

Final Report for Grant Agreement WRCP-07283  
A Comprehensive Ichthyofaunal Survey of Tenmile  
Creek Watershed: Phase II

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## Abstract

This project is a continuation of the survey of Tenmile Creek drainage initiated as “A Comprehensive Ichthyofaunal Survey of the Tenmile Creek Watershed” (Phase I - Grant Agreement WRCP-06169), extending upstream from Station 15 – approximately 16 km to the town of Rogersville (Station 25). We surveyed ten representative stations on the South Fork of Tenmile Creek and ten of its named tributaries in Greene Co., Pennsylvania. This survey was conducted during summer and fall 2008. At each station, areal dimensions were recorded, selected water quality parameters analyzed, and the site georeferenced. A total of 7,962 fishes representing six families and 36 species/hybrids were collected from the mainstem while the tributaries collectively yielded 2,705, seven, and 33 respectively. This survey added five new species golden shiner (*Notemigonus crysoleucas*), silverjaw minnow (*Notropis buccatus*), black crappie (*Pomoxis nigromaculatus*), Johnny darter (*Etheostoma nigrum*), and blackside darter (*Percina maculata*) to the ichthyofauna of Tenmile Creek inventoried in the initial phase of this project. However, river chub (*Nocomis micropogon*), quillback (*Carpionodes cyprinus*), shorthead redhorse (*Moxostoma breviceps*), stonecat (*Noturus flavus*), channel catfish (*Ictalurus punctatus*), hybrid striped bass (*Morone* hybrid), and walleye (*Sander vitreum*) which were captured from downstream stations in 2007 were absent here. In addition, we collected adult rainbow (*Oncorhynchus mykiss*) and brown trout (*Salmo trutta*) from Browns Creek. We did not capture any state “Species of Special Concern”. Voucher collections from all stations were preserved and stored in the fish museum at California University of Pennsylvania. All stations were net alkaline with pH values ranging from

7.5 – 8.6. One mainstem site and one tributary station exhibited values of specific conductance exceeding the recommended maximum for healthy fish populations.

### **Objectives**

Our objectives for this ichthyofaunal survey were to provide 1) a comprehensive inventory of fish biodiversity from ten stations on the South Fork of Tenmile Creek and ten selected tributaries; 2) provide a baseline dataset against which temporal changes in the fish community can be monitored; and 3) provide a georeferenced species inventory that can be integrated into existing databases for conservation and management priorities.

### **Justification**

Conservation of biodiversity requires systematic, temporal, and comprehensive surveys of biological communities. Population and habitat status of “Species of Special Concern” need to be fully documented. From such data, local conservation and management strategies can be formulated, updated, and integrated into regional plans. Recent requests for proposals by Pennsylvania State Agencies have listed surveys of “Species of Special Concern” and “Unassessed Watersheds” as high priorities. Tenmile Creek Watershed, which spans Washington/Greene counties, is a major tributary to the Monongahela River in Pennsylvania, emerging as an area that may harbor a diverse ichthyofauna, but whose aquatic biota remains largely unassessed.

The Tenmile Creek drainage encompasses 875 km<sup>2</sup>, and receives 70 named and unnamed tributaries. The mainstem, comprising Tenmile Creek and the South Fork of Tenmile Creek traverses approximately 90 km. Land use patterns include mixed

agriculture, coal extraction, light industry and small population centers. Tenmile Creek is a popular recreational boating and fishing venue, as is the Monongahela River whose improving water quality has provided similar recreational opportunities and a significant restoration of its ichthyofauna (Kimmel and Argent 2006a).

No comprehensive fish inventory had ever been undertaken in the Tenmile Creek watershed (90% of the Basin was unassessed) until the initiation of the first phase of this project (Argent and Kimmel 2008). The limited number of collections by the Pennsylvania Fish and Boat Commission (PFBC; repeated sampling at a select few locations) and others document the fish community composition at less than ten sites, along the main stem and major forks of Tenmile Creek. “Species of Special Concern” such as silver chub (*Macrhybopsis storeriana*), river redhorse (*Moxostoma carinatum*), and longnose gar (*Lepisosteus osseus*) have been collected (Kimmel and Argent 2005), but the extent of their distribution within the watershed remains unknown.

This project further addresses the fish biodiversity data gap existing in the Tenmile Creek Basin. The Washington and Greene County Conservation Districts are implementing a Rivers Conservation Plan for the Tenmile Watershed. Data from this project will add to the existing ichthyofaunal inventory and aid in identifying conservation priorities. In addition further documentation of the current diversity and distribution of fishes in the Tenmile Creek Watershed will assist the PFBC with their management of non-game fishes and “Species of Special Concern”.

## Methods

We inventoried fish biodiversity on a 16 km reach of the South Fork of Tenmile Creek and selected tributaries in Greene Co., Pennsylvania between June and October 2008 (Fig.1). We employed backpack and towboat electrofishers using a standard sampling protocol developed by the authors for wadeable streams (Kimmel and Argent 2006b; Kimmel and Argent 2006c) at ten, 200 m representative mainstem South Fork stations located at approximately 1.6 km intervals. Stations were identified numerically increasing in the upstream direction from Station 15 of the initial survey (Argent and Kimmel 2008) to Station 25 near the town of Rogersville (Fig. 1). Tributary surveys were conducted in a similar fashion beginning at the mainstem confluence of each. Tributary sites were identified by stream name.

At each station, we recorded GPS coordinates (decimal degrees), areal dimensions, pH, specific conductance ( $\mu\text{S}/\text{cm}$ ), and temperature. A water sample was collected for determination of total alkalinity ( $\text{mg}/\text{l}$  as  $\text{CaCO}_3$ ) in the laboratory at California University of Pennsylvania (CalU). Large fish were identified and released while small specimens were preserved for identification and enumeration in the laboratory. Species richness and relative abundance were determined for each station and curated voucher collections were housed in the Fish Museum at CalU.

## Products Delivered

- A fish database that can be integrated into existing databases (refer to enclosed CD-ROM)
- A distribution summary of species of special concern (none were captured)
- Final report summarizing project activity

## Results

South Fork mainstem and tributary station areal dimensions ranged from 2,220 to 4,020 m<sup>2</sup> and from 360 to 2,380 m<sup>2</sup>, respectively (Table 1). All stations were net alkaline with values ranging from 110 to 168 mg/l as CaCO<sub>3</sub> in the mainstem and from 50 to 288 mg/l among the tributaries (Table 2). Values of pH (7.5 – 8.6) exceeded neutrality at all mainstem and tributary stations (Table 2). Nine of the ten mainstem stations exhibited readings of specific conductance of 700 µS/cm or less with an outlier of 1,100 µS/cm at Station 18. Among the tributaries, Smith Creek yielded a specific conductance reading of 1,700 µS/cm - an outlier from all other tributaries (Table 2).

A total of 7,962 fishes representing six families and 36 species/hybrids were collected from the South Fork mainstem while the tributaries collectively yielded 2,705, seven, and 33 respectively (Table 3 and Appendix A). This survey added five new species golden shiner (*Notemigonus crysoleucas*), silverjaw minnow (*Notropis buccatus*), black crappie (*Pomoxis nigromaculatus*), Johnny darter (*Etheostoma nigrum*), and blackside darter (*Percina maculata*) to the ichthyofauna of Tenmile Creek inventoried in the initial phase of this project (Argent and Kimmel 2008; Table 3). Upstream reaches sampling during this phase of the project did not support populations of river chub

(*Nocomis micropogon*), quillback (*Carpiodes cyprinus*), smallmouth redhorse (*Moxostoma breviceps*), stonecat (*Noturus flavus*), channel catfish (*Ictalurus punctatus*), hybrid striped bass (*Morone hybrid*), or walleye (*Sander vitreum*) which were collected during the initial survey.

South Fork mainstem stations were dominated by the common shiner (*Luxilus cornutus*), bluntnose minnow (*Pimephales notatus*), and white sucker (*Catostomus commersoni*); while central stoneroller (*Campostoma anomalum*), creek chub (*Semotilus atromaculatus*), and rainbow darter (*Etheostoma caeruleum*) were predominant in the tributaries (Appendix A). Tributary species richness approximated 83% of that in the mainstem (Table 3). Browns Creek, a “High Quality Warm Water Fishery” (HQ-WWF; Pennsylvania Code 2001), exhibited the highest species richness among the tributaries and shared the most species with the South Fork including large-bodied riverine forms such as redhorses (Table 3; Appendix A). In addition, adult rainbow (*Oncorhynchus mykiss*) and brown trout (*Salmo trutta*) were collected here.

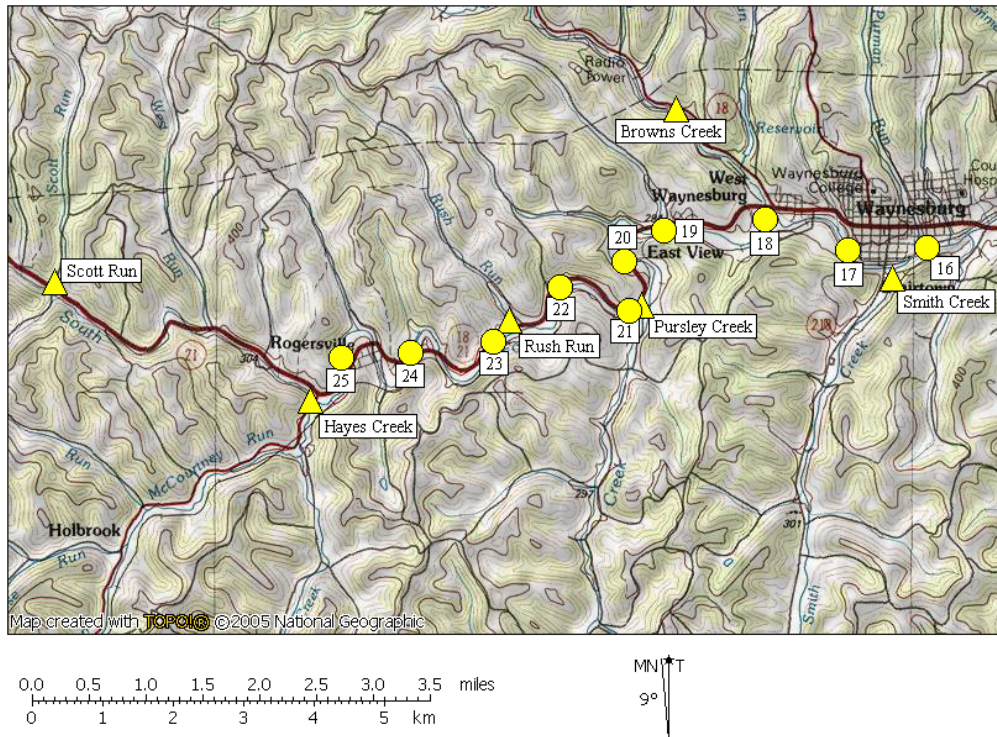
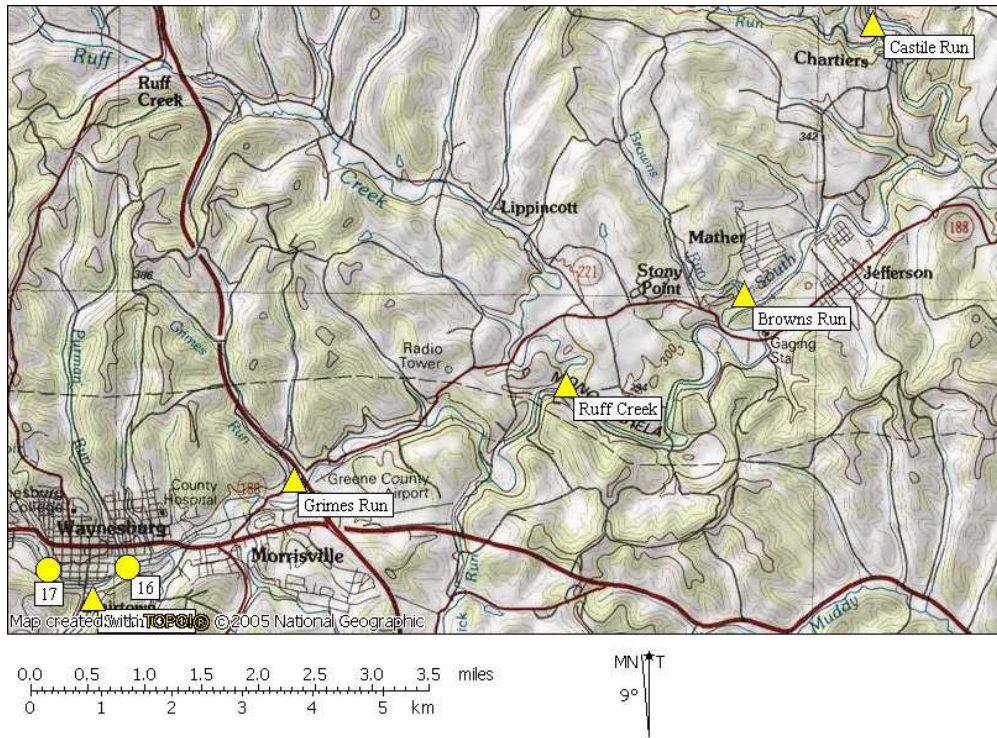


Figure 1 – Maps showing sampling locations on the South Fork of Tenmile Creek (circles) and selected tributaries (triangles).



Table 1 – Summary of sampling dates and station locations expressed in decimal degrees.

Station	Sample date	Mean stream width (m)	Mean area sampled (m <sup>2</sup> )	Latitude	Longitude
16	7/30/2008	14.1	2820	39.89322	-80.17841
17	7/30/2008	20.1	4020	39.89268	-80.19169
18	10/09/2008	15.4	3080	39.89693	-80.20554
19	10/09/2008	11.8	2360	39.89547	-80.22250
20	9/28/2008	15.4	3080	39.89141	-80.22911
21	7/17/2008	14.5	2900	39.88510	-80.22829
22	7/29/2008	11.1	2220	39.88823	-80.23985
23	7/29/2008	13.1	2620	39.88110	-80.25110
24	7/28/2008	17.2	3440	39.87973	-80.26482
25	7/28/2008	11.2	2240	39.87899	-80.27664
Castile Run	6/09/2008	5.8	1160	39.96335	-80.05336
Browns Run	6/09/2008	6.9	1380	39.92806	-80.07491
Ruff Creek	6/09/2008	9.7	1940	39.91644	-80.10472
Grimes Run	6/10/2008	3.2	640	39.90434	-80.15028
Smith Creek	6/10/2008	6.8	1360	39.88907	-80.18424
Browns Creek	7/17/2008	11.9	2380	39.89925	-80.20557
Pursley Creek	6/11/2008	9.1	1820	39.88572	-80.22607
Rush Run	6/11/2008	1.8	360	39.88382	-80.24843
Haynes Creek	6/11/2008	6.6	1320	39.87347	-80.28156
Scott Run	7/08/2008	2.5	500	39.88875	-80.32451

Table 2 – Summary of water quality parameters from stations on the South Fork of Tenmile Creek and selected tributaries.

Station	pH	Temperature (°C)	Conductivity (μS/cm)	Alkalinity (mg/l)
16	8.1	22	700	152
17	8	24	335	120
18	7.8	18	1100	168
19	7.9	18	450	126
20	7.9	20	420	142
21	8	21.5	265	110
22	8	21	305	120
23	8	21	290	120
24	8	22	335	112
25	8	20	270	110
Castile Run	8.6	15	600	220
Browns Run	8.4	18	340	140
Ruff Creek	8.5	24	350	146
Grimes Run	8.3	13	450	144
Smith Creek	8.1	21	1700	288
Browns Creek	7.9	21	270	102
Pursley Creek	7.8	18	305	120
Rush Run	8	22	370	114
Haynes Creek	7.6	22	200	178
Scott Run	7.5	16	125	50

Table 3 – Ichthyofauna of Tenmile Creek collected during Phase I and II sampling.

Common Name	Scientific Name	Phase I			Phase II	
		Mainstem	Mainstem	Tributaries	Mainstem	Tributaries
central stoneroller	<i>Campostoma anomalum</i>	X	X	X		
spotfin shiner	<i>Cyprinella spiloptera</i>	X	X	X		
common carp	<i>Cyprinus carpio</i>	X	X			
silverjaw minnow	<i>Ericymba buccata</i>		X		X	
common shiner	<i>Luxilus cornutus</i>	X	X			
river chub	<i>Nocomis micropogon</i>	X				
golden shiner	<i>Notemigonus crysoleucus</i>		X			
emerald shiner	<i>Notropis atherinoides</i>	X	X		X	
sand shiner	<i>Notropis ludibundus</i>	X	X		X	
rosyface shiner	<i>Notropis rubellus</i>	X	X		X	
mimic shiner	<i>Notropis volucellus</i>	X	X		X	
channel shiner	<i>Notropis wickliffi</i>	X	X		X	
bluntnose minnow	<i>Pimephales notatus</i>	X	X		X	
blacknose dace	<i>Rhinichthys atratulus</i>	X	X		X	
creek chub	<i>Semotilus atromaculatus</i>	X	X		X	
quillback	<i>Carpionodes cyprinus</i>	X				
white sucker	<i>Catostomus commersoni</i>	X	X		X	
northern hogsucker	<i>Hypentelium nigricans</i>	X	X		X	
silver redhorse	<i>Moxostoma anisurum</i>	X	X			
black redhorse	<i>Moxostoma duquesnei</i>	X	X		X	
golden redhorse	<i>Moxostoma erythrurum</i>	X	X		X	
shorthead redhorse	<i>Moxostoma macrolepidotum</i>	X				
yellow bullhead	<i>Ictalurus natalis</i>	X	X		X	
channel catfish	<i>Ictalurus punctatus</i>	X				
stonecat	<i>Noturus flavus</i>	X				
brown trout	<i>Salmo trutta</i>					X
rainbow trout	<i>Oncorhynchus mykiss</i>					X
hybrid striped bass	<i>Morone hybrid</i>	X				
rock bass	<i>Ambloplites rupestris</i>	X	X		X	
green sunfish	<i>Lepomis cyanellus</i>	X	X		X	
pumpkinseed	<i>Lepomis gibbosus</i>	X	X		X	
bluegill	<i>Lepomis macrochirus</i>	X	X		X	
sunfish hybrid	<i>Lepomis hybrid</i>	X	X		X	
smallmouth bass	<i>Micropterus dolomieu</i>	X	X		X	
largemouth bass	<i>Micropterus salmoides</i>	X	X		X	
black crappie	<i>Pomoxis nigromaculatus</i>					X

Continued.

Table 3 – Continued.

Common Name	Scientific Name	Phase I	Phase II	
		Mainstem	Mainstem	Tributaries
greenside darter	<i>Etheostoma blennioides</i>	X	X	X
rainbow darter	<i>Etheostoma caeruleum</i>	X	X	X
fantail darter	<i>Etheostoma flabellare</i>	X	X	X
johnny darter	<i>Etheostoma nigrum</i>		X	X
logperch	<i>Percina caprodes</i>	X	X	X
blackside darter	<i>Percina maculata</i>		X	X
sauger	<i>Sander canadensis</i>	X	X	
saugeye	<i>Sander hybrid</i>	X	X	
walleye	<i>Sander vitreum</i>	X		
freshwater drum	<i>Aplodinotus grunniens</i>	X	X	

## **Discussion and Management Recommendations**

The majority of our mainstem stations (18 to 25) and their tributaries were located in reaches designated as HQ-WWF by the Pennsylvania Department of Environmental Protection (Pennsylvania Code 2001), and their faunal assemblages are typical of warmwater streams in southwestern Pennsylvania (Argent et al. 2007). Angling opportunities exist for smallmouth bass (*Micropterus dolomieu*) and panfish (*Lepomis* sp.), but are hampered by limited public access. Browns Creek exhibits a diverse ichthyofauna approaching that of the South Fork and may be considered a refuge of biodiversity among tributaries of the South Fork. Connectivity with the mainstem and attendant fish passage through Browns Creek may be interrupted at low flows by an elevated road bed which crosses the stream approximately 1 km above its mouth.

Water quality is threatened by treated and untreated discharges from coal and natural gas extraction, treated and untreated sewage, and agricultural runoff. Station 18 on the South Fork mainstem and Smith Creek exhibit impaired water quality due to elevated specific conductance. Such readings indicate high values of total dissolved solids, in these cases exceeding the recommended maximum for healthy fish populations (Black 1977). Elevated specific conductance values detrimental to fish communities were also documented among downstream stations in the initial phase of this project (Argent and Kimmel 2008). Preservation and enhancement of water quality in the Tenmile Creek watershed, upon which its diverse ichthyofauna depend, will require regular monitoring and strict enforcement of existing regulations.

## Literature Cited

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Appendix A – Ichthyofauna of sampled stations on the South Fork of Tenmile Creek and selected tributaries. Station numbers correspond to sites shown in Fig. 1.

Family	Common Name	Scientific Name	Station					
			16	17	18	19	20	21
Cyprinidae	central stoneroller	<i>Campostoma anomalum</i>	0	38	4	88	34	129
	spotfin shiner	<i>Cyprinella spiloptera</i>	21	9	0	1	4	6
	common carp	<i>Cyprinus carpio</i>	8	6	0	0	1	0
	silverjaw minnow	<i>Ericymba buccata</i>	2	0	0	8	14	167
	common shiner	<i>Luxilus cornutus</i>	4	4	1	28	63	61
	golden shiner	<i>Notemigonus crysoleucus</i>	0	0	0	0	0	0
	emerald shiner	<i>Notropis atherinoides</i>	0	0	0	0	0	2
	sand shiner	<i>Notropis ludibundus</i>	0	13	1	18	10	83
	rosyface shiner	<i>Notropis rubellus</i>	3	11	0	19	7	22
	mimic shiner	<i>Notropis volucellus</i>	47	6	2	4	0	0
	channel shiner	<i>Notropis wickliffi</i>	6	4	0	0	3	1
	bluntnose minnow	<i>Pimephales notatus</i>	42	82	87	69	96	514
	blacknose dace	<i>Rhinichthys atratulus</i>	0	0	0	1	0	0
	creek chub	<i>Semotilus atromaculatus</i>	6	2	1	48	44	69
Catostomidae	white sucker	<i>Catostomus commersoni</i>	20	15	4	36	68	97
	northern hogsucker	<i>Hypentelium nigricans</i>	42	52	8	53	71	122
	silver redhorse	<i>Moxostoma anisurum</i>	3	37	1	0	0	0
	black redhorse	<i>Moxostoma duquesnei</i>	0	6	1	2	9	7
	golden redhorse	<i>Moxostoma erythrurum</i>	46	112	16	9	12	23
Ictaluridae	yellow bullhead	<i>Ictalurus natalis</i>	0	0	1	2	0	0
Salmonidae	brown trout	<i>Salmo trutta</i>	0	0	0	0	0	0
	rainbow trout	<i>Oncorhynchus mykiss</i>	0	0	0	0	0	0
Centrarchidae	rock bass	<i>Ambloplites rupestris</i>	7	2	3	7	4	10
	green sunfish	<i>Lepomis cyanellus</i>	7	0	7	2	2	8
	pumpkinseed	<i>Lepomis gibbosus</i>	2	7	1	0	2	1
	bluegill	<i>Lepomis macrochirus</i>	4	4	17	2	9	2
	sunfish hybrid	<i>Lepomis hybrid</i>	1	0	3	0	3	1
	smallmouth bass	<i>Micropterus dolomieu</i>	13	9	6	9	7	21
	largemouth bass	<i>Micropterus salmoides</i>	2	1	3	1	4	0
	black crappie	<i>Pomoxis nigromaculatus</i>	0	0	0	0	0	0
Percidae	greenside darter	<i>Etheostoma blennioides</i>	6	57	13	25	7	94
	rainbow darter	<i>Etheostoma caeruleum</i>	7	17	1	18	4	88
	fantail darter	<i>Etheostoma flabellare</i>	0	0	2	10	2	27
	johnny darter	<i>Etheostoma nigrum</i>	1	16	0	37	34	16
	logperch	<i>Percina caprodes</i>	4	19	6	12	11	40
	blackside darter	<i>Percina maculata</i>	0	2	1	10	9	40
	sauger	<i>Sander canadensis</i>	5	0	0	0	0	0
	saugeye	<i>Sander hybrid</i>	2	3	0	0	0	0
Scianidae	freshwater drum	<i>Aplodinotus grunniens</i>	1	0	5	0	0	0
TOTAL			312	534	195	519	534	1651

Appendix A – Continued.

Family	Common Name	Scientific Name	Station					
			22	23	24	25	Ruff Crk	Browns Run
Cyprinidae	central stoneroller	<i>Campostoma anomalum</i>	122	26	120	3	3	4
	spotfin shiner	<i>Cyprinella spiloptera</i>	4	16	28	0	0	0
	common carp	<i>Cyprinus carpio</i>	0	0	0	2	0	0
	silverjaw minnow	<i>Ericymba buccata</i>	50	35	27	0	0	0
	common shiner	<i>Luxilus cornutus</i>	156	192	114	57	1	0
	golden shiner	<i>Notemigonus crysoleucus</i>	0	0	1	0	0	0
	emerald shiner	<i>Notropis atherinoides</i>	1	1	0	0	0	0
	sand shiner	<i>Notropis ludibundus</i>	92	25	176	2	16	0
	rosyface shiner	<i>Notropis rubellus</i>	54	52	13	0	32	0
	mimic shiner	<i>Notropis volucellus</i>	10	19	12	1	0	0
	channel shiner	<i>Notropis wickliffi</i>	7	1	21	1	0	0
	bluntnose minnow	<i>Pimephales notatus</i>	112	134	506	142	14	0
	blacknose dace	<i>Rhinichthys atratulus</i>	0	0	0	0	0	54
creek chub	<i>Semotilus atromaculatus</i>	45	52	0	4	0	43	
Catostomidae	white sucker	<i>Catostomus commersoni</i>	53	244	90	68	0	6
	northern hogsucker	<i>Hypentelium nigricans</i>	101	125	152	6	7	0
	silver redhorse	<i>Moxostoma anisurum</i>	0	1	0	0	0	0
	black redhorse	<i>Moxostoma duquesnei</i>	0	1	1	3	0	0
	golden redhorse	<i>Moxostoma erythrurum</i>	14	120	15	41	0	0
Ictaluridae	yellow bullhead	<i>Ictalurus natalis</i>	0	0	0	0	2	0
Salmonidae	brown trout	<i>Salmo trutta</i>	0	0	0	0	0	0
	rainbow trout	<i>Oncorhynchus mykiss</i>	0	0	0	0	0	0
Centrarchidae	rock bass	<i>Ambloplites rupestris</i>	25	15	4	4	12	0
	green sunfish	<i>Lepomis cyanellus</i>	5	17	40	15	1	0
	pumpkinseed	<i>Lepomis gibbosus</i>	4	7	8	3	0	0
	bluegill	<i>Lepomis macrochirus</i>	0	4	23	2	2	1
	sunfish hybrid	<i>Lepomis hybrid</i>	0	1	3	2	1	0
	smallmouth bass	<i>Micropterus dolomieu</i>	21	17	8	22	5	0
	largemouth bass	<i>Micropterus salmoides</i>	0	1	3	1	0	0
	black crappie	<i>Pomoxis nigromaculatus</i>	0	0	0	0	1	0
	Percidae	greenside darter	<i>Etheostoma blennioides</i>	59	16	43	9	25
rainbow darter		<i>Etheostoma caeruleum</i>	28	6	44	8	23	0
fantail darter		<i>Etheostoma flabellare</i>	22	7	24	1	2	9
johnny darter		<i>Etheostoma nigrum</i>	10	14	17	5	0	0
logperch		<i>Percina caprodes</i>	34	16	16	0	1	0
blackside darter		<i>Percina maculata</i>	23	55	31	0	0	0
sauger		<i>Sander canadensis</i>	0	0	0	3	0	0
saugeye		<i>Sander hybrid</i>	0	0	0	0	0	0
Scianidae		freshwater drum	<i>Aplodinotus grunniens</i>	0	0	0	0	0
TOTAL			1052	1220	1540	405	148	117



Appendix A – Continued.

Family	Common Name	Scientific Name	Station			
			Castile Run	Haynes Run	Rush Run	Scotts Run
Cyprinidae	central stoneroller	<i>Campostoma anomalum</i>	80	0	78	0
	spotfin shiner	<i>Cyprinella spiloptera</i>	0	0	0	0
	common carp	<i>Cyprinus carpio</i>	0	0	0	0
	silverjaw minnow	<i>Ericymba buccata</i>	0	10	0	0
	common shiner	<i>Luxilus cornutus</i>	12	21	9	0
	golden shiner	<i>Notemigonus crysoleucus</i>	0	0	0	0
	emerald shiner	<i>Notropis atherinoides</i>	0	0	0	0
	sand shiner	<i>Notropis ludibundus</i>	0	40	0	0
	rosyface shiner	<i>Notropis rubellus</i>	0	0	16	0
	mimic shiner	<i>Notropis volucellus</i>	0	1	0	0
	channel shiner	<i>Notropis wickliffi</i>	0	1	0	0
	bluntnose minnow	<i>Pimephales notatus</i>	6	35	11	0
	blacknose dace	<i>Rhinichthys atratulus</i>	3	0	0	20
creek chub	<i>Semotilus atromaculatus</i>	10	8	79	52	
Catostomidae	white sucker	<i>Catostomus commersoni</i>	6	18	11	7
	northern hogsucker	<i>Hypentelium nigricans</i>	8	9	0	0
	silver redhorse	<i>Moxostoma anisurum</i>	0	0	0	0
	black redhorse	<i>Moxostoma duquesnei</i>	0	3	0	0
	golden redhorse	<i>Moxostoma erythrurum</i>	0	2	0	0
Ictaluridae	yellow bullhead	<i>Ictalurus natalis</i>	0	2	0	0
Salmonidae	brown trout	<i>Salmo trutta</i>	0	0	0	0
	rainbow trout	<i>Oncorhynchus mykiss</i>	0	0	0	0
Centrarchidae	rock bass	<i>Ambloplites rupestris</i>	7	10	0	0
	green sunfish	<i>Lepomis cyanellus</i>	2	9	0	0
	pumpkinseed	<i>Lepomis gibbosus</i>	1	1	0	0
	bluegill	<i>Lepomis macrochirus</i>	11	4	0	0
	sunfish hybrid	<i>Lepomis hybrid</i>	1	0	0	0
	smallmouth bass	<i>Micropterus dolomieu</i>	8	6	0	0
	largemouth bass	<i>Micropterus salmoides</i>	0	0	0	0
	black crappie	<i>Pomoxis nigromaculatus</i>	0	0	0	0
Percidae	greenside darter	<i>Etheostoma blennioides</i>	4	12	0	0
	rainbow darter	<i>Etheostoma caeruleum</i>	129	6	6	0
	fantail darter	<i>Etheostoma flabellare</i>	5	2	12	0
	johnny darter	<i>Etheostoma nigrum</i>	0	5	0	0
	logperch	<i>Percina caprodes</i>	0	1	0	0
	blackside darter	<i>Percina maculata</i>	0	0	0	0
	sauger	<i>Sander canadensis</i>	0	0	0	0
	saugeye	<i>Sander hybrid</i>	0	0	0	0
Scianidae	freshwater drum	<i>Aplodinotus grunniens</i>	0	0	0	0
TOTAL			293	206	222	79

Appendix A – Continued.

Family	Common Name	Scientific Name	Station				TOTAL
			Smith Crk	Pursley Run	Browns Crk	Grimes Run	
Cyprinidae	central stoneroller	<i>Camptostoma anomalum</i>	52	78	2	134	995
	spotfin shiner	<i>Cyprinella spiloptera</i>	1	0	1	0	91
	common carp	<i>Cyprinus carpio</i>	0	0	0	0	17
	silverjaw minnow	<i>Ericymba buccata</i>	0	3	0	0	316
	common shiner	<i>Luxilus cornutus</i>	11	8	58	7	807
	golden shiner	<i>Notemigonus crysoleucus</i>	0	0	0	0	1
	emerald shiner	<i>Notropis atherinoides</i>	0	10	0	0	14
	sand shiner	<i>Notropis ludibundus</i>	17	26	2	0	521
	rosyface shiner	<i>Notropis rubellus</i>	98	58	0	1	386
	mimic shiner	<i>Notropis volucellus</i>	0	4	7	0	113
	channel shiner	<i>Notropis wickliffi</i>	0	3	4	0	52
	bluntnose minnow	<i>Pimephales notatus</i>	10	48	95	25	2028
	blacknose dace	<i>Rhinichthys atratulus</i>	0	0	0	3	81
	creek chub	<i>Semotilus atromaculatus</i>	16	38	12	116	645
Catostomidae	white sucker	<i>Catostomus commersoni</i>	9	6	64	60	882
	northern hogsucker	<i>Hypentelium nigricans</i>	7	2	17	0	782
	silver redhorse	<i>Moxostoma anisurum</i>	0	0	0	0	42
	black redhorse	<i>Moxostoma duquesnei</i>	0	0	17	0	50
	golden redhorse	<i>Moxostoma erythrurum</i>	0	0	38	0	448
Ictaluridae	yellow bullhead	<i>Ictalurus natalis</i>	3	0	0	0	10
Salmonidae	brown trout	<i>Salmo trutta</i>	0	0	17	0	17
	rainbow trout	<i>Oncorhynchus mykiss</i>	0	0	2	0	2
Centrarchidae	rock bass	<i>Ambloplites rupestris</i>	5	0	5	1	121
	green sunfish	<i>Lepomis cyanellus</i>	0	0	14	0	129
	pumpkinseed	<i>Lepomis gibbosus</i>	0	0	3	0	40
	bluegill	<i>Lepomis macrochirus</i>	2	0	1	0	88
	sunfish hybrid	<i>Lepomis hybrid</i>	0	0	3	1	20
	smallmouth bass	<i>Micropterus dolomieu</i>	4	0	24	0	180
	largemouth bass	<i>Micropterus salmoides</i>	0	0	2	0	18
	black crappie	<i>Pomoxis nigromaculatus</i>	0	0	0	0	1
Percidae	greenside darter	<i>Etheostoma blennioides</i>	32	40	5	3	450
	rainbow darter	<i>Etheostoma caeruleum</i>	69	84	2	45	585
	fantail darter	<i>Etheostoma flabellare</i>	12	35	4	0	176
	johnny darter	<i>Etheostoma nigrum</i>	0	4	14	20	193
	logperch	<i>Percina caprodes</i>	0	0	10	0	170
	blackside darter	<i>Percina maculata</i>	0	0	6	0	177
	sauger	<i>Sander canadensis</i>	0	0	0	0	8
	saugeye	<i>Sander hybrid</i>	0	0	0	0	5
Scianidae	freshwater drum	<i>Aplodinotus grunniens</i>	0	0	0	0	6
TOTAL			348	447	429	416	10667