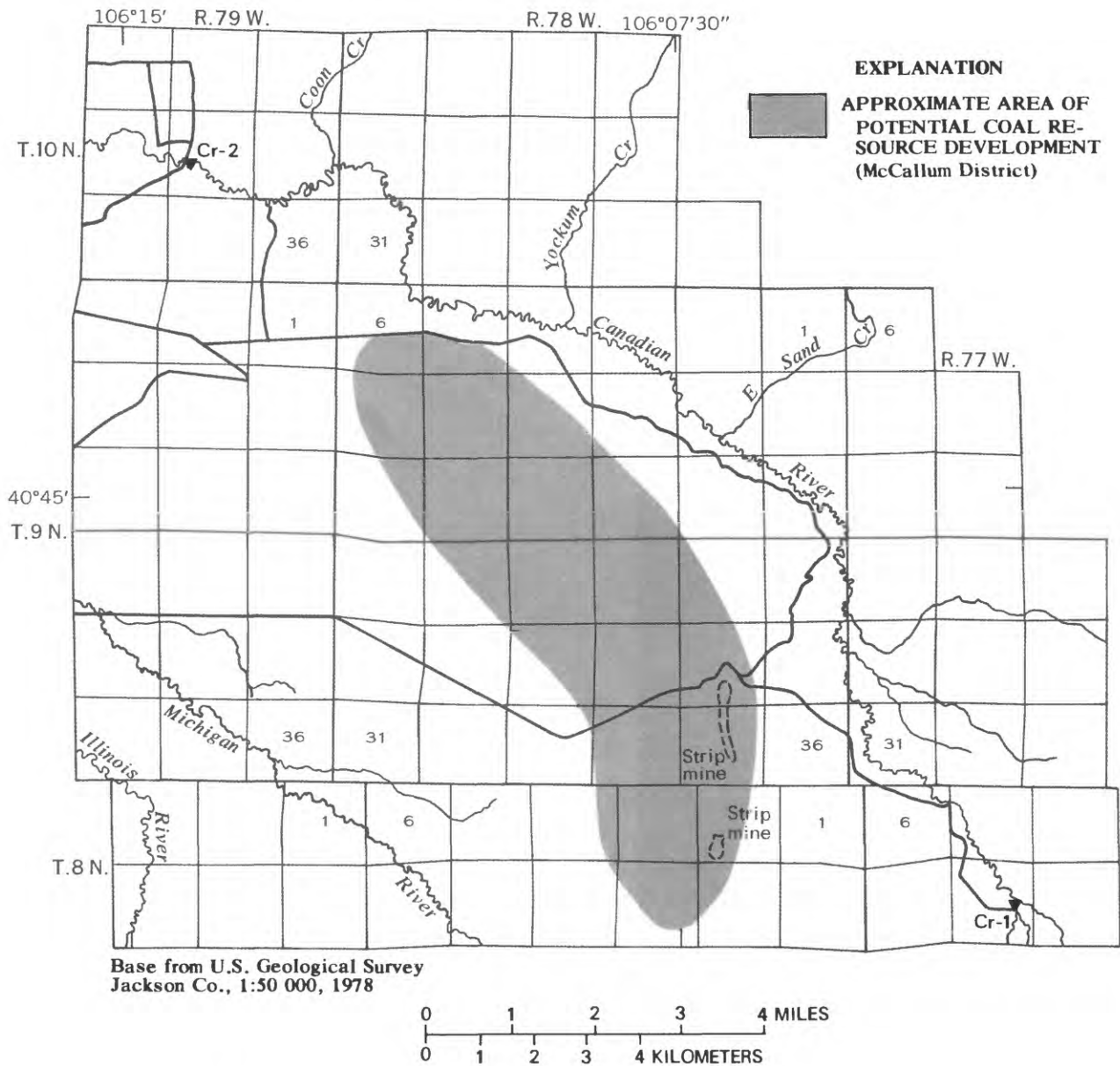
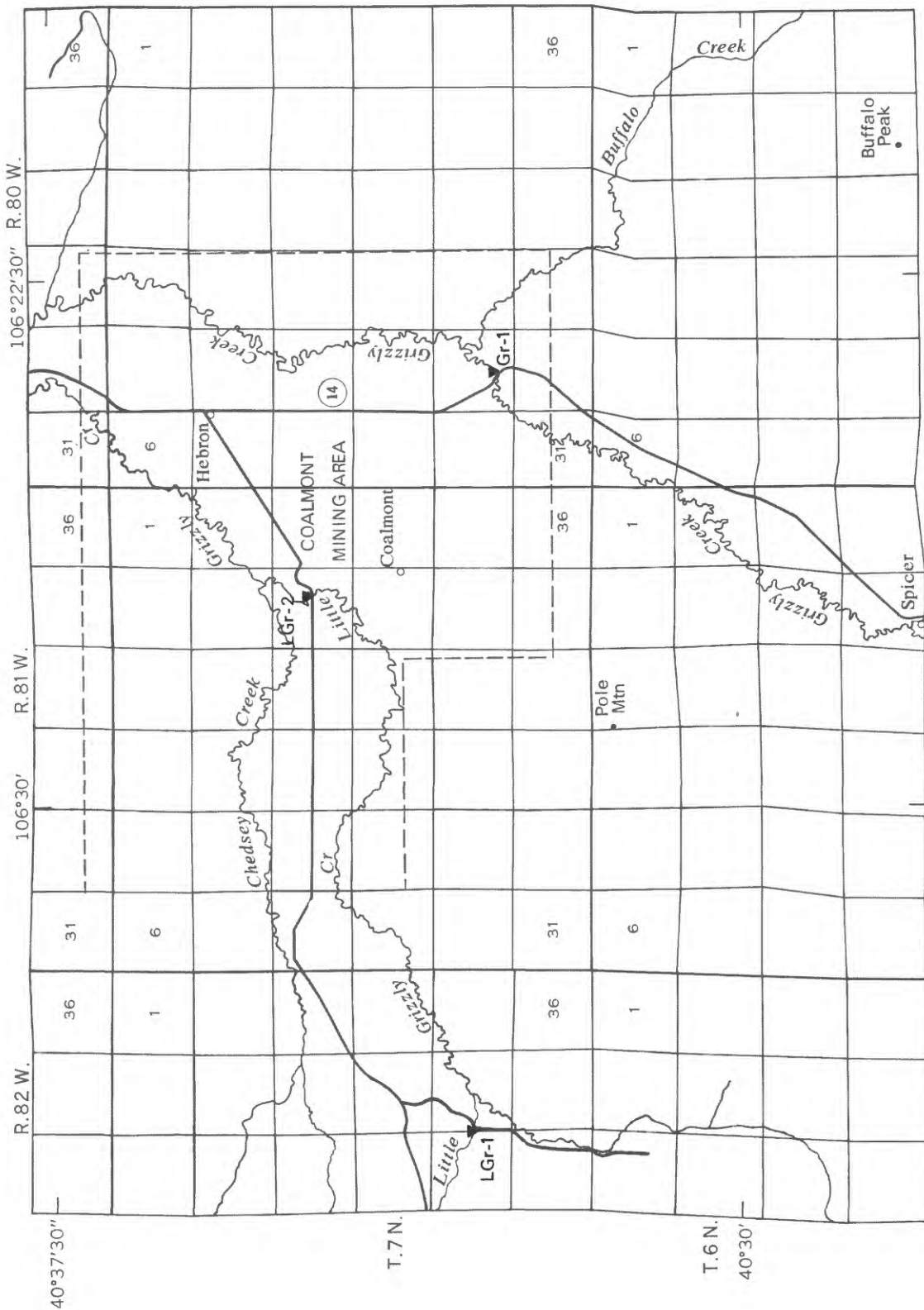


Figure 4.- Location of Canadian River, sampling sites and numbers.



Base from U.S. Geological Survey  
Jackson County, 1:50 000, 1978,  
and Bureau of Land Management,  
1960

Figure 5.-- Location of Little Grizzly and Grizzly Creeks, sampling sites and numbers.

Table 1.--Sampling site locations

Site name	Site number	Location	Corresponding figure
YAMPA RIVER BASIN			
Trout Creek above Trout Creek School	Tr-1	Lat 40°16'40" N., long 107°03'05" W.	2
Trout Creek near Oak Creek	Tr-2	Lat 40°18'33" N., long 107°00'34" W.	2
Trout Creek above Fish Creek	Tr-3	Lat 40°23'38" N., long 106°57'36" W.	2
Fish Creek above Coyote Creek	F-1	Lat 40°20'10" N., long 107°08'20" W.	2
Fish Creek below Yampa Coal Co. Mine No. 2	F-2	Lat 40°23'00" N., long 107°02'27" W.	2
Fish Creek at mouth, near Milner	F-3	Lat 40°25'30" N., long 106°58'57" W.	2
East Fork Williams Fork below Willow Creek	WF-1	Lat 40°18'47" N., long 107°19'35" W.	3
South Fork Williams Fork at mouth, near Pagoda.	WF-2	Lat 40°18'57" N., long 107°24'35" W.	3
Williams Fork near Hamilton	WF-3	Lat 40°22'17" N., long 107°33'56" W.	3
Williams Fork at mouth near Hamilton	WF-4	Lat 40°26'14" N., long 107°38'50" W.	3
NORTH PLATTE RIVER BASIN			
Canadian River above Willow Creek	CR-1	Lat 40°40'37" N., long 106°03'01" W.	4
Canadian River near Brownlee	CR-2	Lat 40°48'29" N., long 106°14'09" W.	4
Little Grizzly Creek above Doran Creek	LGr-1	Lat 40°32'56" N., long 106°34'32" W.	5
Little Grizzly Creek above Hebron	LGr-2	Lat 40°37'57" N., long 106°26'58" W.	5
Grizzly Creek near Hebron	Gr-1	Lat 40°33'27" N., long 106°23'22" W.	5

Table 2.--Water-quality field measurements and instantaneous discharge  
for streams sampled in the Yampa River basin

[mo/dd/yr, month/day/year; °C, degrees Celsius; umhos, micromhos per centimeter  
at 25°C; mg/L, milligrams per liter; ft<sup>3</sup>/s, cubic feet per second]

Site number	Sampling date (mo/dd/yr)	Water temper- (°C)	Specific conduct- ance (umhos)	pH (units)	Dissolved oxygen (mg/L)	Discharge instanta- (ft <sup>3</sup> /s)
TROUT CREEK						
Tr-1-----	04/14/80	0.0	160	7.5	10.3	---
	07/30/80	14.5	250	7.6	7.9	---
	09/17/80	14.5	225	---	7.9	<sup>1</sup> 11.5
	11/18/80	0.0	188	8.1	11.2	25
	04/20/81	8.0	142	8.0	7.9	29
	05/21/81	8.2	158	8.5	9.4	16
	06/30/81	13.4	275	7.8	7.6	15
	07/30/81	13.2	220	8.4	7.7	17
	09/03/81	18.8	184	7.9	7.2	15
Tr-2-----	04/14/80	3.0	180	7.6	10.6	<sup>2</sup> 29
	07/30/80	16.0	290	8.0	7.5	8.5
	09/17/80	12.0	230	---	7.9	7.2
	11/19/80	0.0	193	7.6	10.6	9.0
	04/20/81	8.3	151	8.2	8.0	---
	05/18/81	11.2	200	8.3	9.3	---
	06/29/81	14.4	272	7.9	7.8	---
	07/30/81	12.6	224	8.7	7.8	---
	09/03/81	17.9	186	8.0	7.3	---
Tr-3-----	04/14/80	9.5	700	8.2	9.3	<sup>3</sup> 41
	07/30/80	23	600	8.3	7.8	15
	09/17/80	17	570	---	8.1	15
	11/19/80	0.0	533	8.2	12.1	9.3
	04/21/81	10.5	369	8.0	8.2	---
	05/21/81	7.7	510	8.6	9.8	---
	06/30/81	25.3	588	8.2	6.8	---
	07/29/81	23.2	394	8.6	6.4	---
	09/02/81	19.6	550	8.3	8.3	---

Table 2.--Water-quality field measurements and instantaneous discharge for streams sampled in the Yampa River basin--Continued

Site number	Sampling date (mo/dd/yr)	Water temper- (°C)	Specific conductance (umhos)	pH (units)	Dissolved oxygen (mg/L)	Discharge instanta- (ft <sup>3</sup> /s)
FISH CREEK						
F-1-----	04/15/80	7.5	340	8.4	9.9	<sup>4</sup> 16.5
	07/31/80	24.5	730	8.5	6.5	4.2E
	09/18/80	7.5	660	---	8.1	.1
	11/19/80	0.0	425	7.9	11.1	6.2
	04/22/81	4.8	262	8.0	9.2	11.2
	05/21/81	7.6	436	8.4	9.6	14.8
	06/30/81	19	643	8.0	7.9	1.7
	07/30/81	15.8	687	8.8	7.7	1.6
	09/03/81	19.7	812	8.0	8.3	.8
F-2-----	04/15/80	7.0	490	---	9.4	---
	07/31/81	20	710	8.1	7.4	<sup>4</sup> 2.8
	09/18/80	11.0	800	---	8.6	1.0
	11/19/80	0.5	585	7.9	12.0	---
	06/30/81	23.0	696	8.0	6.9	1.4
	07/29/81	24.2	676	8.7	7.1	1.4
	09/02/81	17.8	808	8.3	6.9	---
F-3-----	04/15/80	2.0	850	---	9.9	<sup>4</sup> 141E
	07/30/80	27.0	815	8.4	8.5	2.5
	09/17/80	17.5	860	---	---	1.8
	11/19/80	0.8	970	8.3	11.9	3.6
	04/22/81	9.6	370	7.9	8.7	13.7
	05/18/81	15.4	948	8.5	9.5	13.0
	06/30/81	26.8	672	8.1	---	.9
	07/29/81	24.0	691	8.7	8.5	.8
	09/02/81	18.7	956	8.0	4.7	.0
WILLIAMS FORK						
WF-1-----	04/16/80	7.0	540	---	8.2	---
	07/30/80	15.5	205	7.8	7.7	---
	09/30/80	9.5	230	8.2	8.0	---
	11/20/80	0.0	233	8.1	11.1	---
	04/21/81	7.8	231	8.2	8.2	---
	06/29/81	21.5	215	7.9	6.1	---
	07/30/81	17.1	216	8.7	7.8	---
	09/03/81	16.2	242	8.1	8.2	---

Table 2.--Water-quality field measurements and instantaneous discharge for streams sampled in the Yampa River basin--Continued

Site number	Sampling date (mo/dd/yr)	Water temper- (°C)	Specific conduct- ance (umhos)	pH (units)	Dissolved oxygen (mg/L)	Discharge instanta- (ft <sup>3</sup> /s)
WILLIAMS FORK--Continued						
WF-2-----	04/16/80	7.0	520	---	8.8	---
	07/29/80	22.0	570	7.9	6.6	---
	09/30/80	11.5	520	8.0	7.7	---
	11/20/80	0.5	587	8.1	10.7	---
	04/21/81	5.9	268	7.9	8.6	---
	06/29/81	25.1	473	7.8	5.8	---
	07/30/81	20.3	468	8.7	7.9	---
	09/03/81	15.8	521	8.1	7.8	---
WF-3-----	04/16/80	8.0	530	7.2	8.4	---
	07/29/80	23.0	440	8.5	7.2	---
	09/30/80	13.5	503	8.1	8.1	---
	11/20/80	0.2	622	8.0	11.0	---
	04/21/81	7.3	269	8.0	8.3	---
	06/29/81	24.0	347	7.5	---	---
	07/30/81	20.4	420	7.8	8.3	---
	09/03/81	13.8	492	7.7	7.7	---
WF-4-----	04/16/80	4.0	650	---	8.6	---
	07/29/80	24.0	450	7.7	7.4	<sup>5</sup> 155
	09/30/80	14.5	566	8.1	8.2	33
	11/20/80	0.4	689	7.9	10.4	33
	04/21/81	7.6	277	7.9	8.3	155
	06/29/81	24.1	370	8.0	6.7	69
	07/30/81	19.8	437	8.8	7.7	25
	09/03/81	13.2	535	7.8	7.8	27

<sup>1</sup>Gage operated by Sunland Mining Corporation, about 2 miles downstream from site Tr-1.

<sup>2</sup>Gage operated by Pittsburg Midway Coal Company, about 0.5 miles downstream from site Tr-2.

<sup>3</sup>Gage operated by Pittsburg Midway Coal Company, about 1.5 miles downstream from site Tr-3.

<sup>4</sup>Gages at sampling sites operated by U.S. Department of Agriculture, Science and Education Administration.

<sup>5</sup>Gage operated by Empire Energy Coal Mine.



Table 3.--Water-quality field measurements and instantaneous discharge  
for streams sampled in the North Platte River basin

[mo/dd/yr, month/day/year; °C, degrees Celsius; umhos, micromhos per centimeter  
at 25°C; mg/L, milligrams per liter; ft<sup>3</sup>/s, cubic feet per second]

Site number	Sampling date (mo/dd/yr)	Water temper- (°C)	Specific conduct- ance (µmhos)	pH (units)	Dissolved oxygen (mg/L)	Discharge instanta- (ft <sup>3</sup> /s)
CANADIAN RIVER						
CR-1-----	05/07/80	0.5	55	7.5	11.8	42
	07/24/80	20.0	100	7.3	6.7	11
	09/16/80	12.0	120	---	8.2	7.6
	11/17/80	0.0	87	7.4	10.6	8.5
	04/30/81	6.3	60	6.6	8.7	21
	06/09/81	11.6	30	6.9	8.0	137
	07/28/81	15.7	90	8.0	7.5	14
	09/01/81	13.6	81	7.0	7.6	12
	CR-2-----	05/07/80	7.0	260	7.9	8.9
07/25/80		15.0	280	7.7	7.8	19
09/16/80		14.5	300	---	8.0	9.4
11/17/80		0.0	373	7.5	10.3	10
04/30/81		7.8	364	7.7	8.2	2.8
06/09/81		18.5	216	7.6	6.9	124
07/28/81		22.2	253	8.6	7.4	25
09/01/81		21.0	247	7.8	7.1	12
LITTLE GRIZZLY CREEK						
LGr-1-----	05/06/80	5.0	55	7.6	9.9	---
	07/23/80	20.0	60	7.3	6.6	---
	09/17/80	7.0	100	---	8.6	---
	11/18/80	0.0	73	7.3	10.4	---
	04/29/81	9.7	28	6.6	7.2	---
	06/10/81	---	21	6.4	8.6	---
	07/29/81	12.5	75	7.4	7.9	---
	09/02/81	10.4	65	7.2	7.3	---

Table 3.--Water-quality field measurements and instantaneous discharge for streams sampled in the North Platte River basin--Continued

Site number	Sampling date (mo/dd/yr)	Water temperature (°C)	Specific conductance (µmhos)	pH (units)	Dissolved oxygen (mg/L)	Discharge instantaneous (ft <sup>3</sup> /s)
LITTLE GRIZZLY CREEK--Continued						
LG4-2-----	05/06/80	6.3	160	7.1	10.1	249
	07/24/80	15.0	180	7.6	6.7	6.4
	09/17/80	8.5	220	---	8.5	2.1
	11/18/80	0.3	230	7.6	11.1	( <sup>1</sup> )
	04/29/81	15.8	284	7.4	7.2	( <sup>1</sup> )
	06/10/81	14.9	209	7.2	6.7	( <sup>1</sup> )
	07/29/81	21.3	197	8.9	9.5	( <sup>1</sup> )
	09/02/81	11.7	282	7.5	6.8	( <sup>1</sup> )
	GRIZZLY CREEK					
Gr-1-----	05/06/80	7.0	170	7.7	8.6	572
	07/24/80	17.0	240	7.9	6.5	8.6
	09/17/80	10.5	240	---	5.8	2.6
	11/18/80	0.2	210	7.5	10.4	( <sup>1</sup> )
	04/29/81	15.7	286	7.4	6.1	( <sup>1</sup> )
	06/10/81	16.3	154	7.3	6.4	( <sup>1</sup> )
	07/29/81	18.8	204	8.1	6.7	( <sup>1</sup> )
	09/02/81	13.1	222	7.5	5.2	( <sup>1</sup> )

<sup>1</sup>Station discontinued.

Table 4.--Taxa and densities of benthic invertebrates, per square meter, collected from Trout Creek (Tr-1)

[Densities are rounded to standard significant figures (Greeson and others, 1977)]

TAXA	Sampling dates									
PHYLUM	04/14/80	07/30/80	09/17/80	11/18/80	04/20/81	05/21/81	06/30/81	07/30/81	09/03/81	
CLASS										
Order										
Family										
Genus species										
<b>ANNELIDA</b>										
OLIGOCHAETA (Worms)										
Plesiopora		18		250	11		130	50	29	
Limnodrilus sp.										
<b>ARTHROPODA</b>										
<b>ARACHNOIDEA</b>										
Hydracarina (Water mites)										
Hydrachna sp.	4									
Lebertia sp.	11		7	7	4	7	72	50	100	
Limnochares sp.						29	86		120	
Mideopsis sp.		4	14	32	18	22	43	50		
Protzia sp.		86	110	100				130		
<b>INSECTA</b>										
Coleoptera (Beetles)										
Deronectes striatellus						7				
Helichus striatus			4			7	7		4	
Narpus sp.		7	14				7		4	
Optioservus castanipennis	14	360	300	490	75	220	800	720	730	
Oreodytes crassulus							14			
Zaitzevia parvula		480	800	410	18	2,800	1,600	800	860	

Table 4.--Taxa and densities of benthic invertebrates, per square meter, collected from Trout Creek (Tr-1)--Continued

TAXA	Sampling dates								
	04/14/80	07/30/80	09/17/80	11/18/80	04/20/81	05/21/81	06/30/81	07/30/81	09/03/81
ANTHROPODA--Continued									
INSECTA--Continued									
Diptera (True flies)									
<i>Antocha</i> sp.			90	29		7	4		57
<i>Arcto-conchapelopia</i> sp.	7								
<i>Atherix pachypus</i>	4	47	36	130	18	22	29	29	120
<i>Chelifera</i> sp.		11							
Chironomidae Form 1		75	7	93	200	65	190	200	270
Chironomidae Form 2		57	14	4	390		14		57
Chironomidae Form 3		97	100	110	200	36	14	43	200
Chironomidae Form 5		4		14		7	43		14
Chironomidae Form 7		18	7	72	11	14	270	43	57
Chironomidae Form 8		7		4			2,100		
Chironomidae Form 13					130	7	29	36	120
Chironomidae Form 14					7				
Chironomidae pupa			7			7			100
<i>Cricotopus nostocicola</i>	22								
<i>C. sp. 1</i>	50								
<i>C. sp. 5</i>	4								
<i>Diamesa</i> sp. 1	4								
<i>D. sp. 2</i>	4								
<i>Dicranota</i> sp.	11			65	18	14			14
<i>Hemerodromia</i> sp.		4	11	7					

Table 4.--Taxa and densities of benthic invertebrates, per square meter, collected from Trout Creek (Tr-1)--Continued

TAXA	Sampling dates								
	04/14/80	07/30/80	09/17/80	11/18/80	04/20/81	05/21/81	06/30/81	07/30/81	09/03/81
PHYLUM									
CLASS									
Order									
Family									
Genus species									
ANTHROPODA--Continued									
INSECTA--Continued									
Diptera (True flies)--Continued									
<i>Hesperoconopa</i> sp.	4	4	---	---	4	22	---	---	---
<i>Hexatoma</i> sp.	---	36	25	50	11	22	120	36	120
<i>Orthocladus</i> sp. 4	180	---	---	---	---	---	---	---	---
<i>O. sp. 5</i>	11	---	---	---	---	---	---	---	---
<i>O. sp. 6</i>	22	---	---	---	---	---	---	---	---
<i>Palpomyia</i> sp.	---	---	---	4	18	43	43	7	14
<i>Pericoma</i> sp.	11	---	130	29	29	43	---	---	57
<i>Simulium arcticum</i>	---	4	---	14	68	22	14	---	29
<i>S. sp.</i>	11	---	---	---	---	---	---	---	---
Thaumaleidae									
<i>Thienemanniella</i> sp.	7	---	---	---	---	---	---	---	---
Tipulidae pupa	---	14	---	---	---	---	---	---	---
Ephemeroptera (Mayflies)									
<i>Ameletus sparsatus</i>	---	39	4	---	---	---	4	---	43
<i>Attenella margarita</i>	---	25	---	---	---	---	14	---	---
<i>Baetis bicaudatus</i>	---	160	180	1,600	79	190	100	43	120
<i>B. sp.</i>	18	---	---	---	---	---	---	---	---
<i>B. tricaudatus</i>	---	29	79	93	150	230	120	18	120
<i>Cinygmula</i> sp.	---	---	14	72	43	93	43	---	---

Table 4.--Taxa and densities of benthic invertebrates, per square meter, collected from Trout Creek (Tr-1)--Continued

TAXA	Sampling dates								
	04/14/80	07/30/80	09/17/80	11/18/80	04/20/81	05/21/81	06/30/81	07/30/81	09/03/81
PHYLUM									
CLASS									
Order									
Family									
Genus species									
ANTHROPODA--Continued									
INSECTA--Continued									
Ephemeroptera (Mayflies)--Continued									
<i>Drunella grandis grandis</i> ---	7	32	57	61	---	14	7	7	14
<i>Epeorus albertae</i> -----	---	---	---	---	---	---	18	7	---
<i>E. longimanus</i> -----	---	36	---	---	14	86	---	---	---
<i>E. sp.</i> -----	---	---	---	230	---	---	---	---	---
<i>Ephemerella infrequens</i> ---	---	---	---	11	---	---	---	---	---
<i>Iron sp.</i> -----	36	---	---	---	---	---	---	---	---
<i>Paraleptophlebia heteronea</i> ---	---	7	75	83	4	14	72	72	130
<i>Rhithrogena hageni</i> -----	---	---	---	220	18	22	---	7	43
<i>R. robusta</i> -----	---	---	140	---	---	---	---	---	---
<i>Tricorythodes sp.</i> -----	---	---	14	---	---	---	14	---	---
Plecoptera (Stoneflies)									
Capniidae-----	---	---	---	61	---	---	---	---	---
Chloroperlidae-----	---	---	---	240	---	---	---	---	---
Chloroperlinae 2-----	7	---	---	---	---	---	---	---	---
<i>Claassenia sabulosa</i> -----	---	---	---	14	---	7	---	---	---
<i>Cultus aestivalis</i> -----	---	---	---	830	---	---	---	---	---
<i>Paraleuctra sp.</i> -----	---	---	---	---	---	22	---	14	---
Perlodinae									
<i>Prostoia besametsa</i> -----	7	---	---	18	320	50	---	---	---

Table 4.--Taxa and densities of benthic invertebrates, per square meter, collected from Trout Creek (Tr-1)--Continued

TAXA	Sampling dates								
	04/14/80	07/30/80	09/17/80	11/18/80	04/20/81	05/21/81	06/30/81	07/30/81	09/03/81
PHYLUM									
CLASS									
Order									
Family									
Genus species									
ANTHROPODA--Continued									
INSECTA--Continued									
Plecoptera (Stoneflies)--Continued									
<i>Pteronarcella badia</i> -----		7	25	36	-----	29	86	36	61
<i>Skwala parallela</i> -----		50	7	11	-----	7	-----	36	75
<i>Triznaka signata/Suwallia lineosa</i> -----		50	150	-----	36	420	350	360	630
Trichoptera (Caddisflies)									
<i>Agapetus boulderensis</i> -----		1,300	4	-----	-----	-----	300	800	120
<i>Agraylea multipunctata</i> -----		36	-----	-----	-----	-----	-----	-----	-----
<i>Arctopsyche grandis</i> -----		4	-----	14	-----	-----	-----	86	7
<i>Brachycentrus americanus</i> ---	4	18	18	130	-----	-----	43	57	14
<i>B. occidentalis</i> -----		-----	-----	-----	4	14	-----	-----	-----
<i>Cheumatopsyche</i> sp.-----		-----	-----	-----	-----	-----	-----	-----	14
<i>Glossosoma</i> sp.-----	36	-----	-----	-----	-----	-----	-----	-----	-----
<i>G. ventrale</i> -----		50	82	97	-----	7	11	-----	1,200
<i>Hydropsyche</i> sp. 1-----		-----	7	61	-----	7	-----	-----	57
<i>Hydroptila</i> sp.-----		-----	-----	-----	-----	-----	-----	-----	14
<i>Lepidostoma moneka</i> -----		640	2,100	890	-----	-----	-----	-----	-----
<i>L. sp.</i> -----	580	-----	-----	-----	500	2,400	4,200	2,400	2,600
<i>Oligophlebodes minuta</i> -----		-----	260	11	4	-----	-----	200	72
<i>Rhyacophila coloradensis</i> ---		-----	-----	18	-----	-----	-----	-----	-----

Table 4.--Taxa and densities of benthic invertebrates, per square meter, collected from Trout Creek (Tr-1)--Continued

TAXA	Sampling dates								
	04/14/80	07/30/80	09/17/80	11/18/80	04/20/81	05/21/81	06/30/81	07/30/81	09/03/81
PHYLUM									
CLASS									
Order									
Family									
Genus species									
MOLLUSCA									
GASTROPODA (Snails)									
Basommatophora									
<i>Lymnaea sp.</i>			4	7					
<i>Physa sp.</i>			7				4		14
PELECYPODA (Clams)									
Heterodonta						7			
<i>Pisidium variabile</i>									
NEMATODA (Roundworms)			4						
Total-----	1,100	3,800	4,900	6,700	2,400	7,000	11,000	6,300	8,400
Number of taxa-----	26	35	35	43	30	37	37	28	39
Diversity Index ( $\bar{d}$ )--		3.32	3.16	4.00	3.66	2.61	3.01	3.13	3.63

\*\* Not included in total number of taxa.



Table 5.--Taxa and densities of benthic invertebrates, per square meter, collected from Trout Creek (Tr-2)

[Densities are rounded to standard significant figures (Greeson and others, 1977)]

TAXA	Sampling dates								
	04/14/80	07/30/80	09/17/80	11/19/80	04/20/81	05/18/81	06/29/81	07/30/81	09/03/81
PHYLUM									
CLASS									
Order									
Family									
Genus species									
ANNELIDA									
OLIGOCHAETA (Worms)									
Opisthopora									
Eiseniella tetraedra						7			
Plesiopora									
Limnodrilus sp.			4	18	350		36	7	190
ARTHROPODA									
ARACHNOIDEA									
Hydracarina (Water mites)									
Lebertia sp.			11	14			43	43	29
Limnochara sp.				4		43	14	65	22
Wideopsis sp.		14	14	110		36		50	29
Protzia sp.		110	14	140					43
INSECTA									
Coleoptera (Beetles)									
Helichus striatus				7					
Liodesus affinis					7				
Narpus sp.							7		
Optioservus castanipennis	4	430	900	450	50	570	1,900	450	1,300
Zaitzevia parvula		620	430	410	57	1,100	2,400	490	1,100

Table 5.--Taxa and densities of benthic invertebrates, per square meter, collected from Trout Creek (Tr-2)--Continued

TAXA	Sampling dates								
	04/14/80	07/30/80	09/17/80	11/19/80	04/20/81	05/18/81	06/29/81	07/30/81	09/03/81
ARTHROPODA--Continued									
INSECTA--Continued									
Diptera (True flies)									
<i>Antocha</i> sp.			18	7		7	29		57
<i>Atherix pachypus</i>	4	83	47	90		25	79	79	170
<i>Chelifera</i> sp.									100
Chironomidae Form 1		120	93	140	960	350	86	290	3,500
Chironomidae Form 2		22	29		1,100	79		43	880
Chironomidae Form 3		7	22	100	660	72	190	29	1,300
Chironomidae Form 4		7							
Chironomidae Form 5		4	18	22		7	43	7	14
Chironomidae Form 7		14		36	36	65	86	22	86
Chironomidae Form 8				7			3,100		7
Chironomidae Form 10									7
Chironomidae Form 11								29	36
Chironomidae Form 13					1,300	36	22		110
Chironomidae Form 14				7	79				
Chironomidae Form 17						22			
Chironomidae pupa**			7		7	29		7	230
<i>Dicranota</i> sp.	32				22	7		14	7
<i>Erioptera</i> sp.		4							
<i>Hemerodromia</i> sp.		4	4	36		22	14		
<i>Hesperoconopa</i> sp.			7			29		7	
<i>Hexatoma</i> sp.	4	32	43	14	14	14	29	14	50



Table 5.--Taxa and densities of benthic invertebrates, per square meter, collected from Trout Creek (Tr-2)--Continued

TAXA	Sampling dates								
	04/14/80	07/30/80	09/17/80	11/19/80	04/20/81	05/18/81	06/29/81	07/30/81	09/03/81
ARTHROPODA--Continued									
INSECTA--Continued									
Hemiptera (True bugs)							4		
Corixidae									
Plecoptera (Stoneflies)									
Capniidae				75	14				
Chloroperlidae				280					
Chloroperlinae 2	4								
<i>Claassenia sabulosa</i>			7	7	7				29
<i>Cultus aestivalis</i>				380					
<i>Isoperla quinquepunctata</i>							4		
Perlodinae									
<i>Prostoia besametsa</i>					440	120			
<i>Pteronarcella badia</i>		29	32	57	7	7	120	14	14
<i>Skwala parallela</i>		7	7					7	14
<i>Triznaka signata/Suwallia lineosa</i>		130	490		170	260	700	730	1,400
<i>Zapada cinctipes</i>							14		
Trichoptera (Caddisflies)									
<i>Agapetus boulderensis</i>		710	11				1,100	130	50
<i>Agraylea multipunctata</i>		36		7				7	
<i>Arctopsyche grandis</i>			14	7			7		

Table 5.--Taxa and densities of benthic invertebrates, per square meter, collected from Trout Creek (Tr-2)--Continued

TAXA	Sampling dates								
	04/14/80	07/30/80	09/17/80	11/19/80	04/20/81	05/18/81	06/29/81	07/30/81	09/03/81
ARTHROPODA--Continued									
INSECTA--Continued									
Trichoptera (Caddisflies)--Continued									
Brachycentrus americanus		57	180	590			380	50	36
B. occidentalis					120	240			
Glossosoma ventrale			590	290	14	50	130		57
Hydropsyche sp. 1		32	68	43					7
Lepidostoma moneka		37	570	790					
L. sp.	7				170	460	730	200	370
Ochrotrichia logana		25							
Rhyacophila coloradensis			22	7					
Wormaldia gabriella		4					7		
MOLLUSCA									
GASTROPODA (Snails)									
Basommatophora									
Lymnaea sp.				4					7
Physa sp.				7	14				
PELECYPODA (Clams)									
Heterodonta									
Pisidium variabile		4				18			7

Table 5.--Taxa and densities of benthic invertebrates, per square meter, collected from Trout Creek (Tr-2)--Continued

TAXA	Sampling dates								
	04/14/80	07/30/80	09/17/80	11/19/80	04/20/81	05/18/81	06/29/81	07/30/81	09/03/81
PHYLUM									
CLASS									
Order									
Family									
Genus species									
NEMATODA (Roundworms)		7							
PLATYHELMINTHES									
TURBELLARIA						7			
Total	63	3,000	4,700	5,500	6,400	4,300	12,000	3,000	12,000
Number of taxa	8	35	36	41	31	37	33	33	43
Diversity Index (d)		3.61	3.85	4.20	3.55	3.88	3.28	3.61	3.50

\*\* Not included in total number of taxa.

Table 6.--Taxa and densities of benthic invertebrates, per square meter, collected from Trout Creek (Tr-3)

[Densities are rounded to standard significant figures (Greeson and others, 1977)]

TAXA	Sampling dates								
	04/14/80	07/30/80	09/17/80	11/19/80	04/21/81	05/21/81	06/30/81	07/29/81	09/02/81
PHYLUM									
CLASS									
Order									
Family									
Genus species									
ANNELIDA									
HIRUDINEA (Leeches)							4		
OLIGOCHAETA (Worms)									
Opisthopora									
<i>Eiseniella tetraedra</i>						7			
Plesiopora									
<i>Limnodrilus sp.</i>			4	160	450	570	14	550	100
ARTHROPODA									
ARACHNOIDEA									
Hydracarina (Water mites)									
<i>Lebertia sp.</i>			4	120		14	25	43	
<i>Mideopsis sp.</i>				140			36	14	4
<i>Protzia sp.</i>				7					
INSECTA									
Coleoptera (Beetles)									
<i>Dubiraphia sp.</i>				72		43	11		
<i>Microcyllopus sp.</i>			14						
<i>Optioservus castanipennis</i>	220	480	2,000	2,300	160	3,000	520	1,800	2,400
<i>Zaitzevia parvula</i>	4	22	170	220		470	25	170	320

Table 6.--Taxa and densities of benthic invertebrates, per square meter, collected from Trout Creek (Tr-3)--Continued

TAXA	Sampling dates								
	04/14/80	07/30/80	09/17/80	11/19/80	04/21/81	05/21/81	06/30/81	07/29/81	09/02/81
ARTHROPODA--Continued									
INSECTA--Continued									
Diptera (True flies)									
<i>Antocha</i> sp.	4	---	7	29	---	14	---	---	29
<i>Arcto-conchapelopia</i> sp.	7	---	---	---	---	---	---	---	---
<i>Atherix pachypus</i>	7	110	7	29	---	4	---	---	---
<i>Chelifera</i> sp.	---	---	22	43	---	---	---	---	---
Chironomidae Form 1	---	2,400	2,800	9,000	2,000	5,400	500	3,800	1,700
Chironomidae Form 2	---	630	430	1,300	300	1,100	210	560	400
Chironomidae Form 3	---	57	510	2,500	360	1,900	72	820	1,400
Chironomidae Form 4	---	---	32	---	---	---	---	---	---
Chironomidae Form 5	---	4	---	100	43	100	7	14	---
Chironomidae Form 6	---	---	4	---	---	---	---	---	---
Chironomidae Form 7	---	4	---	86	---	7	---	---	---
Chironomidae Form 8	---	660	450	420	230	710	220	800	---
Chironomidae Form 11	---	---	780	---	14	---	---	79	14
Chironomidae Form 12	---	---	---	---	---	43	---	---	---
Chironomidae Form 13	---	---	---	14	100	7	---	36	---
Chironomidae Form 14	---	---	---	190	1,100	---	---	---	---
Chironomidae pupa**	---	25	86	43	29	170	18	200	120
<i>Chironomus</i> sp.	4	---	---	---	---	---	---	---	---
<i>Diamesa</i> sp. 3	4	---	---	---	---	---	---	---	---
<i>Dicranota</i> sp.	4	---	---	14	---	---	---	---	14



Table 6.--Taxa and densities of benthic invertebrates, per square meter, collected from Trout Creek (Tr-3)--Continued

TAXA	Sampling dates								
	04/14/80	07/30/80	09/17/80	11/19/80	04/21/81	05/21/81	06/30/81	07/29/81	09/02/81
ARTHROPODA--Continued									
INSECTA--Continued									
Diptera (True flies)--Continued									
<i>Eukiefferiella</i> sp. 3	57								
<i>E. sp. 6</i>	7								
<i>Hexatoma</i> sp.	4	18	32	14	4	29		32	36
<i>Microtendipes</i> sp.	230								
<i>Orthocladius</i> sp. 1	160								
<i>Palpomyia</i> sp.	4	4	22	29	200	2,600	79		
<i>Simulium arcticum</i>		7		130	29	470	7	290	
<i>Tipula</i> sp.						14			
Ephemeroptera (Mayflies)									
<i>Attenella margarita</i>		4							
<i>Baetis bicaudatis</i>		7	490	4,500	220	320	32	430	220
<i>B. sp.</i>	90								
<i>B. tricaudatis</i>		11	29	300	140	580		280	730
<i>Cinygmula</i> sp.			29					14	
<i>Drunella grandis grandis</i>			22						
<i>Epeorus longimanus</i>					14				
<i>Ephemerebella inermis</i>					220	1,100		36	
<i>E. infrequens</i>			140	1,200	260	14	14		29
<i>E. sp.</i>	54								
<i>Heptagenia</i> sp.		4							

Table 6.--Taxa and densities of benthic invertebrates, per square meter, collected from Trout Creek (Tr-3)--Continued

TAXA	Sampling dates								
	04/14/80	07/30/80	09/17/80	11/19/80	04/21/81	05/21/81	06/30/81	07/29/81	09/02/81
ARTHROPODA--Continued									
INSECTA--Continued									
Ephemeroptera (Mayflies)--Continued			150	100	43				57
Paraleptophlebia heteronea				29					
Rhithrogena hageni		32							
Serratella micheneri	25								
Tricorythodes minutus		140	1,300	730		380	47	170	170
T. sp.									
Plecoptera (Stoneflies)									
Capniidae				14					
Chloroperlidae				240					
Claassenia sabulosa									43
Cultus aestivalis				220					
Isogenoides elongatus									14
I. zionensis								54	
Isoperla quinquepunctata					18	29			
I. sp.	29					14			
Skwala parallela			65						
Triznaka signata/Suwallia lineosa		11	170		57	43		160	330
Trichoptera (Caddisflies)									
Agapetus boulderensis		14					7	57	
Agaylea multipunctata								100	

Table 6.--Taxa and densities of benthic invertebrates, per square meter, collected from Trout Creek (Tr-3)--Continued

TAXA	Sampling dates								
	04/14/80	07/30/80	09/17/80	11/19/80	04/21/81	05/21/81	06/30/81	07/29/81	09/02/81
ARTHROPODA--Continued									
INSECTA--Continued									
Trichoptera (Caddisflies)--Continued									
Arctopsyche grandis			14						
Brachycentrus americanus	340	300	570	630		14			
B. occidentalis							57	420	680
Cheumatopsyche sp.	57	11	970	1,500	32	420		610	2,300
Glossosoma ventrale		7	36	29					29
Helicopsyche borealis	72								
H. sp.			620	1,400		14		22	57
Hesperophylax consimilis/									
H. occidentalis				14					
Hydropsyche sp. 1	86	47	790	1,500	14	270	4	940	1,100
H. sp. 3	90								
Hydroptila sp.	4					29		36	
Lepidostoma moneka			4	29					
L. sp.						14			
Limnephilidae							43		
Nectopsyche stigmatica		14							
Ochrotrichia logana			93	240					
Oecetis avara			18			7	7		
Onocosmoecus unicolor		4							
Protoptila sp.				29				42	

Table 6.--Taxa and densities of benthic invertebrates, per square meter, collected from Trout Creek (Tr-3)--Continued

TAXA	Sampling dates								
	04/14/80	07/30/80	09/17/80	11/19/80	04/21/81	05/21/81	06/30/81	07/29/81	09/02/81
PHYLUM									
CLASS									
Order									
Family									
Genus species									
ARTHROPODA--Continued									
INSECTA--Continued									
Trichoptera (Caddisflies)--Continued								43	
<i>Psychoomyia</i> sp.								7	
<i>Wormaldia gabriella</i>									
MOLLUSCA									
GASTROPODA (Snails)									
Basommatophora									
<i>Ferrissia</i> sp.			7	14			43		36
<i>Physa</i> sp.	25		130	72			18	4	
PELECYPODA (Clams)									
Heterodonta									
<i>Pisidium variabile</i>							29		
NEMATODA (Roundworms)		14	4						
Total	1,600	5,000	13,000	30,000	6,100	20,000	1,900	13,000	12,000
Number of taxa	25	29	38	42	25	38	21	32	25
Diversity Index ( $\bar{d}$ )		2.58	3.79	3.60	3.33	3.53	3.11	3.58	3.39

\*\* Not included in total number of taxa.

Table 7.--Taxa and densities of benthic invertebrates, per square meter, collected from Fish Creek (F-1)

[Densities are rounded to standard significant figures (Greeson and others, 1977)]

TAXA	Sampling dates								
	04/15/80	07/31/80	09/18/80	11/19/80	04/22/81	05/21/81	06/30/81	07/30/81	09/03/81
PHYLUM									
CLASS									
Order									
Family									
Genus species									
ANNELIDA									
OLIGOCHAETA (Worms)									
Plesiopora									
Eiseniella tetraedra					4				
Limnodrilus sp.		7		570	410	230	5,600	11,000	590
ARTHROPODA									
ARACHNOIDEA									
Hydracarina (Water mites)									
Lebertia sp.			7	330				14	14
Limnochares sp.			14						
Mideopsis sp.		47	57	820	7	7	120	140	
Protzia sp.			29	43					
Sperchon sp.							43		
Spechonopsis sp.									65
INSECTA									
Coleoptera (Beetles)									
Dubiraphia sp.			22	190	4	7	29		
Galerucella sp.		4							
Helichus striatus			14					14	
Hydrochus sp.					4				
Microcylloepus sp.									
Ochthebius sp.								43	
Optioservus castanipennis		7	250	5,000	57	140	2,300	2,100	1,800
Oreodytes crassulus									

Table 7.--Taxa and densities of benthic invertebrates, per square meter, collected from Fish Creek (F-1)--Continued

TAXA	Sampling dates								
	04/15/80	07/31/80	09/18/80	11/19/80	04/22/81	05/21/81	06/30/81	07/30/81	09/03/81
ARTHROPODA--Continued									
INSECTA--Continued									
Coleoptera (Beetles)--Continued									
<i>Rhantus</i> sp.							14		
<i>Zaitzevia parvula</i>		14	510	43	7	11	290	260	29
Collembola (Springtails)									
<i>Isotomurus palustris</i>					4				
Diptera (True flies)									
<i>Antocha</i> sp.			29	86		4	14	260	1,200
<i>Atherix pachypus</i>		4	150	29		18	140	1,100	960
<i>Cheilifera</i> sp.		4	29						
Chironomidae Form 1		610	79	7,300	610	590	4,000	1,200	730
Chironomidae Form 2		370		3,800	160	140	1,300	260	
Chironomidae Form 3		32	140	820	430		1,900	1,400	260
Chironomidae Form 4		4	7			11	14		
Chironomidae Form 5		18	93	520	11		14	72	65
Chironomidae Form 6									14
Chironomidae Form 7		61		350	4	11	72		
Chironomidae Form 8		57	7	500	18	11	100	29	220
Chironomidae Form 10			7		4		29		
Chironomidae Form 11							600	120	
Chironomidae Form 12						4			
Chironomidae Form 13					4		43		
Chironomidae Form 14									

Table 7.--Taxa and densities of benthic invertebrates, per square meter, collected from Fish Creek (F-1)--Continued

TAXA	Sampling dates								
	04/15/80	07/31/80	09/18/80	11/19/80	04/22/81	05/21/81	06/30/81	07/30/81	09/03/81
ARTHROPODA--Continued									
INSECTA--Continued									
Diptera (True flies)--Continued									
Chironomidae pupa**	---	22	14	14	11	18	270	14	29
<i>Eukiefferiella</i> sp. 1	4	---	---	---	---	---	---	---	---
<i>Euparyphus</i> sp.	---	---	---	14	11	7	14	---	14
<i>Hemerodromia</i> sp.	---	---	---	130	36	7	140	---	22
<i>Hexatoma</i> sp.	7	57	79	---	---	---	---	75	11
<i>Orthocladius</i> sp. 1	4	---	---	---	---	---	---	---	---
<i>O. sp. 2</i>	4	---	---	---	---	---	---	---	---
<i>Palpomyia</i> sp.	---	25	14	29	54	140	240	14	150
<i>Simulium arcticum</i>	---	7	65	400	14	39	100	660	---
<i>S. sp.</i>	---	---	---	---	---	---	---	---	29
<i>Tipula</i> sp.	4	---	---	---	---	---	---	---	---
Ephemeroptera (Mayflies)									
<i>Baetis bicaudatis</i>	---	120	1,400	1,200	54	29	2,100	1,700	160
<i>B. sp.</i>	7	---	---	---	---	---	---	---	---
<i>B. tricaudatis</i>	---	420	7	---	100	180	2,100	1,400	330
<i>Caenis</i> sp.	---	---	7	---	---	---	---	---	---
<i>Cinygmula</i> sp.	---	---	---	---	---	---	---	---	36
<i>Drumella grandis grandis</i>	---	4	---	---	---	4	---	---	---
<i>Ephemerella infrequens</i>	---	---	140	350	190	68	---	---	270
<i>E. sp.</i>	22	---	---	---	---	---	---	---	---
<i>Paraleptophlebia heteronea</i>	---	---	880	43	7	4	---	---	100
<i>P. sp.</i>	---	---	---	---	---	---	---	43	---

Table 7.--Taxa and densities of benthic invertebrates, per square meter, collected from Fish Creek (F-1)--Continued

TAXA	Sampling dates								
	04/15/80	07/31/80	09/18/80	11/19/80	04/22/81	05/21/81	06/30/81	07/30/81	09/03/81
ARTHROPODA--Continued									
INSECTA--Continued									
Ephemeroptera (Mayflies)--Continued									
<i>Rhithrogena robusta</i>			14						
<i>Timpanoga hecuba hecuba</i>		4							
<i>Tricorythodes</i> sp.		170	72	160	18	120	1,200	370	1,500
Hemiptera (True bugs)									
Corixidae					11				
Plecoptera (Stoneflies)									
Capniidae			50	43					
Chloroperlidae		43	1,300	72	4		43	72	350
Chloroperlinae 1	7								
<i>Isogenoides elongatus</i>			14		4				
<i>Isoperla patricia</i>	14								
<i>I. quinquepunctata</i>					7	18	29		
<i>Pteronarcella badia</i>			43	14	4		14	14	
<i>Skwala parallela</i>			57	220				14	7
Trichoptera (Caddisflies)									
<i>Agapetus</i> sp.								14	
<i>Agraylea</i> sp.			120	72			72		7
<i>Arctopsyche grandis</i>	4								
<i>Brachycentrus americanus</i>	29								
<i>B. occidentalis</i>							260	200	170
<i>B. sp.</i>		18	23	72					



Table 7.--Taxa and densities of benthic invertebrates, per square meter, collected from Fish Creek (F-1)--Continued

TAXA	Sampling dates								
	04/15/80	07/31/80	09/18/80	11/19/80	04/22/81	05/21/81	06/30/81	07/30/81	09/03/81
ARTHROPODA--Continued									
INSECTA--Continued									
Trichoptera (Caddisflies)--Continued									
<i>Cheumatopsyche</i> sp.-----	7	61	5,400	1,700	79	14	-----	230	610
<i>Helicopsyche</i> sp.-----	---	---	43	72	---	---	4	---	140
<i>Hydropsyche</i> sp. 1-----	7	350	6,000	3,400	90	47	680	330	360
<i>H. sp. 2</i> -----	25	---	---	---	---	---	---	---	---
<i>Hydroptila</i> sp.-----	---	---	---	---	---	---	830	120	43
<i>Lepidostoma</i> sp.-----	---	---	36	---	---	---	---	---	22
<i>Neureclipsis</i> sp.-----	---	---	---	---	---	---	---	---	140
<i>Ochrotrichia</i> sp.-----	---	22	140	460	---	---	---	---	---
<i>Wormaldia</i> sp.-----	---	4	---	---	---	---	29	14	---
MOLLUSCA									
GASTROPODA (Snails)									
Basommatophora									
<i>Physa</i> sp.-----	---	7	---	---	11	---	43	---	14
Total-----	160	2,800	22,000	26,000	2,500	1,900	25,000	23,000	10,000
Number of taxa-----	16	29	39	33	34	26	36	31	34
Diversity Index ( $\bar{d}$ )-----		3.55	2.89	3.57	3.50	3.40	3.61	2.98	3.95

\*\* Not included in total number of taxa.

Table 8.--Taxa and densities of benthic invertebrates, per square meter, collected from Fish Creek (F-2)

[Densities are rounded to standard significant figures (Greeson and others, 1977)]

TAXA	Sampling dates						
	04/15/80	07/31/80	09/18/80	11/19/80	06/30/81	07/29/81	09/02/81
PHYLUM							
CLASS							
Order							
Family							
Genus species							
ANNELIDA							
HIRUDINEA (Leeches)							
Pharyngobdellida							
<i>Erpobdella triannulata</i>	---	4	---	---	---	---	---
OLIGOCHAETA (Worms)							
Plesiopora							
<i>Limnodrilus sp.</i>	---	39	---	3,600	230	240	200
ARTHROPODA							
ARACHNOIDEA							
Hydracarina (Water mites)							
<i>Lebertia sp.</i>	---	---	11	---	14	29	14
<i>Mideopsis sp.</i>	---	---	57	400	---	---	---
<i>Sperchon sp.</i>	---	---	29	---	---	---	---
CRUSTACEA							
Amphipoda (Scuds)							
<i>Hyaella azteca</i>	---	---	4	---	---	---	---
Decapoda (Crayfish)							
<i>Orconectes immunitis</i>	---	4	---	---	---	---	---

Table 8.--Taxa and densities of benthic invertebrates, per square meter, collected from Fish Creek (F-2)--Continued

TAXA	Sampling dates						
	04/15/80	07/31/80	09/18/80	11/19/80	06/30/81	07/29/81	09/02/81
ARTHROPODA--Continued							
INSECTA							
Coleoptera (Beetles)							
<i>Dubiraphia</i> sp.	---	4	14	100	22	700	72
<i>Hydrochus</i> sp.	---	---	---	---	---	57	---
<i>Optioservus castanipennis</i>	---	250	140	1,200	32	140	86
<i>Zaitzevia parvula</i>	---	57	29	29	---	---	---
Collembola (Springtails)							
<i>Isotomurus palustris</i>	---	---	---	14	---	---	---
Diptera (True flies)							
<i>Atherix pachypus</i>	---	100	---	---	---	---	---
<i>Brillia</i> sp.	11	---	---	---	---	---	---
<i>Chelifera</i> sp.	---	---	---	57	---	---	---
Chironomidae Form 1	---	850	340	23,000	250	1,400	190
Chironomidae Form 2	---	160	---	3,200	68	29	---
Chironomidae Form 3	---	110	25	5,100	36	---	---
Chironomidae Form 4	---	7	---	---	---	---	---
Chironomidae Form 5	---	22	590	450	86	72	14
Chironomidae Form 7	---	4	470	630	---	---	72
Chironomidae Form 8	---	61	850	600	1,400	2,300	290
Chironomidae Form 10	---	---	36	---	---	---	---
Chironomidae Form 12	---	---	350	---	---	---	---
Chironomidae Form 13	---	---	29	---	---	29	---
Chironomidae Form 14	---	---	---	690	---	---	---
Chironomidae pupa**	---	25	50	86	36	230	43

Table 8.--Taxa and densities of benthic invertebrates, per square meter, collected from Fish Creek (F-2)--Continued

TAXA	Sampling dates						
	04/15/80	07/31/80	09/18/80	11/19/80	06/30/81	07/29/81	09/02/81
PHYLUM							
CLASS							
Order							
Family							
Genus species							
ARTHROPODA--Continued							
INSECTA--Continued							
Diptera (True flies)--Continued							
<i>Cricotopus</i> sp. 1	86						
<i>C.</i> sp. 2	11						
<i>Chrysops</i> sp.				14			
<i>Dicranota</i> sp.	4		4	140			
<i>Eukiefferiella</i> sp. 1	22						
<i>E.</i> sp. 2	4						
<i>Hemerodromia</i> sp.			4	29			
<i>Hexatoma</i> sp.		43	79		22	170	100
<i>Limnophora</i> sp.	11				4		
<i>Microtendipes</i> sp.	50						
<i>Orthocladius</i> sp. 2	4						
<i>O.</i> sp. 3	7						
<i>Palpomyia</i> sp.		7	68	130	18		43
<i>Simulium arcticum</i>		1,500	36	6,900	47	14	
<i>S.</i> sp.	43						
Ephemeroptera (Mayflies)							
<i>Baetis bicaudatis</i>		86	500	800	39	170	57
<i>B. pygmaeus</i>					4	470	
<i>B.</i> sp.	14						
<i>B. tricaudatis</i>		1,400	86		100		
<i>Caenis</i> sp.					4		43
<i>Choroterpes albiannulata</i>						72	

Table 8.--Taxa and densities of benthic invertebrates, per square meter, collected from Fish Creek (F-2)--Continued

TAXA	Sampling dates						
	04/15/80	07/31/80	09/18/80	11/19/80	06/30/81	07/29/81	09/02/81
ARTHROPODA--Continued							
INSECTA--Continued							
Ephemeroptera (Mayflies)--Continued							
<i>Cinygmula</i> sp.					4		
<i>Ephemerella simulans</i>			11			47	29
<i>Ephemerella infrequens</i>				72			
<i>Paraleptophlebia heteronea</i>			39		11		
<i>P. sp.</i>						29	
<i>Tricorythodes</i> sp.		36	2,300	130	210	1,600	3,600
Hemiptera (True bugs)							
<i>Rhagovelia rivale</i>		7					
Megaloptera (Alderflies and dobsonflies)							
<i>Sialis</i> sp.				14			
Odonata (Dragonflies and damselflies)							
<i>Ophiogomphus severus</i>			86		14		57
Plecoptera (Stoneflies)							
Capniidae				43			
Chloroperlidae		7	420	72	11		
<i>Isogenoides elongatus</i>		14					
<i>Pteronarcella badia</i>		11					
<i>Skwala parallela</i>		18		86			

Table 8.--Taxa and densities of benthic invertebrates, per square meter, collected from Fish Creek (F-2)--Continued

TAXA	Sampling dates						
	04/15/80	07/31/80	09/18/80	11/19/80	06/30/81	07/29/81	09/02/81
PHYLUM							
CLASS							
Order							
Family							
Genus species							
ARTHROPODA--Continued							
INSECTA--Continued							
Trichoptera (Caddisflies)							
Agapetus sp.	--	7	--	--	--	--	--
Agraylea sp.	--	--	4	--	--	--	--
Arctopsyche grandis	--	18	--	--	--	--	--
Cheumatopsyche sp.	4	2,200	1,900	1,200	83	2,100	350
Helicopsyche sp. 1	--	--	--	--	--	14	--
Hydropsyche sp. 1	25	1,500	260	990	22	320	--
Hydroptila sp.	--	--	--	--	18	100	14
Ochrotrichia sp.	--	140	25	1,200	--	--	--
Oecetis sp.	--	--	4	--	--	--	--
Wormaldia sp.	--	7	--	--	--	--	--
MOLLUSCA							
GASTROPODA (Snails)							
Basommatophora							
Ferrissia sp.	--	--	--	14	--	--	--
PELECYPODA (Clams)							
Heterodonta							
Sphaerium striatinum	--	--	--	--	11	--	29

Table 8.--Taxa and densities of benthic invertebrates, per square meter, collected from Fish Creek (F-2)--Continued

TAXA		Sampling dates						
		04/15/80	07/31/80	09/18/80	11/19/80	06/30/81	07/29/81	09/02/81
PHYLUM								
CLASS								
Order								
Family								
Genus species								
NEMATODA (Roundworms)		7	7	7	7	7	7	7
Total		300	8,700	8,900	51,000	2,800	10,000	5,300
Number of taxa		14	32	32	30	27	22	18
Diversity Index ( $\bar{d}$ )			3.07	3.44	2.88	2.87	3.19	2.04

\*\* Not included in total number of taxa.

Table 9.--Taxa and densities of benthic invertebrates, per square meter, collected from Fish Creek (F-3)

[Densities are rounded to standard significant figures (Greeson and others, 1977)]

TAXA	Sampling dates								
	04/15/80	07/30/80	09/17/80	11/19/80	04/22/81	05/18/81	06/30/81	07/29/81	09/02/81
PHYLUM									
CLASS									
Order									
Family									
Genus species									
ANNELIDA									
OLIGOCHAETA (Worms)									
Plesiopora									
Tubificidae	100	14	25	14	2,100	470	470	720	43
<i>Limnodrilus</i> sp.									
ARTHROPODA									
ARACHNOIDEA									
Hydracarina (Water mites)									
<i>Mideopsis</i> sp.			22						
<i>Protzia</i> sp.		4	18						
CRUSTACEA									
Decapoda (Crayfish)									
<i>Orconectes immunis</i>		4							
<i>O. sp.</i>							4		
<i>Pascifastacus leniusculus</i>								4	
INSECTA									
Coleoptera (Beetles)									
<i>Dubiraphia</i> sp.	18	4	43	14	14	57	390	630	130
<i>Microcyloopus</i> sp.			14	29					
<i>Optioservus castanipennis</i>		4	36	43		7	14	14	
<i>Zaitzevia parvula</i>						14			



Table 9.--Taxa and densities of benthic invertebrates, per square meter, collected from Fish Creek (F-3)--Continued

PHYLUM CLASS Order Family Genus species	TAXA	Sampling dates											
		04/15/80	07/30/80	09/17/80	11/19/80	04/22/81	05/18/81	06/30/81	07/29/81	09/02/81			
ARTHROPODA--Continued													
INSECTA--Continued													
Diptera (True flies)													
	Arcto-conchapelopia sp.	93											
	Atherix pachypus			7									
	Chironomidae Form 1		2,300	630	8,000	2,800	1,700	43	780	43			43
	Chironomidae Form 2		22		920	180	1,300	14					
	Chironomidae Form 3		4	22	1,600	120	530	7					
	Chironomidae Form 4			14									
	Chironomidae Form 5		440	430	1,300	29	120	43	300	57			
	Chironomidae Form 7		50	280	72	36	190		43				
	Chironomidae Form 8		1,100	630	350	93	360	270	2,600	50			
	Chironomidae Form 10					72							
	Chironomidae Form 11			7									
	Chironomidae Form 12			18		14	7						
	Chironomidae Form 13			25	43		170		29				
	Chironomidae Form 14				120	43							
	Chironomidae Form 17					520							
	Chironomidae pupa**		150	7	14	170	120	22	240	7			
	Erioptera sp.					7							
	Eukiefferiella sp. 2	7											
	E. sp. 4	7											
	Hexatoma sp.		4										
	Limonia sp.					7							
	Limnophila sp.	4											
	Maruina sp.						7	7					

Table 9.--Taxa and densities of benthic invertebrates, per square meter, collected from Fish Creek (F-3)--Continued

TAXA	Sampling dates								
	04/15/80	07/30/80	09/17/80	11/19/80	04/22/81	05/18/81	06/30/81	07/29/81	09/02/81
ARTHROPODA--Continued									
INSECTA--Continued									
Diptera (True flies)--Continued									
<i>Microtendipes</i> sp.	43								
<i>Nemotelus</i> sp.					7				
<i>Orthocladus</i> sp. 1	50								
<i>O. sp. 2</i>	22								
<i>Palpomyia</i> sp.	22		47	57	110	990		14	
<i>Paratamytarsus</i> sp.	4								
<i>Pseudochironomus</i> sp.	72								
<i>Simulium arcticum</i>		4	86	21,000	130	260	57	14	
<i>Tipula</i> sp.	7			29					
Ephemeroptera (Mayflies)									
<i>Ameletus</i> sp.									43
<i>Baetis bicaudatus</i>		25	150	400		100		29	
<i>Baetis pygmaeus</i>		18				14		14	
<i>B. sp.</i>	11								
<i>B. tricaudatus</i>					22				7
<i>Caenis simulans</i>	130								
<i>C. sp.</i>			14		120	350		14	490
<i>Choroterpes albiannulata</i>					7			72	
<i>C. sp.</i>		18							
<i>Ephemerella simulans</i>		7	18		7			100	7
<i>Ephemerella infrequens</i>									
<i>Heptagenia solitaria</i>						7			
									57

Table 9.--Taxa and densities of benthic invertebrates, per square meter, collected from Fish Creek (F-3)--Continued

TAXA	Sampling dates								
	04/15/80	07/30/80	09/17/80	11/19/80	04/22/81	05/18/81	06/30/81	07/29/81	09/02/81
ARTHROPODA--Continued									
INSECTA--Continued									
Ephemeroptera (Mayflies)--Continued									
Paraleptophlebia heteronea			4						22
P. sp.	7								
Tricorythodes minutus	18								
T. sp.		110	820	520	50	140	43	72	79
Megaloptera (Alderflies and dobsonflies)									
Sialis sp.								32	22
Odonata (Dragonflies and damselflies)									
Enallagma sp.									7
Ischnura sp.			4						
Ophiogomphus severus			11	14					
Plecoptera (Stoneflies)									
Capniidae				4,600					
Capnia sp.	4								
C. vernalis	7								
Chloroperlidae		4				7			
Isoperla patricia	4								
I. quinquepunctata									7
Skwala parallela				14					

Table 9.--Taxa and densities of benthic invertebrates, per square meter, collected from Fish Creek (F-3)--Continued

TAXA	Sampling dates								
	04/15/80	07/30/80	09/17/80	11/19/80	04/22/81	05/18/81	06/30/81	07/29/81	09/02/81
PHYLUM									
CLASS									
Order									
Family									
Genus species									
ARTHROPODA--Continued									
INSECTA--Continued									
Trichoptera (Caddisflies)									
<i>Brachycentrus</i> sp.		4	14			7			
<i>Cheumatopsyche</i> sp.	75	2,700	2,400	5,000	7	32	14	1,300	
<i>Helicopsyche</i> sp.			7						
<i>Hesperophylax consimilis</i> / <i>H. occidentalis</i>					4				
<i>Hydropsyche</i> sp. 1		510	870	1,100	7	65		100	4
<i>Hydroptila</i> sp.							130	160	4
<i>Ochrotrichia</i> sp.		190	65	120					
<i>Oecetis</i> sp.			39	14				14	
<i>Pycnopsyche</i> sp.	4								
MOLLUSCA									
GASTROPODA (Snails)									
Basommatophora								43	
<i>Ferrissia</i> sp.		4							
<i>Physa</i> sp.	4		4						
PELECYPODA (Clams)									
Heterodonta									
<i>Sphaerium</i> sp.	25								
<i>S. striatinum</i>		4	4	14		4	22	11	4

Table 9.--Taxa and densities of benthic invertebrates, per square meter, collected from Fish Creek (F-3)--Continued

TAXA	Sampling dates								
	04/15/80	07/30/80	09/17/80	11/19/80	04/22/81	05/18/81	06/30/81	07/29/81	09/02/81
PHYLUM									
CLASS									
Order									
Family									
Genus species									
NEMATODA (Roundworms)	---	4	---	---	---	---	---	---	---
Total	740	7,700	6,800	45,000	6,700	7,100	1,600	7,300	1,000
Number of taxa	24	26	33	25	25	27	15	24	16
Diversity Index ( $\bar{d}$ )	---	2.42	3.13	2.52	2.40	3.41	2.75	2.91	2.69

\*\* Not included in total number of taxa.

Table 10.--Taxa and densities of benthic invertebrates, per square meter, collected from East Fork Williams Fork (WF-1)

[Densities are rounded to standard significant figures (Greeson and others, 1977)]

TAXA	Sampling dates							
	04/16/80	07/30/80	09/30/80	11/20/80	04/21/81	06/29/81	07/30/81	09/03/81
PHYLUM								
CLASS								
Order								
Family								
Genus species								
ANNELIDA								
OLIGOCHAETA (Worms)								
Plesiopora								
<i>Limnodrilus</i> sp.			7	240		11	22	29
ARTHROPODA								
ARACHNOIDEA								
Hydracarina (Water mites)								
<i>Lebertia</i> sp.						7	14	25
<i>Mideopsis</i> sp.			72	140	7	4	170	120
<i>Protzia</i> sp.			22	4				
<i>Sperchon</i> sp.						32		
CRUSTACEA								
Amphipoda (Scuds)								
<i>Hyalella azteca</i>	4							
INSECTA								
Coleoptera (Beetles)								
<i>Dubiraphia</i> sp.						4		
<i>Helichus striatus</i>								4
<i>Hydrochus</i> sp.								7
<i>Microcylloepus</i> sp.				25				
<i>Ochthebius</i> sp.								7
<i>Optioservus castanipemis</i>	11	280	1,500	1,700	14	130	700	800

Table 10.--Taxa and densities of benthic invertebrates, per square meter, collected from East Fork Williams Fork (WF-1)--Continued

TAXA	Sampling dates						
	04/16/80	07/30/80	09/30/80	11/20/80	04/21/81	06/29/81	07/30/81
PHYLUM							
CLASS							
Order							
Family							
Genus species							
ARTHROPODA--Continued							
INSECTA--Continued							
Coleoptera (Beetles)--Continued							
<i>Oreodytes crassulus</i>		4					7
<i>Zaitzevia parvula</i>		130	150	580		36	450
Diptera (True flies)							
<i>Antocha</i> sp.			7	47			29
<i>Atherix pachypus</i>		32	79	210	7	18	93
<i>Chelifera</i> sp.			7				
Chironomidae Form 1		220	720	260	1,300	420	1,700
Chironomidae Form 2		420	100	150	140	68	270
Chironomidae Form 3		29	190	660	330	36	550
Chironomidae Form 4				11		4	
Chironomidae Form 5		4	14	72		47	18
Chironomidae Form 6			11			4	
Chironomidae Form 7				14		100	
Chironomidae Form 8		7	47		7	22	4
Chironomidae Form 10							7
Chironomidae Form 12				29			
Chironomidae Form 13					140	4	7
Chironomidae Form 14					22		
Chironomidae pupa**		14	43			14	65
<i>Cricotopus</i> sp. 1	43						
<i>Deuterophlebia</i> sp.						4	
<i>Dicranota</i> sp.				4	7		

Table 10.--Taxa and densities of benthic invertebrates, per square meter, collected from East Fork Williams Fork (WF-1)--Continued

TAXA	Sampling dates							
	04/16/80	07/30/80	09/30/80	11/20/80	04/21/81	06/29/81	07/30/81	09/03/81
ARTHROPODA--Continued								
INSECTA--Continued								
Diptera (True flies)--Continued								
<i>Diplocladius</i> sp.	220							
<i>Erioptera</i> sp.	14				72			
<i>Eukiefferiella</i> sp. 3	4							
<i>E. sp. 7</i>		7						
<i>Hemerodromia</i> sp.				7				
<i>Hesperoconopa</i> sp.				14				
<i>Hexatoma</i> sp.	36	14	25	11	7	7	11	43
<i>Micropectra</i> sp.	29							
<i>Nemotelus</i> sp.	4							
<i>Odontomesa</i> sp.	36							
<i>Orthocladus</i> sp. 1	14							
<i>O. sp. 2</i>	4							
<i>Palpomyia</i> sp.	29		82	7	43	65	7	36
<i>Pericoma</i> sp.			14	18	7			7
<i>Phaenopsectra</i> sp.	4							
<i>Simulium arcticum</i>		14		160	29	25	29	
<i>Tipula</i> sp.	4							
Ephemeroptera (Mayflies)								
<i>Ameletus sparsatus</i>			22	7				25
<i>Attenella margarita</i>		83				65	79	
<i>Baetis bicaudatus</i>		130	360	2,200	190	190	220	32



Table 10.--Taxa and densities of benthic invertebrates, per square meter, collected from East Fork Williams Fork (WF-1)--Continued

TAXA	Sampling dates							
	04/16/80	07/30/80	09/30/80	11/20/80	04/21/81	06/29/81	07/30/81	09/03/81
PHYLUM								
CLASS								
Order								
Family								
Genus species								
ARTHROPODA--Continued								
INSECTA--Continued								
Ephemeroptera (Mayflies)--Continued								
<i>Baetis</i> sp.	4							
<i>B. tricaudatis</i>		75	86	36	100	25	240	180
<i>Cinygmula</i> sp.			43	4	7	18		
<i>Drumella grandis grandis</i>		11	72	150		4	50	29
<i>Epeorus albertae</i>						32	22	
<i>E. longimanus</i>		14						
<i>E. sp.</i>				260	7			
<i>Ephemerella inermis</i>					520			
<i>E. infrequens</i>			1,500	2,000	120	25		79
<i>E. sp.</i>	4							
<i>Heptagenia</i> sp.		11						
<i>Paraleptophlebia heteronea</i>			110	420	7	4		50
<i>P. sp.</i>	4							
<i>Rhithrogena hageni</i>				270	22	4		50
<i>R. robusta</i>			140					
<i>R. sp.</i>		54					29	
<i>Timpanoga hecuba hecuba</i>		11				7	7	4
<i>Tricorythodes</i> sp.		25	57	7		7	56	83
Hemiptera (True bugs)								
Corixidae				7		4		

Table 10.--Taxa and densities of benthic invertebrates, per square meter,  
collected from East Fork Williams Fork (WF-1)--Continued

TAXA	Sampling dates							
	04/16/80	07/30/80	09/30/80	11/20/80	04/21/81	06/29/81	07/30/81	09/03/81
ARTHROPODA--Continued								
INSECTA--Continued								
Plecoptera (Stoneflies)								
Capniidae			43	29				
Chloroperlidae		7	470	330	200	32	310	670
Chloroperlinae 1	4							
Claassenia sabulosa				7				
Isogenoides elongatus			4	22				
Prostoia besametsa				47				
Pteronarcella badia		11	7	22			7	
Pteronarcys californica				18				
Skwala parallela		14	29					14
Trichoptera (Caddisflies)								
Agapetus sp.						4		
Agraylea sp.		4	7	7				4
Arctopsyche grandis				22		22	14	7
Brachycentrus americanus					25	18		
B. occidentalis							50	54
B. sp.		25	72	290				
Cheumatopsyche sp.		36	54	25				290
Hydropsyche sp. 1		90	220	220			470	300
Hydroptila sp.						25	50	240
Lepidostoma sp.		57	510	480	230	18	57	380
Leucotrachia sp.							150	
Limnephilidae								
Ochrotrichia sp.		4	860	360				

Table 10.--Taxa and densities of benthic invertebrates, per square meter, collected from East Fork Williams Fork (WF-1)--Continued

TAXA	Sampling dates							
PHYLUM	04/16/80	07/30/80	09/30/80	11/20/80	04/21/81	06/29/81	07/30/81	09/03/81
CLASS								
Order								
Family								
Genus species								
ARTHROPODA--Continued								
INSECTA--Continued								
Trichoptera (Caddisflies)--Continued								
Oecetis avara	---	4	---	---	---	---	---	---
O. sp.	---	---	---	---	---	---	---	14
Onocosmoecus sp.	---	---	---	---	7	---	---	---
Protoptila sp.	---	---	11	43	---	---	---	50
Psychomyia sp.	---	---	---	---	---	---	93	230
Rhyacophila coloradensis	---	---	11	---	---	---	---	---
MOLLUSCA								
GASTROPODA (Snails)								
Basommatophora								
Lymnaea sp.	---	---	---	4	---	---	---	---
Physa sp.	11	---	---	4	---	---	7	7
PELECYPODA (Clams)								
Heterodonta								
Pisidium sp.	4	---	---	---	---	---	---	---
NEMATODA (Roundworms)								
Total	490	1,800	7,800	12,000	3,600	1,600	6,100	5,100
Number of taxa	21	32	40	50	27	39	33	44
Diversity Index ( $\bar{d}$ )		3.80	3.86	4.00	3.24	4.06	3.72	4.20

\*\* Not included in total number of taxa.

Table 11.--Taxa and densities of benthic invertebrates, per square meter, collected from South Fork Williams Fork (WF-2)

[Densities are rounded to standard significant figures (Greeson and others, 1977)]

TAXA	Sampling dates							
	04/16/80	07/29/80	09/30/80	11/20/80	04/21/81	06/29/81	07/30/81	09/03/81
PHYLUM								
CLASS								
Order								
Family								
Genus species								
ANNELIDA								
OLIGOCHAETA (Worms)								
Opisthopora								
Eiseniella tetraedra						7		
Plesiopora								
Limnodrilus sp.			11	7		4	130	
ARTHROPODA								
ARACHNOIDEA								
Hydracarina (Water mites)								
Lebertia sp.			4			14	86	57
Mideopsis sp.		11	61	7			200	43
Protzia sp.							14	
INSECTA								
Coleoptera (Beetles)								
Brychius sp.								14
Dubiraphia sp.			4	7	14			14
Helichus striatus		4						
Ochthebius sp.						4	72	43
Optioservus castanipennis		210	1,000	600	18	600	1,400	1,200
Zaitzevia parvula		43	250	22		260	630	780

Table 11.--Taxa and densities of benthic invertebrates, per square meter, collected from South Fork Williams Fork (WF-2)--Continued

TAXA	Sampling dates							
	04/16/80	07/29/80	09/30/80	11/20/80	04/21/81	06/29/81	07/30/81	09/03/81
ARTHROPODA--Continued								
INSECTA--Continued								
Diptera (True flies)								
<i>Antocha</i> sp.							14	
<i>Atherix pachypus</i>		32	200	220	7	18	200	430
<i>Chelifera</i> sp.					7		14	
Chironomidae Form 1		36	97	940	1,500	470	4,200	72
Chironomidae Form 2			14		93	36	29	
Chironomidae Form 3			18	79	150	120	79	
Chironomidae Form 5			4	14	7	39	120	14
Chironomidae Form 6			11	29	7			
Chironomidae Form 7				50		7		
Chironomidae Form 8		4	120	22			490	120
Chironomidae Form 10						14		
Chironomidae Form 11						14		
Chironomidae Form 13			4		11		190	14
Chironomidae pupa**		4			29	14	50	
<i>Cricotopus</i> sp. 1	7							
<i>Diamesa</i> sp. 1	4							
<i>Hemerodromia</i> sp.				43			29	14
<i>Hexatoma</i> sp.		4	62	29		18	18	29
<i>Limmophila</i> sp.	4							
<i>Palpomyia</i> sp.				43	18	18		14
<i>Pericoma</i> sp.			7					

Table 11.--Taxa and densities of benthic invertebrates, per square meter,  
collected from South Fork Williams Fork (WF-2)--Continued

TAXA	Sampling dates							
	04/16/80	07/29/80	09/30/80	11/20/80	04/21/81	06/29/81	07/30/81	09/03/81
PHYLUM								
CLASS								
Order								
Family								
Genus species								
ARTHROPODA--Continued								
INSECTA--Continued								
Diptera (True flies)--Continued								
<i>Protanoderus</i> sp.						4		
<i>Simulium arcticum</i>		4	7	200		11	230	
Thaumaleidae					11			
Ephemeroptera (Mayflies)								
<i>Ameletus</i> sp.	4							
<i>A. sparsatus</i>			79					29
<i>Attenella margarita</i>		11				47	29	
<i>Baetis bicaudatis</i>		43	90	1,800	39	830	460	170
<i>B. sp.</i>	4							
<i>B. tricaudatis</i>		47	190	130	150	370	370	140
<i>Choroterpes albiannulata</i>							130	
<i>Cinygmula</i> sp.			110	36		230	14	
<i>Drunella grandis grandis</i>		4	57	7		22	29	29
<i>Epeorus albertae</i>						43		
<i>E. longimanus</i>		22						
<i>E. sp.</i>				220	7			14
<i>Ephemera simulans</i>			4					
<i>Ephemarella inermis</i>					79	7	14	
<i>E. infrequens</i>			140	400	43	25		43
<i>E. sp.</i>	4							
<i>Heptagenia</i> sp.		22						
<i>Paraleptophlebia heteronea</i>			140	250	14			290

Table 11.--Taxa and densities of benthic invertebrates, per square meter, collected from South Fork Williams Fork (WF-2)--Continued

TAXA	Sampling dates							
	04/16/80	07/29/80	09/30/80	11/20/80	04/21/81	06/29/81	07/30/81	09/03/81
ARTHROPODA--Continued								
INSECTA--Continued								
Ephemeroptera (Mayflies)--Continued								
<i>Paraleptophlebia</i> sp.		4						
<i>Rhithrogena hageni</i>			320	400	18	4		350
<i>R. robusta</i>								
<i>R. sp.</i>		130					350	
<i>Tricorythodes</i> sp.		4	14	36	14	83	43	14
Odonata (Dragonflies and damselflies)								
<i>Amphiagrion</i> sp.							4	
<i>Ophiogomphus severus</i>			4			4	14	18
Plecoptera (Stoneflies)								
Capniidae				36				
Chloroperlidae		4	980	460	93	97	320	350
Chloroperlinae 1	22							
<i>Isogenoides elongatus</i>			14					
<i>I. zionensis</i>							14	
<i>Isoperla quinquepunctata</i>					7	25		
<i>Prostoia besametsa</i>				340	7			
<i>Pteronarcella badia</i>		93	36	50	4	100	140	
<i>Pteronarcys californica</i>						4	4	14
<i>Skwala parallela</i>		47	50				43	4

Table 11.--Taxa and densities of benthic invertebrates, per square meter, collected from South Fork Williams Fork (WF-2)--Continued

TAXA	Sampling dates							
	04/16/80	07/29/80	09/30/80	11/20/80	04/21/81	06/29/81	07/30/81	09/03/81
PHYLUM								
CLASS								
Order								
Family								
Genus species								
ARTHROPODA--Continued								
INSECTA--Continued								
Trichoptera (Caddisflies)								
<i>Agraylea</i> sp.		4	54	190		72		
<i>Arctopsyche grandis</i>		11	14				4	
<i>Brachycentrus americanus</i>						93		
<i>B. occidentalis</i>							79	75
<i>B. sp.</i>		39	18	14				
<i>Cheumatopsyche</i> sp.			1,600	2,300	36	420	4,200	4,100
<i>Glossosoma</i> sp.			11					
<i>Helicopsyche</i> sp.						7	14	730
<i>Hydropsyche</i> sp. 1		240	320	430		22	3,000	550
<i>Hydroptila</i> sp.						290	450	
<i>Lepidostoma</i> sp.			50	43	14			
<i>Leuctrichia</i> sp.							57	
<i>Ochrotrichia</i> sp.			130	300				
<i>Oecetis avara</i>				7				
<i>O. sp.</i>			18			7	29	57
<i>Protoptila</i> sp.								57



Table 11.--Taxa and densities of benthic invertebrates, per square meter, collected from South Fork Williams Fork (WF-2)--Continued

TAXA	Sampling dates							
	04/16/80	07/29/80	09/30/80	11/20/80	04/21/81	06/29/81	07/30/81	09/03/81
PHYLUM								
CLASS								
Order								
Family								
Genus species								
MOLLUSCA								
GASTROPODA (Snails)								
Basommatophora								
<i>Physa</i> sp.							32	100
Total	49	1,100	6,400	9,800	2,400	4,500	18,000	10,000
Number of taxa	7	25	42	36	26	40	44	35
Diversity Index ( $\bar{d}$ )		3.58	3.81	3.79	2.34	3.95	3.48	3.25

\*\* Not included in total number of taxa.

Table 12.--Taxa and densities of benthic invertebrates, per square meter, collected from Williams Fork (WF-3)

[Densities are rounded to standard significant figures (Greeson and others, 1977)]

TAXA	Sampling dates						
	04/16/80	07/29/80	09/30/80	11/20/80	06/29/81	07/30/81	09/03/81
PHYLUM							
CLASS							
Order							
Family							
Genus species							
ANNELIDA							
OLIGOCHAETA (Worms)							
Plesiopora				36		170	
<i>Limodrilus</i> sp.							
ARTHROPODA							
ARACHNOIDEA							
Hydracarina (Water mites)							
<i>Lebertia</i> sp.			14		7	50	
<i>Mideopsis</i> sp.		11	11	29			
INSECTA							
Coleoptera (Beetles)							
<i>Dubiraphia</i> sp.			7		14		54
<i>Helichus striatus</i>		4					
<i>Microcyllopus</i> sp.			4				
<i>Ochthebius</i> sp.						14	
<i>Optioservus castanipennis</i>		4	250	190	14	140	110
<i>Zaitzevia parvula</i>			50	130		400	32
Diptera (True flies)							
<i>Antocha</i> sp.							4
<i>Atherix pachypus</i>		54	82	65		36	
<i>Chelifera</i> sp.			4				
Chironomidae Form 1		340	460	830		550	130

Table 12.--Taxa and densities of benthic invertebrates, per square meter, collected from Williams Fork (WF-3)--Continued

TAXA	Sampling dates						
	04/16/80	07/29/80	09/30/80	11/20/80	06/29/81	07/30/81	09/03/81
PHYLUM							
CLASS							
Order							
Family							
Genus species							
ANTHROPODA--Continued							
INSECTA--Continued							
Diptera (True flies)--Continued							
Chironomidae Form 2	---	14	7	---	---	29	---
Chironomidae Form 3	---	---	---	170	7	---	---
Chironomidae Form 4	---	---	---	---	---	14	---
Chironomidae Form 5	---	---	93	150	140	110	65
Chironomidae Form 6	---	---	90	330	14	---	47
Chironomidae Form 7	---	---	---	---	29	---	14
Chironomidae Form 8	---	75	97	72	79	420	7
Chironomidae Form 12	---	---	---	---	---	---	32
Chironomidae Form 13	---	---	7	---	14	29	4
Chironomidae pupa**	---	25	7	---	50	14	4
Chironomus sp.	4	---	---	---	---	---	---
Cricotopus sp. 1	4	---	---	---	---	---	---
Diamesa sp. 1	4	---	---	---	---	---	---
Empididae							
Erioptera sp.	---	---	---	---	---	---	7
Eukiefferiella sp. 2	4	---	---	---	---	---	---
E. sp. 5	7	---	---	---	---	---	---
Hemerodromia sp.	---	---	---	---	---	---	7
Hexatoma sp.	11	---	65	50	14	93	86
Orthocladus sp. 1	11	---	---	---	---	---	---
Palpomyia sp.	---	---	22	22	22	---	43
Simulium arcticum	---	---	36	1,500	7	22	---
S. sp.	7	---	---	---	---	---	7
Tanytarsus sp.	4	---	---	---	---	---	---

Table 12.--Taxa and densities of benthic invertebrates, per square meter, collected from Williams Fork (WF-3)--Continued

TAXA	Sampling dates						
	04/16/80	07/29/80	09/30/80	11/20/80	06/29/81	07/30/81	09/03/81
PHYLUM							
CLASS							
Order							
Family							
Genus species							
ANTHROPODA--Continued							
INSECTA--Continued							
Ephemeroptera (Mayflies)							
<i>Attenella margarita</i>	---	4	---	---	---	---	---
<i>Baetis bicaudatus</i>	---	4	230	3,900	190	500	140
<i>B. sp.</i>	140	---	---	---	---	---	---
<i>B. tricaudatus</i>	---	4	43	50	260	160	150
<i>Choroterpes albiamulata</i>	---	---	---	---	---	190	---
<i>Cinygmula sp.</i>	---	---	140	79	57	---	---
<i>Drunella grandis grandis</i>	---	7	---	---	---	---	---
<i>Epeorus sp.</i>	---	---	---	14	---	---	---
<i>Ephemerella simulans</i>	---	---	11	22	---	---	25
<i>Ephemerella inermis</i>	---	---	---	---	14	43	---
<i>E. infrequens</i>	7	---	650	1,400	---	---	61
<i>E. sp.</i>	11	---	---	---	---	---	---
<i>Paraleptophlebia heteronea</i>	---	---	350	420	36	---	11
<i>P. sp.</i>	14	11	---	---	---	---	---
<i>Rhithrogena hageni</i>	---	---	---	250	---	---	47
<i>R. robusta</i>	---	---	270	---	---	---	---
<i>R. sp.</i>	---	4	---	---	---	29	---
<i>R. undulata</i>	7	---	---	---	---	---	---
<i>Serratella micheneri</i>	---	29	---	---	---	---	---
<i>Tricorythodes sp.</i>	---	54	1,000	1,100	520	700	470
Hemiptera (True bugs)							
<i>Ambrysus mormon</i>	---	---	---	---	18	79	14
Corixidae	---	---	---	---	---	---	---

Table 12.--Taxa and densities of benthic invertebrates, per square meter, collected from Williams Fork (WF-3)--Continued

TAXA	Sampling dates						
	04/16/80	07/29/80	09/30/80	11/20/80	06/29/81	07/30/81	09/03/81
PHYLUM							
CLASS							
Order							
Family							
Genus species							
ANTHROPODA--Continued							
INSECTA--Continued							
Lepidoptera (Aquatic catterpillars)							
Parargyactis sp.	---	---	---	-----	---	---	7
Odonata (Dragonflies and damselflies)							
Ophiogomphus severus	---	---	4	4	4	14	7
Plecoptera (Stoneflies)							
Capniidae	---	---	14	2,200	---	---	---
Chloroperlidae	---	---	1,000	150	---	50	18
Chloroperlinae 1	22	---	---	---	---	---	---
Cultus aestivalis	---	---	---	170	---	---	---
Isogenoides elongatus	---	---	---	7	---	---	---
I. zionensis	4	---	---	---	---	---	---
Isoperla patricia	29	---	---	---	---	---	---
I. sp.	---	---	---	---	---	79	---
Perlodidae	---	---	---	---	7	---	---
Perlodinae	7	---	---	---	---	---	---
Prostoia besametsa	---	---	---	170	---	---	---
Pteronarcella badia	---	---	---	7	---	---	---
Skwala parallela	---	39	100	---	---	72	14
Taenionema nigripenne	4	---	---	---	---	---	---

Table 12.--Taxa and densities of benthic invertebrates, per square meter, collected from Williams Fork (WF-3)--Continued

TAXA	Sampling dates						
	04/16/80	07/29/80	09/30/80	11/20/80	06/29/81	07/30/81	09/03/81
PHYLUM							
CLASS							
Order							
Family							
Genus species							
ANTHOPODA--Continued							
INSECTA--Continued							
Trichoptera (Caddisflies)							
<i>Agraylea</i> sp.			4	7			
<i>Arctopsyche grandis</i>						14	
<i>Brachycentrus occidentalis</i>						43	14
<i>B. sp.</i>			7				
<i>Cheumatopsyche</i> sp.	7	11	1,700	1,200	36	1,600	620
<i>Glossosoma</i> sp.			18				
<i>Helicopsyche</i> sp.			39	7	14		43
<i>Hydropsyche</i> sp. 1		190	450	490	22	840	86
<i>H. sp. 3</i>	11						
<i>Hydroptila</i> sp.					100	14	7
<i>Lepidostoma</i> sp.			4				
<i>Neureclipsis</i> sp.							7
<i>Ochrotrichia</i> sp.			57	29			
<i>Oecetis avara</i>		4		65			
<i>O. sp.</i>			18				
<i>Protoptila</i> sp.				22		14	18

Table 12.--Taxa and densities of benthic invertebrates, per square meter, collected from Williams Fork (WF-3)--Continued

TAXA	Sampling dates						
	04/16/80	07/29/80	09/30/80	11/20/80	06/29/81	07/30/81	09/03/81
PHYLUM							
CLASS							
Order							
Family							
Genus species							
MOLLUSCA							
GASTROPODA (Snails)							
Basommatophora							
<i>Ferrissia</i> sp.	---	---	-----	7	-----	-----	4
<i>Physa</i> sp.	4	---	-----	-----	-----	-----	29
Total	320	890	7,400	15,000	2,200	6,500	2,400
Number of taxa	22	19	38	37	27	31	37
Diversity Index ( $\bar{d}$ )		2.83	3.75	3.66	3.42	3.68	3.89

\*\* Not included in total number of taxa.

Table 13.--Taxa and densities of benthic invertebrates, per square meter, collected from Williams Fork (WF-4)

[Densities are rounded to standard significant figures (Greeson and others, 1977)]

TAXA	Sampling dates						
	04/16/80	07/29/80	09/30/80	11/20/80	06/29/81	07/30/81	09/03/81
ANNELIDA							
OLIGOCHAETA (Worms)							
Plesiopora							
Limodrilus sp.			7	65	36	230	29
ARTHROPODA							
ARACHNOIDEA							
Hydracarina (Water mites)							
Lebertia sp.			14		14	14	
Mideopsis sp.			7	7			
INSECTA							
Coleoptera (Beetles)							
Dubiraphia sp.			4				18
Hydrochus sp.							11
Ochthebius sp.						29	
Optioservus castanipennis			14	140	29	200	29
Oreodytes crassulus					18	32	
Zaitzevia parvula			25	86		190	240
Collembola (Springtails)							
Isotomurus palustris				7			



Table 13.--Taxa and densities of benthic invertebrates, per square meter, collected from Williams Fork (WF-4)--Continued

TAXA	Sampling dates						
	04/16/80	07/29/80	09/30/80	11/20/80	06/29/81	07/30/81	09/03/81
ARTHROPODA--Continued							
INSECTA--Continued							
Diptera (True flies)							
<i>Antocha</i> sp.						14	
<i>Atherix pachypus</i>		29		29			
<i>Chelifera</i> sp.			22	22			
Chironomidae Form 1		370	510	370	230	1,700	270
Chironomidae Form 2		29	14	36			
Chironomidae Form 3			29	57	4	29	
Chironomidae Form 4						43	
Chironomidae Form 5			480	740	68	45	86
Chironomidae Form 6			260	300	25		79
Chironomidae Form 7							14
Chironomidae Form 8		29	25	57	57	270	
Chironomidae Form 10			4				
Chironomidae Form 11			14				
Chironomidae Form 12				14			
Chironomidae Form 13			29		11	72	
Chironomidae Form 14				14			
Chironomidae pupa**		11	4	7	32	43	7
<i>Cricotopus</i> sp. 4	4						
<i>Cryptochironomus</i> sp.	4						
<i>Diamesa</i> sp. 1	50						
<i>D. sp. 2</i>	14						
<i>Eukiefferiella</i> sp. 1	7						
<i>E. sp. 3</i>	11						

Table 13.--Taxa and densities of benthic invertebrates, per square meter,  
collected from Williams Fork (WF-4)--Continued

TAXA	Sampling dates						
	04/16/80	07/29/80	09/30/80	11/20/80	06/29/81	07/30/81	09/03/81
PHYLUM							
CLASS							
Order							
Family							
Genus species							
ARTHROPODA--Continued							
INSECTA--Continued							
Diptera (True flies)--Continued							
<i>Euparyphus</i> sp.				7			
<i>Hemerodromia</i> sp.				14		14	
<i>Hexatoma</i> sp.		11	47	50		86	57
<i>Microtendipes</i> sp.	4						
<i>Orthocladus</i> sp. 1	260						
<i>O.</i> sp. 2	140						
<i>Palpomyia</i> sp.		18	14		43	29	7
<i>Pothastia</i> sp.	4						
<i>Psectrocladius</i> sp.	11						
<i>Simulium arcticum</i>		11	36	260	7	72	
<i>S.</i> sp.							14
Ephemeroptera (Mayflies)							
<i>Baetis bicaudatis</i>		43	1,800	1,000	270	2,800	540
<i>B. pygmaeus</i>							7
<i>B.</i> sp.	620						
<i>B. tricaudatis</i>		57	47		130	850	890
<i>Caenis simulans</i>	4					600	
<i>Choroterpes albiannulata</i>							
<i>Cinygmula</i> sp.			230	93	130		
<i>Ephemera simulans</i>			4		11	29	4
<i>Ephemerella inermis</i>						170	
<i>E. infrequens</i>			1,800	830	7		200

Table 13.--Taxa and densities of benthic invertebrates, per square meter, collected from Williams Fork (WF-4)--Continued

TAXA	Sampling dates						
	04/16/80	07/29/80	09/30/80	11/20/80	06/29/81	07/30/81	09/03/81
PHYLUM							
CLASS							
Order							
Family							
Genus species							
ARTHROPODA--Continued							
INSECTA--Continued							
Ephemeroptera (Mayflies)--Continued							
<i>Ephemerella</i> sp.	29						
<i>Paraleptophlebia heteronea</i>			790	430	230		22
<i>P. sp.</i>		22					
<i>Rhithrogena hageni</i>				670	25		160
<i>R. robusta</i>			850				
<i>R. sp.</i>		4				320	
<i>R. undulata</i>	29						
<i>Serratella micheneri</i>		32					
<i>Traverella</i> sp.						29	
<i>Tricorythodes</i> sp.			220	190	72	990	320
Hemiptera (True bugs)							
<i>Ambrysus mormon</i>					39	22	39
<i>A. sp.</i>		4					
<i>Gerris</i> sp.			14				
Lepidoptera (Aquatic catterpillars)							
<i>Parargyrectis</i> sp.			4			29	7
Odonata (Dragonflies and damselflies)							
<i>Ophiogomphus severus</i>	4		11	7	7	14	

Table 13.--Taxa and densities of benthic invertebrates, per square meter, collected from Williams Fork (WF-4)--Continued

TAXA	Sampling dates						
	04/16/80	07/29/80	09/30/80	11/20/80	06/29/81	07/30/81	09/03/81
ARTHROPODA--Continued							
INSECTA--Continued							
Plecoptera (Stoneflies)							
Capniidae			54	850			
Chloroperlidae			1,300	190		100	72
Chloroperlinae 1	4						
Claassenia sabulosa							7
Cultus aestivalis			4	43			
Isogenoides elongatus				22			
Isoperla sp.	11						
Perlodidae					4		
Prostoia besametsa							
Skwala parallela		36	400	50			47
Trichoptera (Caddisflies)							
Agraylea sp.			18	7		4	
Brachycentrus occidentalis					7	47	22
B. sp.		4	11	7			
Cheumatopsyche sp.		43	1,500	630	93	2,100	1,200
Helicopsyche sp.			54	1,800	7	57	190
Hydropsyche sp. 1		950	1,400	550	140	1,800	910
Hydroptila sp.					18	430	
Nectopsyche stigmatica				22			
Ochrotrichia sp.			50	7			
Oecetis avara				110			
O. sp.			130			14	43

Table 13.--Taxa and densities of benthic invertebrates, per square meter, collected from Williams Fork (WF-4)--Continued

TAXA	Sampling dates						
	04/16/80	07/29/80	09/30/80	11/20/80	06/29/81	07/30/81	09/03/81
ARTHROPODA--Continued							
INSECTA--Continued							
Trichoptera (Caddisflies)--Continued							
<i>Polycentropus</i> sp.			7	7			
<i>Protoptila</i> sp.			29	79	4		65
MOLLUSCA							
GASTROPODA (Snails)							
Basommatophora							
<i>Ferrissia</i> sp.				7	4		
<i>Lymnaea</i> sp.				14			7
<i>Physa</i> sp.				110		160	120
PLATYHELMINTHES							
TURBELLARIA							
Tricladia							
<i>Polyceelis coronata</i>							4
Total	1,200	1,700	13,000	10,000	1,800	14,000	5,700
Number of taxa	18	19	44	44	30	39	33
Diversity Index ( $\bar{d}$ )		2.29	3.86	4.16	3.97	3.76	3.67

\*\* Not included in total number of taxa.

Table 14--Taxa and densities of benthic invertebrates per square meter, collected from Canadian River (CR-1)

[Densities are rounded to standard significant figures (Greeson and others, 1977)].

TAXA		Sampling dates							
PHYLUM	CLASS	05/07/80*	07/24/80	09/16/80	11/17/80	04/30/81	06/09/81	07/28/81	09/01/81
ANNELIDA									
OLIGOCHAETA (Worms)									
Plesiopora									
	<i>Eiseniella tetraedra</i>	7	4	-----	-----	4	4	-----	-----
	<i>Limnodrilus sp.</i>	-----	-----	-----	-----	29	7	14	140
ARTHROPODA									
ARACHNOIDEA									
Hydracarina (Water mites)									
	<i>Lebertia sp.</i>	-----	-----	-----	4	-----	-----	-----	-----
	<i>Mideopsis sp.</i>	-----	11	4	-----	14	4	-----	-----
	<i>Spherchonopsis sp.</i>	-----	4	18	-----	-----	-----	14	-----
INSECTA									
Coleoptera (Beetles)									
	<i>Cleptelmis sp.</i>	4	-----	-----	-----	-----	-----	-----	-----
	<i>Narpus sp.</i>	-----	-----	7	-----	-----	-----	-----	-----
	<i>Optioservus castanipennis</i>	-----	36	620	47	200	140	500	650
	<i>Zaitzevia parvula</i>	-----	-----	4	-----	4	25	57	50
Collembola (Springtails)									
	<i>Isotomurus palustris</i>	-----	-----	-----	-----	-----	-----	7	-----

Table 14--Taxa and densities of benthic invertebrates per square meter,  
collected from Canadian River (CR-1)--Continued

TAXA	Sampling dates							
	05/07/80*	07/24/80	09/16/80	11/17/80	04/30/81	06/09/81	07/28/81	09/01/81
ARTHROPODA--Continued								
INSECTA--Continued								
Diptera (True flies)								
<i>Chelifera</i> sp.								50
Chironomidae Form 1		14	420	50	240	93	1,800	700
Chironomidae Form 2			43		120	29	530	290
Chironomidae Form 3		39	47	29	260	11	1,100	840
Chironomidae Form 4						22	50	7
Chironomidae Form 5		11	18	4	43	32	29	14
Chironomidae Form 7				25	61	270	450	100
Chironomidae Form 8			39	4	22	140		
Chironomidae Form 10					4		14	
Chironomidae Form 12			14		7			
Chironomidae Form 13				7	130	29		220
Chironomidae pupa**			36		4	7	130	57
<i>Dicranota</i> sp.					11			29
<i>Hemerodromia</i> sp.					14	4		
<i>Hexatoma</i> sp.	4	3	29	4	57	14	36	310
<i>Simulium arcticum</i>		97	32		260	180	1,500	
<i>S. sp.</i>								330
Ephemeroptera (Mayflies)								
<i>Attenella margarita</i>							7	
<i>Baetis bicaudatus</i>		25	260	160	29	660	3,800	170
<i>B. flavistriga</i>		68						
<i>B. hageni</i>		32						

Table 14--Taxa and densities of benthic invertebrates per square meter, collected from Canadian River (CR-1)--Continued

TAXA	Sampling dates							
	05/07/80*	07/24/80	09/16/80	11/17/80	04/30/81	06/09/81	07/28/81	09/01/81
ARTHROPODA--Continued								
INSECTA--Continued								
Ephemeroptera (Mayflies)--Continued								
<i>Baetis tricaudatus</i> -----	90		7	54	7	150	2,100	700
<i>Cinygmula</i> sp.-----	4		4	22		14	43	
<i>Drunella grandis grandis</i> --			68	22	32		140	100
<i>Ephemerella inermis</i> -----					280	18	4	
<i>E. infrequens</i> -----			780	480	65		310	1,800
<i>Heptagenia simplicoides</i> ---							22	
<i>Paraleptophlebia heteronea</i>			4	50				240
<i>P. sp.</i> -----							93	
<i>Rhithrogena hageni</i> -----				29		7	57	
<i>R. robusta</i> -----			72					
<i>R. sp.</i> -----								57
<i>Tricorythodes</i> sp.-----			11		4		7	14
Plecoptera (Stoneflies)								
Capniidae-----			11	47				150
Chloroperlidae-----	25		1,500	2,300	180	90	1,900	4,000
<i>Claassenia sabulosa</i> -----						4		22
<i>Cultus aestivalis</i> -----				29				
<i>Isoperla pinta</i> -----								22
<i>I. quinquepunctata</i> -----								57
<i>I. sp.</i> -----	7						120	
<i>Pteronarcella badia</i> -----		5	11	29	7	14	50	72
<i>Skwala parallela</i> -----		4	11	7			4	32



Table 14--Taxa and densities of benthic invertebrates per square meter,  
collected from Canadian River (CR-1)--Continued

TAXA	Sampling dates							
	05/07/80*	07/24/80	09/16/80	11/17/80	04/30/81	06/09/81	07/28/81	09/01/81
ARTHROPODA--Continued								
INSECTA--Continued								
Trichoptera (Caddisflies)								
Agapetus sp.							50	
Arctopsyche grandis		61	170	18			93	57
Brachycentrus americanus					39	4		
B. occidentalis							65	86
B. sp.		29	130	4				
Cheumatopsyche sp.					36			220
Glossosoma sp.			130	4	39	25	36	160
Hydropsyche sp.		75	1,800	150	210	22	1,600	3,500
Hydroptila sp.						4	7	
Lepidostoma sp.			270	29	29		7	200
Protophila sp.			39			7		
Psychomyia sp.			50		32	14		14
Rhyacophila acropedes			7	4	7			
R. angelita		7				4		
Wormaldia sp.		25					86	

Table 14--Taxa and densities of benthic invertebrates per square meter,  
collected from Canadian River (CR-1)--Continued

TAXA	Sampling dates							
	05/07/80*	07/24/80	09/16/80	11/17/80	04/30/81	06/09/81	07/28/81	09/01/81
PHYLUM								
CLASS								
Order								
Family								
Genus species								
MOLLUSCA								
PELECYPODA (Clams)								
Heterodonta								
<i>Pisidium lilljeborgi</i>	4							
NEMATODA (Roundworms)					4			
Total	26	670	6,700	3,600	2,500	2,000	17,000	15,000
Number of taxa	5	22	33	27	35	31	37	35
Diversity Index ( $\bar{d}$ )		3.85	3.29	2.18	4.22	3.50	3.55	3.55

\* Analyses based on one sample.

\*\* Not included in total number of taxa.

Table 15.--Taxa and densities of benthic invertebrates per square meter, collected from Canadian River (CR-2)  
 [Densities are rounded to standard significant figures (Greeson and others, 1977)].

TAXA	05/07/80	07/25/80	09/16/80	11/17/80*	04/30/81	06/09/81	07/28/81	09/01/80
PHYLUM								
CLASS								
Order								
Family								
Genus species								
ANNELIDA								
OLIGOCHAETA (Worms)								
Plesiopora					14	11,000	2,400	280
<i>Limnodrilus</i> sp.				11				
ARTHROPODA								
ARACHNOIDEA								
Hydracarina (Water mites)								
<i>Arrenurus</i> sp.			57					
<i>Lebertia</i> sp.			14		36			
<i>Mideopsis</i> sp.		11				7	14	29
<i>Spherchonopsis</i> sp.		4						
CRUSTACEA								
Amphipoda (Scuds)							4	
<i>Hyalella azteca</i>								
INSECTA								
Coleoptera (Beetles)								
<i>Agabus</i> sp.		4						
<i>Deronectes</i> sp.		7						
<i>Dubiraphia</i> sp.		4	18	11	14	36		18
<i>Optioservus castanipennis</i>			57	11	18	7	29	36
<i>Zaitzevia parvula</i>		7						

Table 15.--Taxa and densities of benthic invertebrates per square meter, collected from Canadian River (CR-2)--Continued

TAXA	Sampling dates							
	05/07/80	07/25/80	09/16/80	11/17/80*	04/30/81	06/09/81	07/28/81	09/01/80
ARTHROPODA--Continued								
INSECTA--Continued								
Diptera (True flies)								
Chelifera sp.	---	---	39	---	7	---	---	---
Chironomidae Form 1	---	47	2,500	390	2,200	550	4,600	7,900
Chironomidae Form 2	---	---	68	---	100	57	110	720
Chironomidae Form 3	---	---	530	---	180	22	61	2,800
Chironomidae Form 4	---	14	---	---	---	---	43	---
Chironomidae Form 5	---	---	---	22	14	14	57	---
Chironomidae Form 6	---	---	---	---	29	---	---	---
Chironomidae Form 7	---	14	29	160	4	93	14	680
Chironomidae Form 8	---	22	61	160	370	1,000	3,100	---
Chironomidae Form 10	---	---	50	11	4	---	14	29
Chironomidae Form 12	---	---	---	11	7	---	---	---
Chironomidae Form 13	---	---	50	---	25	---	310	470
Chironomidae Form 14	---	---	---	---	32	---	---	---
Chironomidae Form 19	---	---	---	---	4	14	14	7
Chironomidae Form 20	---	---	---	---	---	---	29	---
Chironomidae pupa**	---	4	150	---	150	170	400	910
Chrysops sp.	---	---	4	---	---	---	---	4
Dixa sp.	---	4	---	---	---	---	---	---
Erioptera sp.	---	---	---	32	---	---	---	---
Eukiefferiella sp.	4	---	---	---	---	---	---	---
Hemerodromia sp.	---	---	---	---	---	---	---	22
Hexatoma sp.	---	4	32	22	11	---	---	11
Limnophora sp.	---	---	7	---	---	---	---	---

Table 15.--Taxa and densities of benthic invertebrates per square meter, collected from Canadian River (CR-2)--Continued

TAXA	Sampling dates							
	05/07/80	07/25/80	09/16/80	11/17/80*	04/30/81	06/09/81	07/28/81	09/01/80
ARTHROPODA--Continued								
INSECTA--Continued								
Diptera (True flies)--Continued								
<i>Palpomyia</i> sp.					4	14	4	
<i>Pericoma</i> sp.			14					
<i>Simulium arcticum</i>			43		690	870	25	
<i>S. sp.</i>								65
Tipulidae pupa				22				
Ephemeroptera (Mayflies)								
<i>Attenella margarita</i>		7						
<i>Baetis bicaudatus</i>		14	25		7	1,300		86
<i>B. hageni</i>		14						
<i>B. tricaudatus</i>			39		14	14	18	
<i>Caenis</i> sp.		72	22				550	
<i>Drunella grandis grandis</i>		4			7			
<i>Epeorus albertae</i>								
<i>Ephemerella inermis</i>	7		140		61	50		
<i>E. infrequens</i>	4			120	4			130
<i>Heptagenia simplicoides</i>						160	14	
<i>Paraleptophlebia</i> sp.							140	
<i>Tricorythodes</i> sp.		83	6,400	360	150	170	2,500	3,900
Odonata (Dragonflies and damselflies)								
<i>Ophiogomphus severus</i>		32	230	11	18		160	170

Table 15.--Taxa and densities of benthic invertebrates per square meter,  
collected from Canadian River (CR-2)--Continued

TAXA	Sampling dates							
	05/07/80	07/25/80	09/16/80	11/17/80*	04/30/81	06/09/81	07/28/81	09/01/80
ARTHROPODA--Continued								
INSECTA--Continued								
Plecoptera (Stoneflies)								
Capniidae				21				
Chloroperlidae			410	75	61		32	270
Cultus aestivalis				32				
Isogenoides elongatus					4			
I. zionensis							29	
Isoperla pinta	14				7			72
I. quinquepunctata	11				140	29		
Skwala parallela			61					
Taeniopteryx nivalis			410					
T. sp.						43		290
Trichoptera (Caddisflies)								
Brachycentrus sp.			7					
Cheumatopsyche sp.			220		11		54	93
Hydropsyche sp.	4	7	660	54	97	36	29	500
Hydroptila sp.					7	110	86	14
Nectopsyche diarina		7	14				14	
Ochrotrichia sp.			32					
Oecetis sp.					4			14
Psychomyia sp.			36		14			

Table 15.--Taxa and densities of benthic invertebrates per square meter,  
collected from Canadian River (CR-2)--Continued

TAXA	Sampling dates							
PHYLUM	05/07/80	07/25/80	09/16/80	11/17/80*	04/30/81	06/09/81	07/28/81	09/01/80
CLASS								
Order								
Family								
Genus species								
MOLLUSCA								
GASTROPODA (Snails)							43	
Basommatophora								
Ferrissia sp.								
NEMATODA (Roundworms)					4	29		
Total	44	390	12,000	1,500	4,500	16,000	15,000	20,000
Number of taxa	6	21	32	19	37	23	30	26
Diversity Index ( $\bar{d}$ )		3.63	2.52	3.17	2.76	1.76	2.76	2.65

\* Analysis based on one sample.

\*\* Not included in total number of taxa.

Table 16.--Taxa and densities of benthic invertebrates per square meter, collected from Little Grizzly Creek (LGr-1)

[Densities are rounded to standard significant figures (Greenson and others, 1977)].

TAXA	Sampling dates							
	05/06/80	07/23/80	09/17/80	11/18/80	04/29/81	06/10/81	07/29/81	09/02/81
PHYLUM								
CLASS								
Order								
Family								
Genus species								
<b>ANNELIDA</b>								
OLIGOCHAETA (Worms)								
Plesiopora								
<i>Eiseniella tetraedra</i>			4					14
<b>ARTHROPODA</b>								
<b>ARACHNOIDEA</b>								
Hydracarina (Water mites)								
<i>Lebertia</i> sp.				4			22	
<i>Limnochares</i>			4			4	14	
<i>Mideopsis</i> sp.		4						
<i>Spherchonopsis</i> sp.			4	7				
<b>INSECTA</b>								
Coleoptera (Beetles)								
<i>Deronectus griseostriatus</i>			4					
<i>Hydrochus</i> sp.							4	
<i>Liodessus affinis</i>					7	4		
<i>Optioservus castanipennis</i>		86	2,000	610	440	25	4,000	4,900
<i>Oreodytes</i> sp.				4				14
<i>Zaitzevia parvula</i>		72	510	310	640	130	3,500	3,100
Collembola (Springtails)								
<i>Isotomurus palustris</i>					54			



Table 16.--Taxa and densities of benthic invertebrates per square meter, collected from Little Grizzly Creek (LGr-1)--Continued

TAXA	Sampling dates							
	05/06/80	07/23/80	09/17/80	11/18/80	04/29/81	06/10/81	07/29/81	09/02/81
ARTHROPODA--Continued								
INSECTA--Continued								
Diptera (True flies)								
<i>Atherix pachypus</i>			7	43				
<i>Cheilifera</i> sp.			4					
Chironomidae Form 1		29	72	490	520	140	850	650
Chironomidae Form 2		11	14	29	280	86		14
Chironomidae Form 3		22	100	220	330	18	600	550
Chironomidae Form 4						14	190	
Chironomidae Form 5		90	32	120	39	18	65	100
Chironomidae Form 6								14
Chironomidae Form 7			7	210	39	36	710	57
Chironomidae Form 8		4						
Chironomidae Form 11			7					
Chironomidae Form 13				7	25	22	110	86
Chironomidae Form 18					22	4		
Chironomidae pupa**		4	4		7	11	50	22
<i>Dicranota</i> sp.					18			50
<i>Eukiefferiella</i> sp.	4							
<i>Hemerodromia</i> sp.				4	7			
<i>Hesperoconopa</i> sp.			4					
<i>Hexatoma</i> sp.		7	14	11	32	14	65	83
<i>Limnophora</i> sp.					4			
<i>Maruina</i> sp.						4		
<i>Palpomyia</i> sp.				4	4	4		29
<i>Pericoma</i> sp.			32	61	32			29

Table 16.--Taxa and densities of benthic invertebrates per square meter, collected from Little Grizzly Creek (LGr-1)--Continued

TAXA	Sampling dates							
	05/06/80	07/23/80	09/17/80	11/18/80	04/29/81	06/10/81	07/29/81	09/02/81
ARTHROPODA--Continued								
INSECTA--Continued								
Diptera (True flies)--Continued								
<i>Simulium arcticum</i>		18	18	4	83	110	440	
<i>S. sp.</i>								29
Tipulidae pupa				22				
<i>Tipula sp.</i>		4	4	4				
Ephemeroptera (Mayflies)								
<i>Ameletus sparsatus</i>								14
<i>Attenella margarita</i>		7					14	
<i>Baetis bicaudatus</i>		18	160	400		4	280	43
<i>B. flavistriga</i>		18						
<i>B. hageni</i>		54						79
<i>B. tricaudatus</i>		4	1,600	490	72	75	960	190
<i>Cinygmula sp.</i>		29	220	710	160			
<i>Drunella grandis grandis</i>			29	11	7		43	110
<i>Epeorus albertae</i>		14				14		
<i>E. sp.</i>				68	18			
<i>Ephemerella inermis</i>	7		54					
<i>E. infrequens</i>		7		43	18	7	50	29
<i>Heptagenia simplicoides</i>								
<i>Paraleptophlebia heteronea</i>			290	310	130	7		140
<i>P. sp.</i>	4	11					310	

Table 16.--Taxa and densities of benthic invertebrates per square meter, collected from Little Grizzly Creek (LGr-1)--Continued

TAXA	Sampling dates						
	05/06/80	07/23/80	09/17/80	11/18/80	04/29/81	06/10/81	07/29/81
ARTHROPODA--Continued							
INSECTA--Continued							
Ephemeroptera (Mayflies)						4	
<i>Rhithrogena hageni</i> -----				25	11		
<i>R. robusta</i> -----			32				
<i>R. sp.</i> -----							14
<i>Tricorythodes sp.</i> -----				25			
Hemiptera (True bugs)							
<i>Corixidae sp.</i> -----							7
Plecoptera (Stoneflies)							
Capniidae-----				120			
<i>Capnia sp.</i> -----	4			14			
Chloroperlidae-----		14	250	380	14	36	1,000
Chloroperlinae-----	7						
<i>Claassenia sabulosa</i> -----			7				4
<i>Isoperla quinquepunctata</i> -----		25					
<i>Paracapnia angulata</i> -----	4						
<i>Paraleuctra sp.</i> -----					18		
<i>Prostoia besametsa</i> -----					110		
<i>Pteronarcella badia</i> -----		4		7	4		29
<i>Skwala parallela</i> -----			25	7			18
<i>Zapada cinctipes</i> -----							7
<i>Z. haysi</i> -----		4					

Table 16. --Taxa and densities of benthic invertebrates per square meter, collected from Little Grizzly Creek (LGR-1)--Continued

TAXA	Sampling dates							
	05/06/80	07/23/80	09/17/80	11/18/80	04/29/81	06/10/81	07/29/81	09/02/81
ARTHROPODA--Continued								
INSECTA--Continued								
Trichoptera (Caddisflies)								
Agapetus sp.		130				14	830	43
Arctopsyche grandis				25				
Brachycentrus sp.			7			14		
B. occidentalis					18			
B. sp.		11	36	14				
Cheumatopsyche sp.			32		4			200
Glossosoma sp.			18	68			120	57
Hydropsyche sp.		14	630	300	180	14	1,600	1,000
Hydroptila sp.						4	29	
Lepidostoma sp.		4	150	50	25	7	72	29
Limnephilidae					22			
Micrasema sp.						14		
Neophylax sp.						11		
Oecetis sp.								14
Rhyacophila acropedes			4					14
R. angelita					7			
Wormaldia sp.		14					54	22

Table 16.--Taxa and densities of benthic invertebrates per square meter, collected from Little Grizzly Creek (LGr-1)--Continued

TAXA	Sampling dates							
	05/06/80	07/23/80	09/17/80	11/18/80	04/29/81	06/10/81	07/29/81	09/02/81
PHYLUM								
CLASS								
Order								
Family								
Genus species								
MOLLUSCA								
GASTROPODA (Snails)								
Basommatophora								
<i>Gyraulus</i> sp.	-----	-----	4	4	-----	-----	36	54
<i>Physa</i> sp.	-----	-----	-----	-----	-----	-----	14	11
PELECYPODA (Clams)								
Heterodonta								
<i>Pisidium</i> sp.	-----	-----	-----	-----	-----	11	-----	-----
Total-----	30	730	6,400	5,200	3,400	940	16,000	12,000
Number of taxa-----	6	29	37	40	35	32	32	38
Diversity Index ( $\bar{d}$ )		4.07	3.16	4.06	3.84	4.17	3.48	2.90

\*\* Not included in total number of taxa.

Table 17.--Taxa and densities of benthic invertebrates per square meter, collected from Little Grizzly Creek (LGr-2)

[Densities are rounded to standard significant figures (Greenson and others, 1977)].

TAXA	Sampling dates						
	07/24/80	09/17/80	11/18/80	04/29/81	06/10/81	07/29/81	09/02/81
PHYLUM							
CLASS							
Order							
Family							
Genus species							
ANNELIDA							
HIRUDINEA (Leeches)							
Pharyngobdellida							
<i>Dina parva</i>						7	
OLIGOCHAETA (Worms)							
Opisthopora							14
<i>Eiseniella tetraedra</i>							
Plesiopora							
<i>Limnodrilus sp.</i>	4		57	820	330	610	330
ARTHROPODA							
ARACHNOIDEA							
Hydracarina (Water mites)							
<i>Lebertia sp.</i>		14	14	47		230	
<i>Mideopsis sp.</i>	4					79	
<i>Spherchonopsis sp.</i>							18
CRUSTACEA							
Amphipoda (Scuds)							
<i>Hyalella azteca</i>		4					4

Table 17.--Taxa and densities of benthic invertebrates per square meter, collected from Little Grizzly Creek (LGr-2)--Continued

TAXA	Sampling dates						
	07/24/80	09/17/80	11/18/80	04/29/81	06/10/81	07/29/81	09/02/81
PHYLUM							
CLASS							
Order							
Family							
Genus species							
ARTHROPODA--Continued							
INSECTA							
Coleoptera (Beetles)							
Donacia sp.					4		
Dubiraphia sp.		29		57	65	22	160
Hydroporus dimidiatus					7		
Optioservus castanipennis	4	39	72	36		50	100
Zaitzevia parvula				7			29
Diptera (True flies)							
Atherix pachypus			14				
Chelifera sp.				18			
Chironomidae Form 1	68	170	1,300	3,500	1,100	1,400	570
Chironomidae Form 2		4	57	83	86		
Chironomidae Form 3			36	29			
Chironomidae Form 4		32		7	22	93	14
Chironomidae Form 5		32	370	97	7	180	120
Chironomidae Form 7	11		1,400	1,100	57	630	
Chironomidae Form 8	1	460	140	260		1,700	930
Chironomidae Form 10					22	14	
Chironomidae Form 12		50		7			
Chironomidae Form 13			36	90	36	120	
Chironomidae Form 14				22			
Chironomidae Form 19				220	22		
Chironomidae pupa**		4		220	110	72	18

Table 17.--Taxa and densities of benthic invertebrates per square meter, collected from Little Grizzly Creek (LGr-2)--Continued

TAXA	Sampling dates						
	07/24/80	09/17/80	11/18/80	04/29/81	06/10/81	07/29/81	09/02/81
PHYLUM							
CLASS							
Order							
Family							
Genus species							
ARTHROPODA--Continued							
INSECTA--Continued							
Diptera (True flies)--Continued							
<i>Chrysops</i> sp.				4			
<i>Dicranota</i> sp.				25		7	
<i>Erioptera</i> sp.							22
<i>Hemerodromia</i> sp.			22	4			
<i>Hexatoma</i> sp.		36	14	61		50	29
<i>Maruina</i> sp.					7		
<i>Palpomyia</i> sp.		7	22	7	7		50
<i>Simulium arcticum</i>	22				3,400	22	18
<i>S.</i> sp.							
<i>Tipula</i> sp.			7				
Ephemeroptera (Mayflies)							
<i>Attenella margarita</i>						7	
<i>Baetis bicaudatus</i>	79		170	29	1,300	260	32
<i>B. flavistriga</i>	39						
<i>B. hageni</i>	14						
<i>B. tricaudatus</i>	14	11		57	22	43	
<i>Cinygmula</i> sp.		14					
<i>Ephemerella inermis</i>	32	75		940	140	22	
<i>E. infrequens</i>			2,200				4
<i>Heptagenia simplicoides</i>					140		
<i>H. solitaria</i>		7					
<i>Paraleptophlebia heteronea</i>		25	320	18		29	36



Table 17.--Taxa and densities of benthic invertebrates per square meter, collected from Little Grizzly Creek (LGr-2)--Continued

TAXA	Sampling dates						
	07/24/80	09/17/80	11/18/80	04/29/81	06/10/81	07/29/81	09/20/81
PHYLUM							
CLASS							
Order							
Family							
Genus species							
ANTHROPODA--Continued							
INSECTA--Continued							
Ephemeroptera (Mayflies)--Continued						14	
Paraleptophlebia sp.			320	7	4		
Rhithrogena hageni		18					
R. robusta	100						
R. sp.	61	3,800	1,700	350	220	2,000	1,700
Tricorythodes sp.							
Megaloptera (Alderflies and dobsonflies)							4
Sialis sp.							
Odonata (Dragonflies and damselflies)							4
Ophiogomphus severus							
Plecoptera (Stoneflies)							
Capniidae		18	3,100				
Chloroperlidae	4	200	850	50		120	100
Cultus aestivalis			1,100				
Isogenoides zionensis						7	
Isoperla pinta				7			22
I. quinquepunctata				61			22
Pteronarcella badia			7	4			
Skwala parallela	4	11				14	29
Taeniopteryx nivalis		4					

Table 17. --Taxa and densities of benthic invertebrates per square meter, collected from Little Grizzly Creek (IGr-2)--Continued

TAXA	Sampling dates						
	07/24/80	09/17/80	11/18/80	04/29/81	06/10/81	07/29/81	09/02/81
ARTHROPODA--Continued							
INSECTA--Continued							
Trichoptera (Caddisflies)							
Agapetus sp.	4						
Arctopsyche grandis			2,500				
Brachycentrus sp.	4						
Ceraclea arielles					14		
Cheumatopsyche sp.		570		140		1,000	670
Glossosoma sp.			29				
Helicopsyche sp.		50		39			68
Hydropsyche sp.	150	640	3,000	190	18	3,000	1,000
Hydroptila sp.				7	29	14	
Lepidostoma sp.		25	7				14
Neureclipsis sp.							14
Ochrotrichia sp.		18	79				
Oecetis sp.		50	36	32			36
Protophila sp.		220		22		160	43
Psychomyia sp.		140		72		630	100
MOLLUSCA							
GASTROPODA (Snails)							
Basommatophora							
Ferrissia sp.	7	25		47		130	14

Table 17.--Taxa and densities of benthic invertebrates per square meter, collected from Little Grizzly Creek (LGr-2)--Continued

TAXA	Sampling dates						
	07/24/80	09/17/80	11/18/80	04/29/81	06/10/81	07/29/81	09/02/81
PHYLUM							
CLASS							
Order							
Family							
Genus species							
MOLLUSCA--Continued							
PELECYPODA (Clams)							
Heterodonta							
<i>Pisidium variabile</i>							4
Total	630	6,800	19,000	8,800	7,200	13,000	6,300
Number of taxa	20	32	30	40	24	32	35
Diversity Index ( $\bar{d}$ )	3.37	2.59	3.55	3.20	2.42	3.49	3.41

\*\* Not included in total number of taxa.

Table 18--Taxa and densities of benthic invertebrates per square meter,  
collected from Grizzly Creek (Gr-1)

[Densities are rounded to standard significant figures (Greeson and others, 1977)].

TAXA	Sampling dates						
	05/06/80*	07/24/80	11/18/80	04/29/81	06/10/81	07/29/81	09/02/81
PHYLUM							
CLASS							
Order							
Family							
Genus species							
<b>ANNELIDA</b>							
OLIGOCHAETA (Worms)							
Plesiopora							
<i>Limnodrilus</i> sp.			25		57	140	160
<b>ARTHROPODA</b>							
<b>ARACHNOIDEA</b>							
Hydracarina (Water mites)							
<i>Arrenurus</i> sp.		11					
<i>Lebertia</i> sp.		4	7	22		29	
<i>Mideopsis</i> sp.		4		14	7	14	
<i>Spherchonopsis</i> sp.			4				
<b>INSECTA</b>							
Coleoptera (Beetles)							
<i>Donacia</i> sp.					4		
<i>Dubiraphia</i> sp.			4	14	7		
<i>Optioservus castanipennis</i>				7	270	260	86
<i>Rhantus</i> sp.						7	
<i>Zaitzevia parvula</i>					29	72	
<b>Diptera (True flies)</b>							
Chironomidae Form 1		32	540	920	930	180	650
Chironomidae Form 2				22	43	43	14

Table 18--Taxa and densities of benthic invertebrates per square meter, collected from Grizzly Creek (Gr-1)--Continued

TAXA	Sampling dates						
	05/06/80*	07/24/80	11/18/80	04/29/81	06/10/81	07/29/81	09/02/81
ARTHROPODA--Continued							
INSECTA--Continued							
Diptera (True flies)--Continued							
Chironomidae Form 3		7					14
Chironomidae Form 4				7	57		
Chironomidae Form 5		7	140	310	580	22	100
Chironomidae Form 7		18	560	230	1,400	130	
Chironomidae Form 8			290	320	22	110	14
Chironomidae Form 9			4				
Chironomidae Form 10				7			14
Chironomidae Form 12			18				14
Chironomidae Form 13				14	36	7	
Chironomidae Form 19				29	22		130
Chironomidae pupa**		11		22	350	14	
Cryptolabis sp.						7	
Dicranota sp.				7		14	
Hexatoma sp.		32	7	7	75	65	72
Limmophora sp.						7	
Palpomyia sp.			7	29	36		
Simulium arcticum		14	50		36	370	
S. sp.							1,900
Ephemeroptera (Mayflies)							
Attenella margarita		11					
Baetis bicaudatus		4			72	7	
B. flavistriga		4					

Table 18--Taxa and densities of benthic invertebrates per square meter,  
collected from Grizzly Creek (Gr-1)--Continued

TAXA	Sampling dates						
	05/06/80*	07/24/80	11/18/80	04/29/81	06/10/81	07/29/81	09/02/81
ARTHROPODA--Continued							
INSECTA--Continued							
Ephemeroptera (Mayflies)--Continued							
<i>Baetis tricaudatus</i>		18			11	7	7
<i>Caenis</i> sp.			7	4			14
<i>Cinygmula</i> sp.			4				
<i>Ephemerella inermis</i>				7		7	
<i>Heptagenia simplicioides</i>					210		
<i>H. solitaria</i>				7			
<i>H. sp.</i>		22					
<i>Paraleptophlebia heteronea</i>			97		39		
<i>Paraleptophlebia</i> sp.		7				7	
<i>Tricorythodes</i> sp.		160	4	36	72	390	120
Hemiptera (True bugs)							
<i>Corixidae</i> sp.				7			
Plecoptera (Stoneflies)							
Capniidae			40				
Chloperlidae			7	4	14	43	57
<i>Skwala parallela</i>		18					
Trichoptera (Caddisflies)							
<i>Cheumatopsyche</i> sp.						14	14
<i>Glossosoma</i> sp.			7		7		
<i>Helicopsyche</i> sp.						7	4

Table 18--Taxa and densities of benthic invertebrates per square meter,  
collected from Grizzly Creek (Gr-1)--Continued

TAXA	Sampling dates						
	05/06/80*	07/24/80	11/18/80	04/29/81	06/10/81	07/29/81	09/02/81
ARTHROPODA--Continued							
INSECTA--Continued							
Trichoptera (Caddisflies)--Continued		18		4		79	130
<i>Hydropsyche</i> sp.					22		
<i>Hydroptila</i> sp.			4				
<i>Lepidostoma</i> sp.			7				
<i>Nectopsyche</i> sp.					7		
<i>Neureclipsis bimaculata</i>							
<i>Ochrotrichia</i> sp.			4				
<i>Oecetis</i> sp.			18	14	14		
<i>Psychoomyia flavida</i>			32				
MOLLUSCA							
GASTROPODA (Snails)							
Basomatophora				11	11		4
<i>Ferrissia</i> sp.						7	
<i>Physa</i> sp.							
Total	400	400	1,900	2,100	4,400	2,100	3,500
Number of taxa	17	17	28	24	28	27	20
Diversity Index ( $\bar{d}$ )	3.14	3.14	2.93	2.62	3.04	3.66	2.40

\* One sample taken--no insects found.

\*\* Not included in total number of taxa.