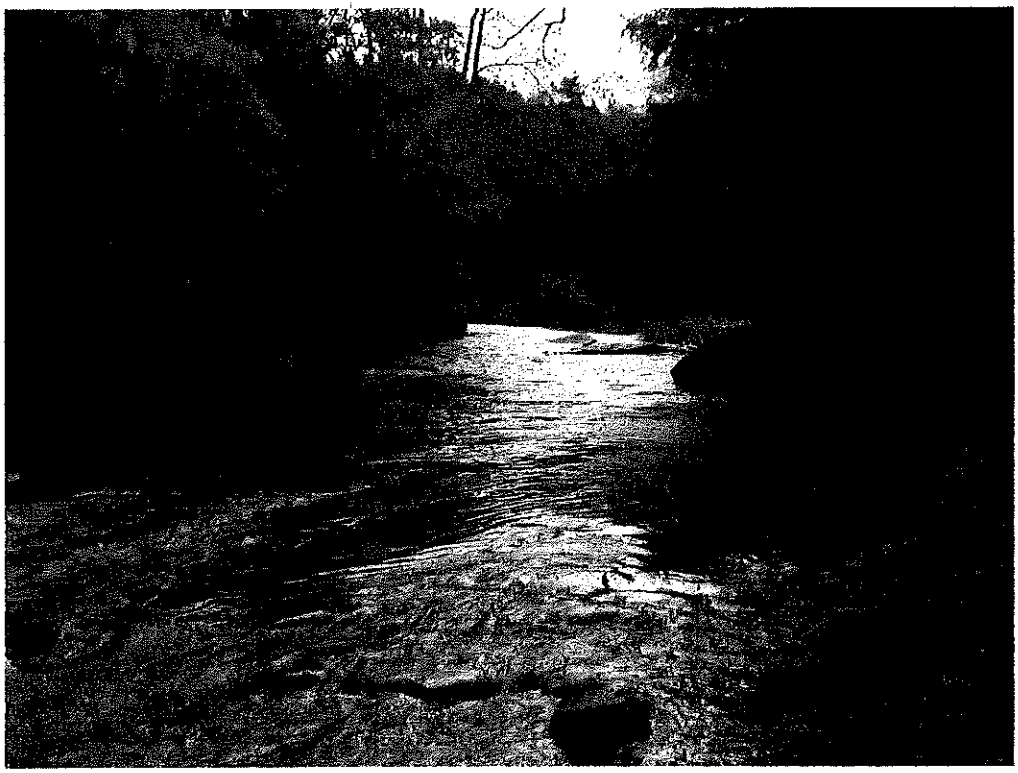
Pine Creek Restoration Plan

Boggs, Cowanshannock, Pine, Rayburn, Valley and Wayne Townships, Armstrong County



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For:
Pennsylvania Department of Environmental Protection
Growing Greener Grant Program

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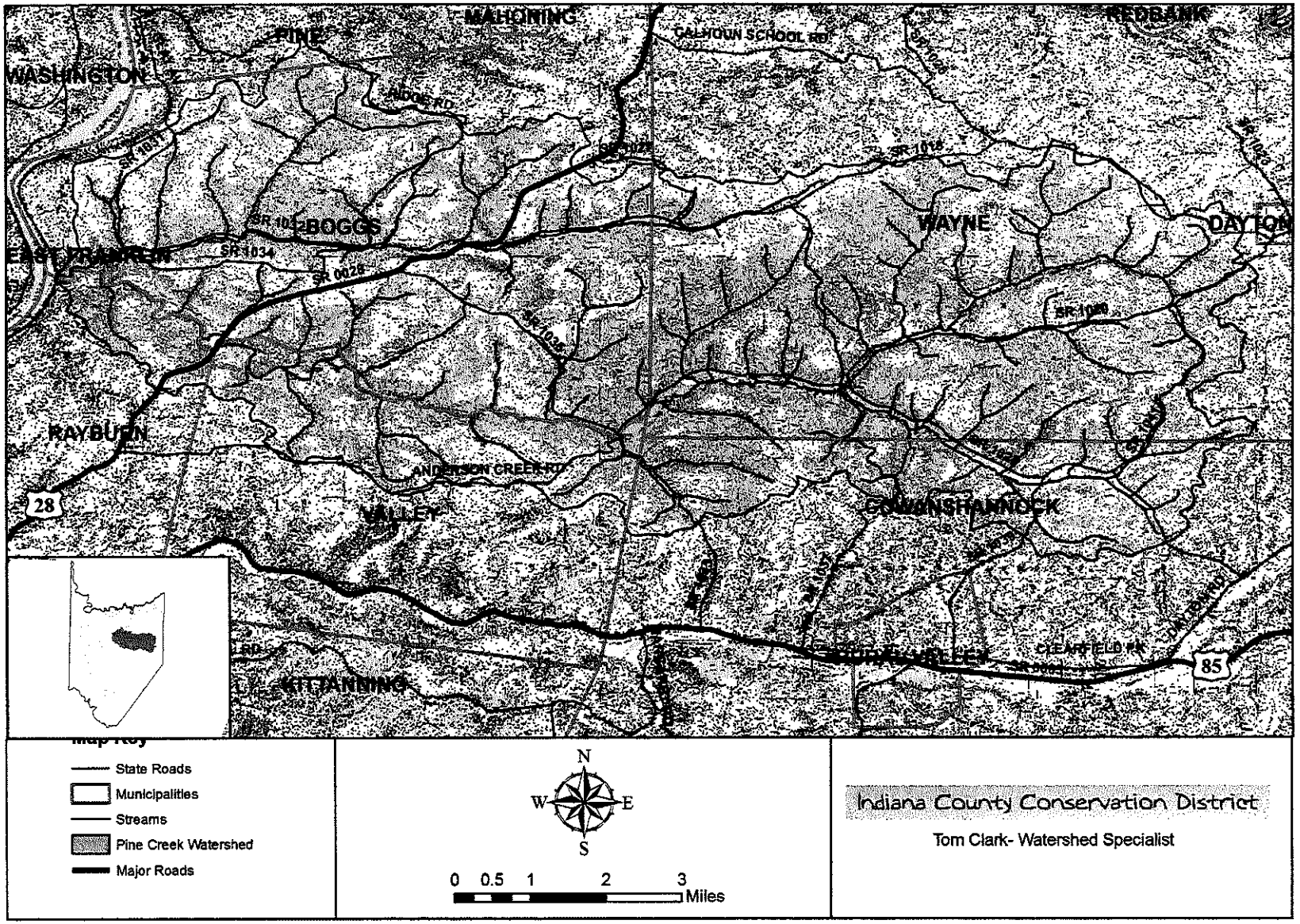

Figure 1. Location of the Pine Creek Watershed in Armstrong County, Pennsylvania

Introduction

The Pine Creek Watershed (State Water Plan 17E), an approximately 51.5 square mile sub watershed of the Allegheny River located in Armstrong County, is listed as a High-Quality Cold Water Fishery (HQ-CWF) by the Pennsylvania Department of Environmental Protection (PA DEP) (Figure 1). It is the only watershed in Armstrong County to have a HQ-CWF designation. However, it is still not without impairments, particularly thermal pollution and sedimentation which is limiting the cold water characteristics of a stream with amazing potential.

Consequently in 2003, because all other Armstrong County watersheds were either assessed, were in the process of being assessed, or funding had been attained to assess in the future, the Armstrong Conservation District submitted a grant proposal to the PA DEP Growing Greener Grants Program to assess the Pine Creek Watershed (Table 1). The grant proposal was funded for $30,105 in September 2003. Field work was completed between June 2004 and October 2006 with the Pine Creek Restoration Plan being finalized in December, 2006.

Table 1. The watersheds of Armstrong County with the year assessments were funded and completed.

Watershed	Assessment Type	Year Funded	Year Completed
Mahoning Creek	NPS	1999C	2002
Redbank Creek	NPS	1999C	2002
Cowanshannock Creek	Fluvial Geomorphology	1999C	2002
Kiskiminetas River	NPS	2000C	2003
Pine Run	NPS	2000C	2003
Cowanshannock Creek	River Conservation Plan	2001	2003
Crooked Creek	NPS	2002A	2006
Western Allegheny	NPS	2002A	2006
Pine Creek	NPS	2003	2006

Watershed Characteristics

Size and Location

The Pine Creek Watershed, located in State Water Plan (SWP) 17E, is an approximately 51.5 square mile drainage (comprised of approximately just over 120 stream miles) of the

Allegheny River in Armstrong County, Pennsylvania (Figure 1). The headwaters of Pine Creek begin west of the town of Dayton, Armstrong County. The South Branch and North Branch of the South Fork of Pine Creek confluence in the town of Echo, Armstrong County. The South Fork of Pine Creek then flows generally westward until its confluence with the North Fork of Pine Creek in the town of Mosgrove, Armstrong County. Pine Creek then flows only 0.7 miles before it enters the Allegheny River.

The watershed can be easily divided into five sub basins, or for this plan, Watershed Management Units. From east to west, the North Branch of the South Fork of Pine Creek (NBSF), the South Branch of the South Fork of Pine Creek (SBSF), the South Fork of Pine Creek (SFPC), the North Fork of Pine Creek (NFPC) and Pine Creek (PC) proper (Figure 2). Statistics for each of these Watershed Management Units can be found in Table 2 below.

Table 2. Key statistics of each Pine Creek Watershed Management Unit.

Management Unit	Square Miles	Stream Miles	Stream Slope
North Branch of the South Fork of Pine Creek	11.0	25.0	1.12%
South Branch of the South Fork of Pine Creek	7.5	20.0	1.06%
South Fork of Pine Creek	19.7	45.3	0.47%
North Fork of Pine Creek	13.0	29.0	1.67%
Pine Creek	0.4	0.7	1.40%
Total	**51.5**	**120**	**1.14% Average**

The Pine Creek Watershed is found within the Pittsburgh Low Plateau Physiographic Unit (Figure 3). The Pittsburgh Low Plateau Unit is described as having a smooth to irregular, undulating surface; with narrow relatively shallow valleys; strip mines and reclaimed land. The underlying rock types are mainly composed of shale, siltstone, sandstone, limestone and coal. The geologic structure is described as having moderate to low amplitude open folds decreasing in occurrence northwestward. Elevations range from just over 1600 ft at the headwaters of the North Fork of Pine Creek to around 800 ft at Pine Creek's confluence with the Allegheny River. The average slope, as seen in Table 2, is approximately 1.14%.

Pine Creek Watershed Sub Watersheds

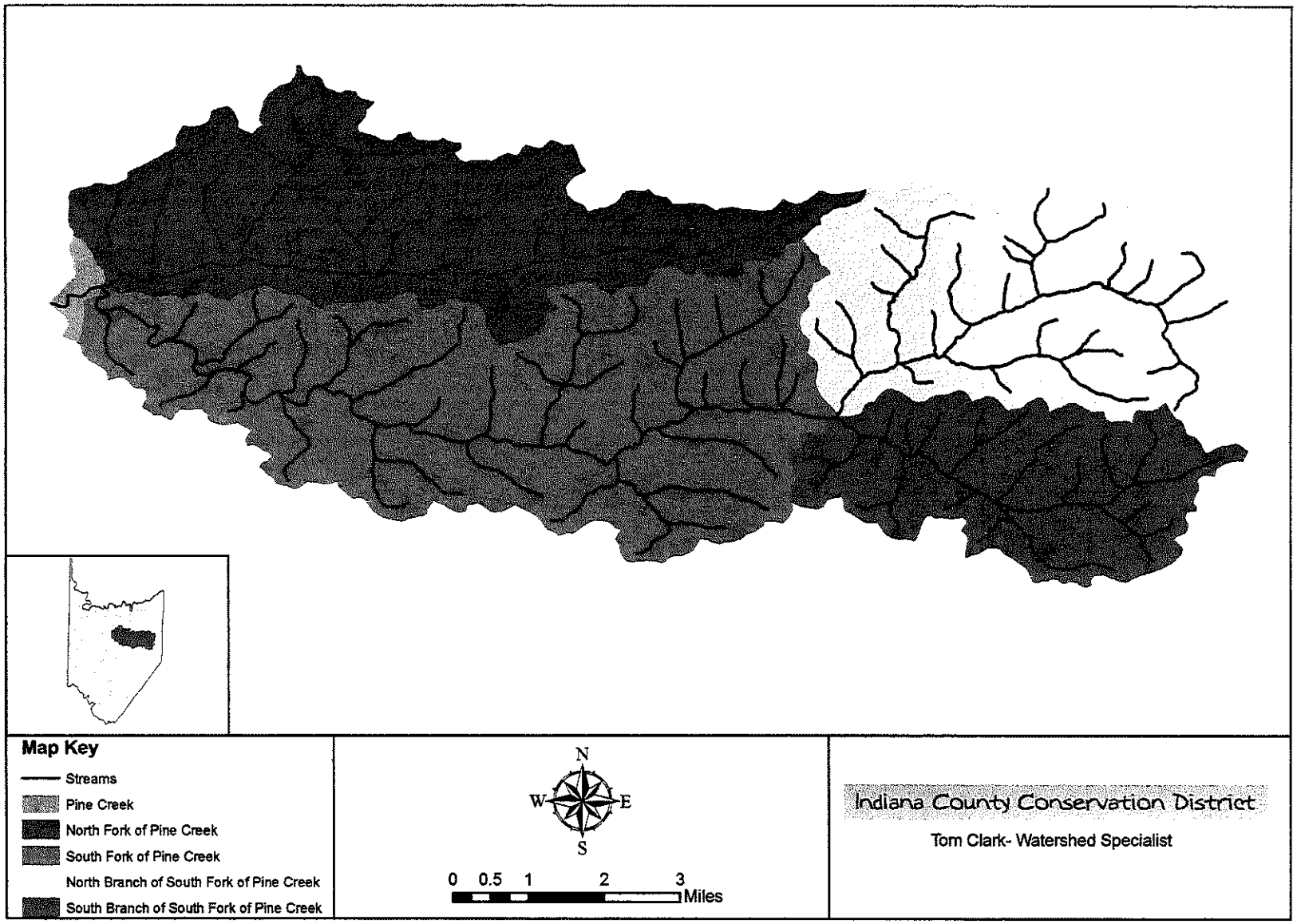

Figure 2. Location of the five Pine Creek Watershed Management Units.

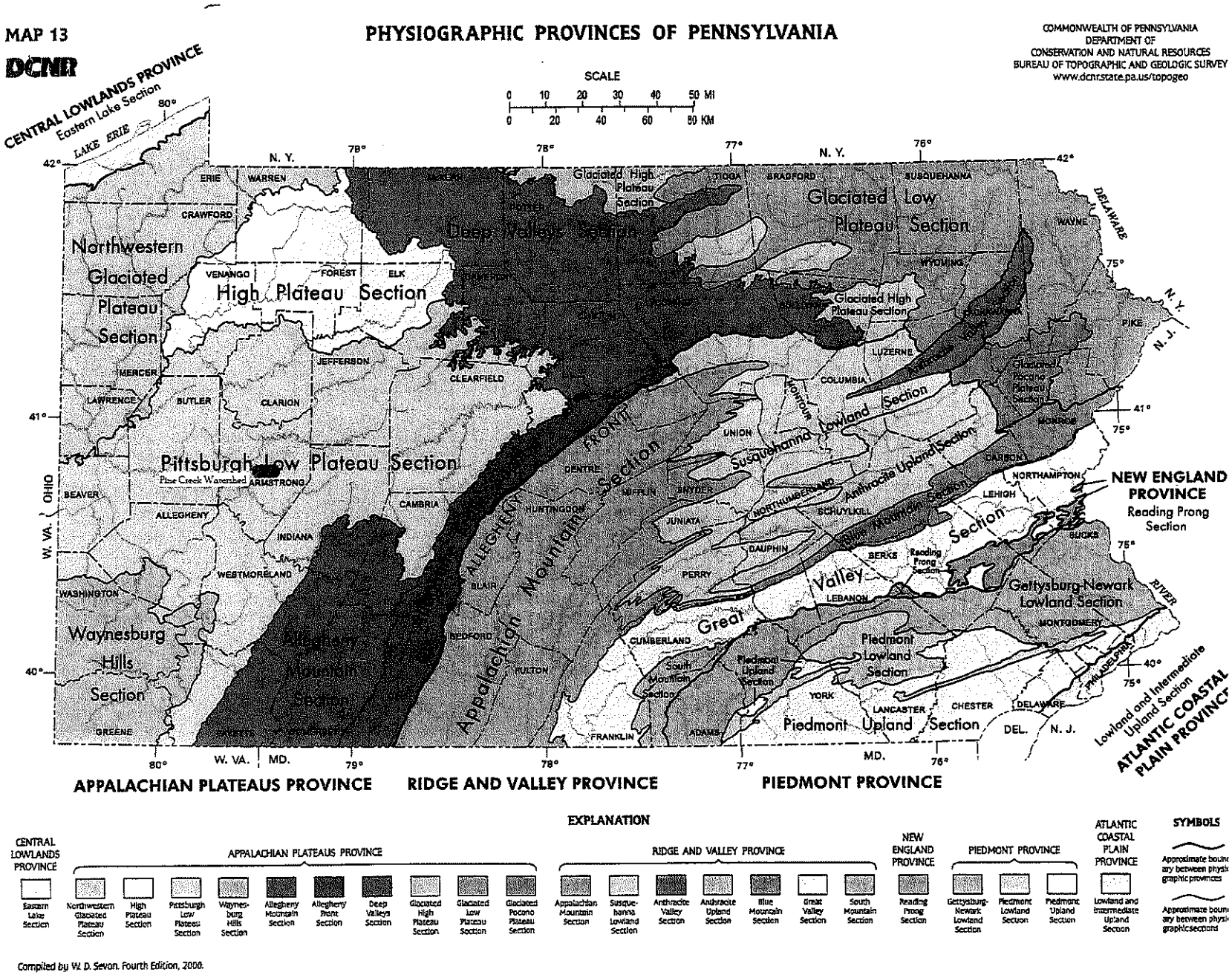

Figure 3. A map of the Physiographic Providences of Pennsylvania. The Pine Creek Watershed is outlined in blue.

Geology

A vast majority of the watershed lies within either the Allegheny Group (44%) or Glenshaw (53%) Formation (Figure 4). The Allegheny Group, generally found on the watershed valleys, is composed of the Freeport, Kittanning and Clarion Formations. The group consists of sandstones, shale and discontinuous limestone and coal beds. The Allegheny Group is the major coal bearing unit in the Pine Creek Watershed containing the sometimes thick Upper and Lower Freeport and the Upper and Lower Kittanning seams. The Glenshaw Formation, general found on the watershed slopes, is a part of the Conemaugh Group which consists primarily of sandstone and shale and lesser amounts of limestone and coal. The Glenshaw Formation contains limited mine-able seams of coal.

There are also three small slivers of the Pottsville Group (3%) along the South Fork and North Forks of Pine Creek and along UNT 47222 in the NBSF Watershed Management Unit. The Pottsville Group is composed of the Homewood, Mercer and Connoquenessing Formations and consists predominantly of sandstone, conglomerate and thin beds of shale and coal. The Pottsville Group does contain the Brookville and Mercer coal seams. No information could be found to document whether these seams can be or have been economically mined in the Pine Creek Watershed.

In addition, the Casselman Formation (0.1%) is found in a very small section of the NBSF Watershed Management Unit. The Casselman Formation is found in the Conemaugh Group with the Glenshaw Formation and rarely has coals of any thickness for economical removal.

Soils

The Pine Creek Watershed is composed of four different soil associations (Figure 5). The largest of these associations, covering 53% of the watershed, is the Weikert-Gilpin. The Weikert-

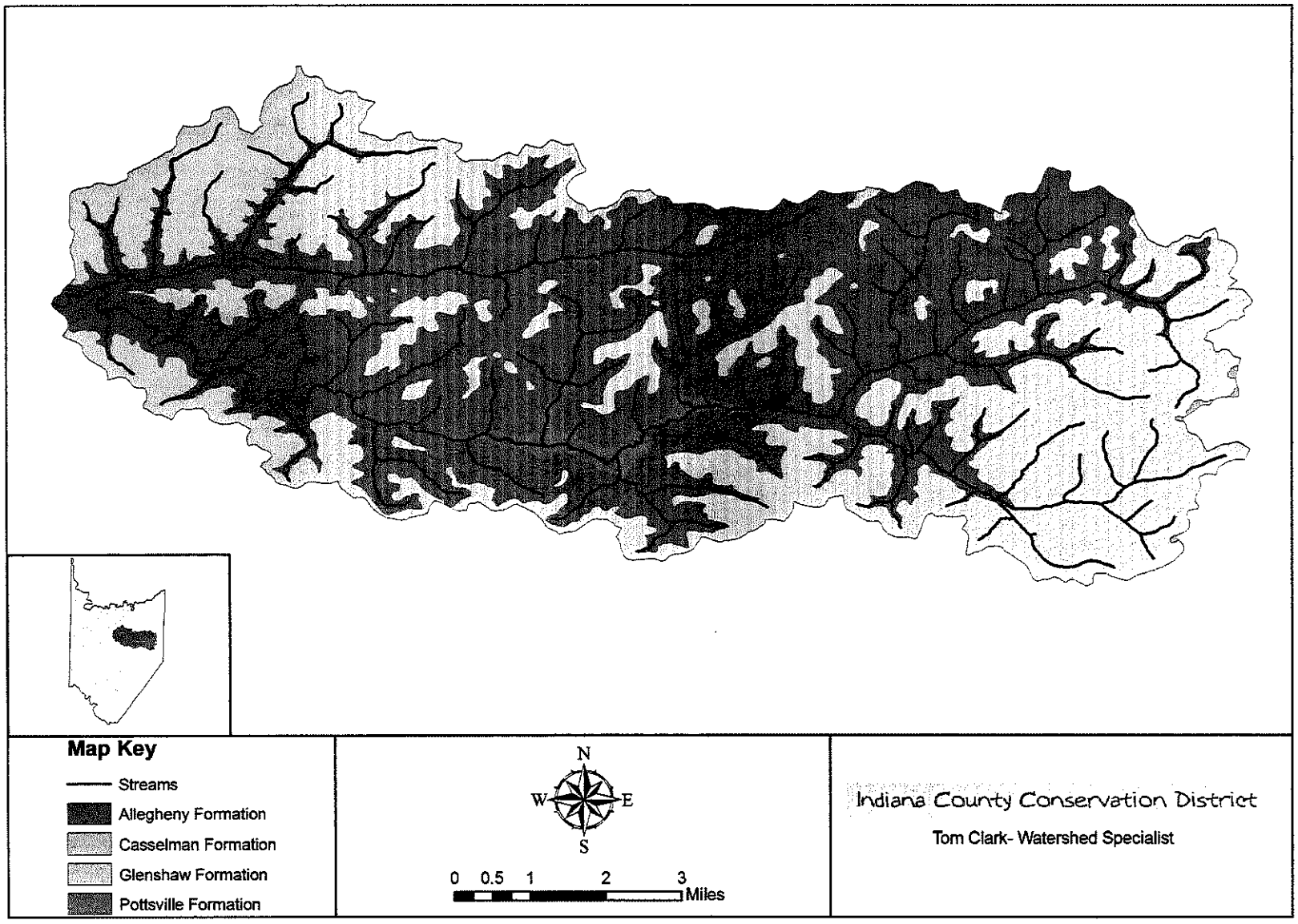

Figure 4. A map of the geological formations found within the Pine Creek Watershed.

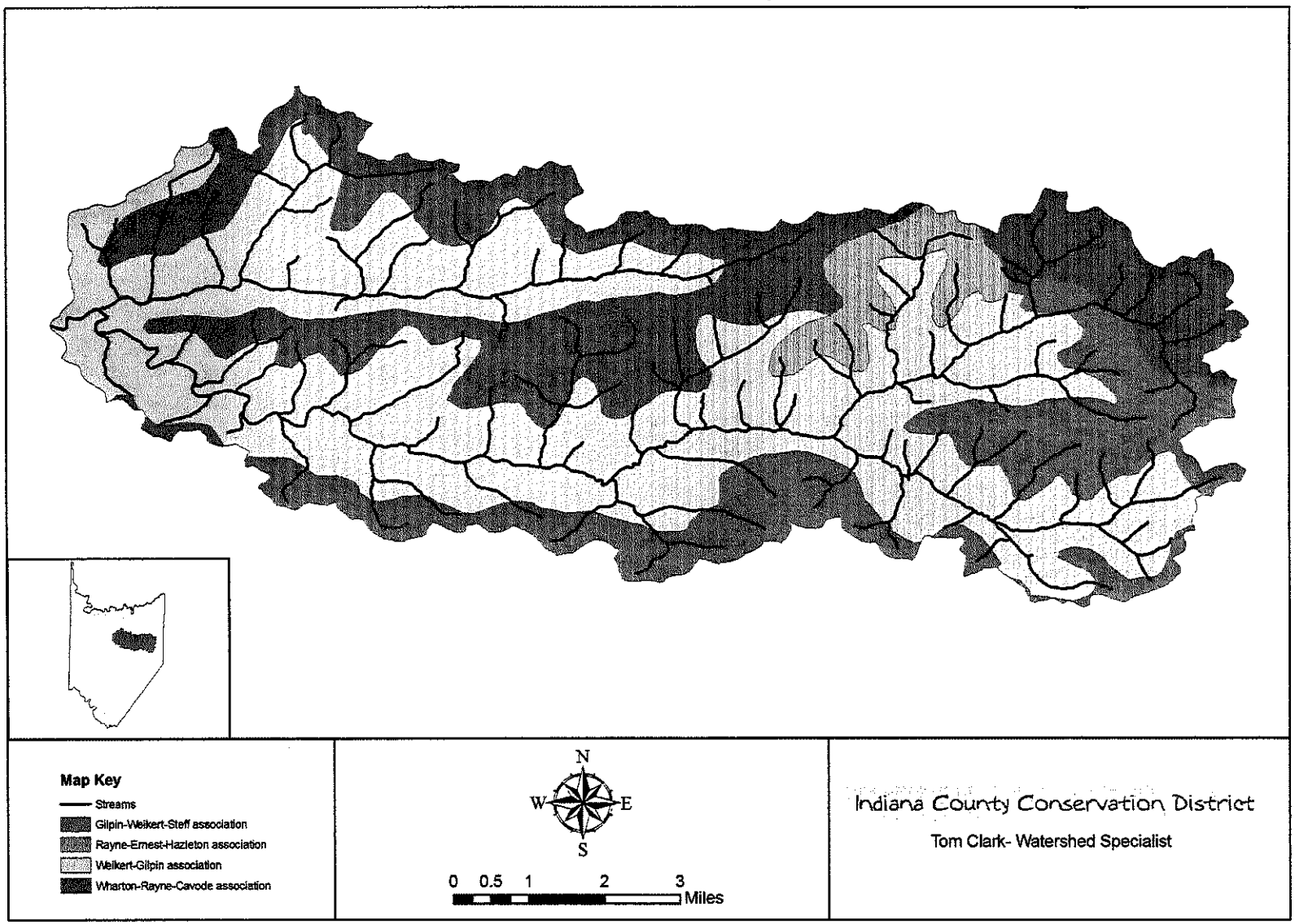

Figure 5. A map of the soil associations found within the Pine Creek Watershed.

Gilpin is well drained, shallow and moderately deep, steep and very steep soils on uplands. It consists of long, narrow, steep, dissected areas adjacent to rivers, creeks and streams. The soils formed in material weathered from interbedded shale, siltstone and sandstone. Among the minor soils are Hazleton and Earnest soils on uplands and Pope and Melvin soils on floodplains. Steep slopes severely limit the use of the soils of this association. Much of the Weikert-Gilpin is wooded and areas that were cleared are now reverting to natural vegetation. Much of the Weikert-Gilpin has also been surface mined for coal.

The next most prominent association is the Wharton-Rayne-Cavode comprising 29% of the Pine Creek Watershed. It is well drained to somewhat poorly drained, deep, nearly level to moderately steep soils on ridges, benches and hillsides. The Wharton-Rayne-Cavode consists of uplands that are dissected by small streams and drainage ways. The soils formed in material weathered from interbedded clay, shale, siltstone and sandstone. Among the minor soils are Gilpin, Weikert, Ernest, Upshur and Vandergrift. The more gentle slopes in this association make farming with modern machinery less difficult than in some other association. Many areas need artificial drainage; if they are drained, they are suited to general field crops. In many places slow permeability and a seasonal high water table are limitations for on-lot sewage disposal.

The next most prominent association is the Gilpin-Weikert-Steff comprising 13% of the Pine Creek Watershed. The Gilpin and Weikert associations have already been described above. The Steff series consists of deep, moderately well drained, nearly level soils on flood plains. These soils formed from alluvium that derived from shale, siltstone and sandstone. If these soils are adequately drained, they are suited to most of the crops grown in the county. Most areas of these soils have been cleared and are used for crops, hay, pasture, urban development and

recreation, but a few areas are idle. The seasonal water table and flooding are limitations to many uses.

The least prominent association is the Rayne-Ernest-Hazleton comprising 5% of the Pine Creek Watershed. It is well drained and moderately well drained, deep, gently sloping to moderately steep soils in low lying areas on ridge tops and on hillsides. The Rayne-Ernest-Hazleton consists of narrow ridge tops and knolls and some low lying depressions and toe slopes. Most of the soils formed in material weathered from shale, but some formed in colluvium at the base of slopes and some soils on ridges formed in material weathered from sandstone. Many streams and drainage ways dissect this association. Minor soils are Covode, Gilpin, Melvin, Weikert and Wharton. Some productive farms are on this association and many of the soils have only moderate limitations for urban development.

Land Use

As you can see from Figure 6, most of the land use in the Bear Run watershed is classified as mixed, coniferous, deciduous or transitional forest (58.2% or 29.97 square miles). Farmland, consisting of row crops or pasture land is second (38.3% or 19.72 square miles). Development consisting of low impact development, quarries and coal mines only constitute 3.1% or 1.60 square miles.

Upon further examination of the land use map, several large expanses of what are identified as row crops are actually reclaimed surface mines. This realization actually lessens the farmland usage to approximately 30% and increases development to about 11%. Additionally, some of the land use identified as "Quarries" are actually coal mines.

Pine Creek Watershed
Land Use Map

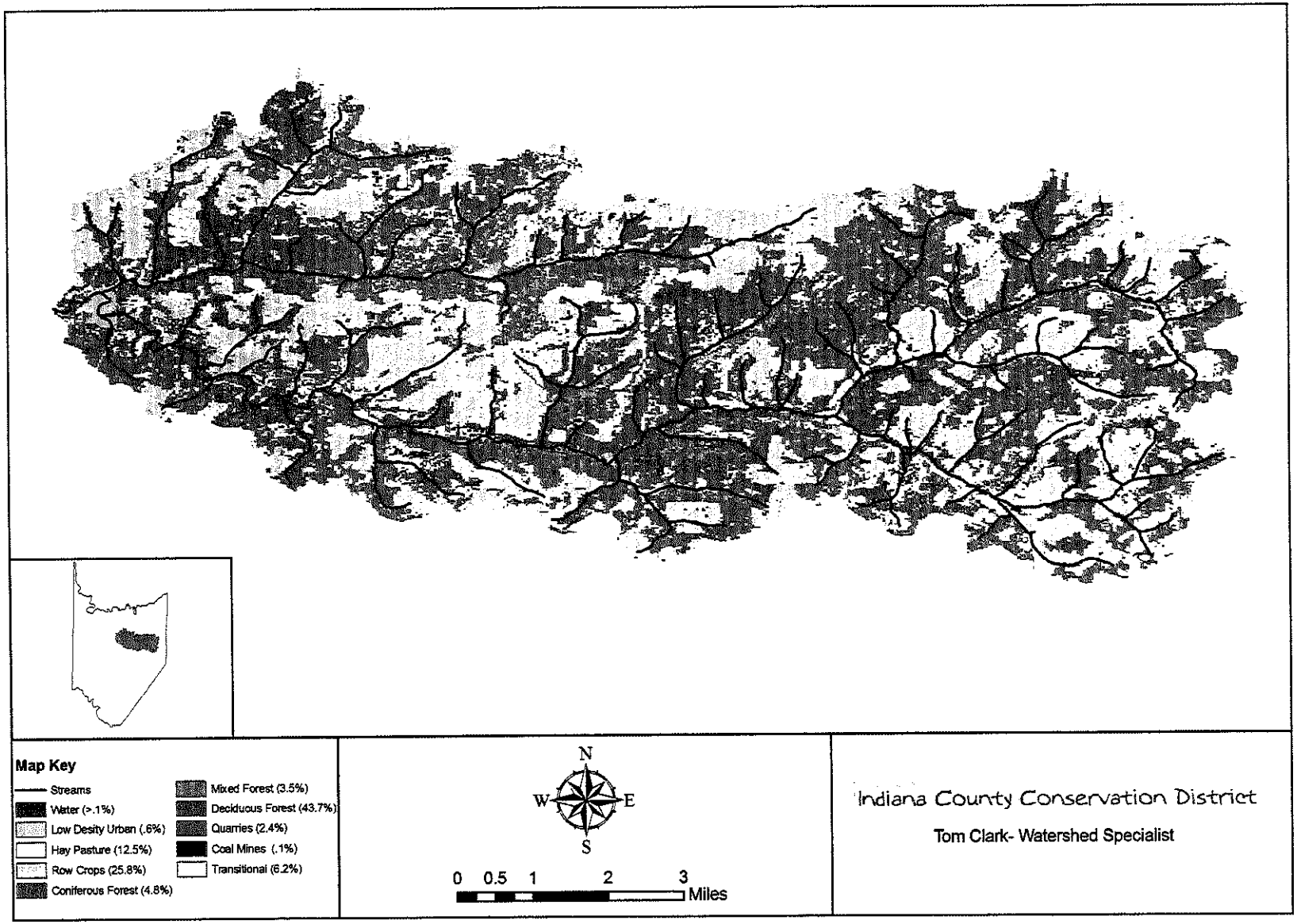

Figure 6. A map of the land uses in the Pine Creek Watershed.

Current Condition of the Pine Creek Watershed

Designations and Listings

Currently the entire Pine Creek Watershed is classified as a HQ-CWF by the PA DEP Chapter 93 Water Quality Standards (PA DEP 2001). However, seven Pine Creek Watershed stream listings comprising 5.1 stream miles (4% of the entire watershed) do appear on the Pa DEP 303d List of Impaired Waters (Table 3 and Figure 7). Five of those listings are for agricultural, nutrients and siltation and comprise 3.9 of those miles. The other two listings are for abandoned mine drainage (AMD) and metals and comprise 1.2 of those miles.

One of the recommendations of this plan is to suggest to PA DEP that more of the Pine Creek Watershed, particularly sections in the NBSF and SBSF, be classified as impaired as we believe these impaired listings are slightly underestimated. Agriculture, siltation, nutrients and thermal pollution impacts should be recognized, particularly in these two Pine Creek Watershed Management Units.

Two sections of the Pine Creek Watershed, Bullock Run (the largest tributary to the NFPC) and the NFPC, are listed by the Pennsylvania Fish and Boat Commission (PFBC) as containing viable populations of wild trout, particularly Brown Trout (*Salmo trutta)* (Figure 8). Combined, these two sections comprise 15.5 square miles (30% of the entire watershed) and 29 stream miles (24% of the entire watershed) of the Pine Creek Watershed. More data about these sections can be found in the Fish Population Data Chapter.

In addition, the PFBC and the Pine Creek Sportsmen's Club stock Pine Creek with legal size trout. The NFPC is stocked by the PFBC once preseason with Brook Trout *(Salvelinus fontinalis)* and Brown Trout (*Salmo trutta)* and once in-season with Brown Trout.

Table 3. The stream sections of the Paint Creek watershed currently listed on the PA DEP 303d List of Impaired Waters.

Assessment ID	Stream	Source	List Date	TMDL Date	Total Miles
970626-1045-RBS	UNT47210 to the South Branch	Agriculture/Nutrients/Siltation	1998	2011	2.0
970626-1045-RBS	UNT47211 to the South Branch	Agriculture/Nutrients/Siltation	1998	2011	0.7
970626-1045-RBS	UNT47212 to the South Branch	Agriculture/Nutrients/Siltation	1998	2011	0.4
970626-1045-RBS	UNT47215 to the South Branch	Agriculture/Nutrients/Siltation	1998	2011	0.4
970626-1045-RBS	UNT47216 to the South Branch	Agriculture/Nutrients/Siltation	1998	2011	0.4
20020905-1200-ALF	UNT47161 to the South Fork	AMD/Metals	2004	2017	0.6
20020905-1400-ALF	UNT47165 to the South Fork	AMD/Metals	2004	2017	0.6
				Total Miles	**5.1**
				% of Pine Creek	**4.25**

PIne Creek Watershed
Location In Surrounding Municipalities

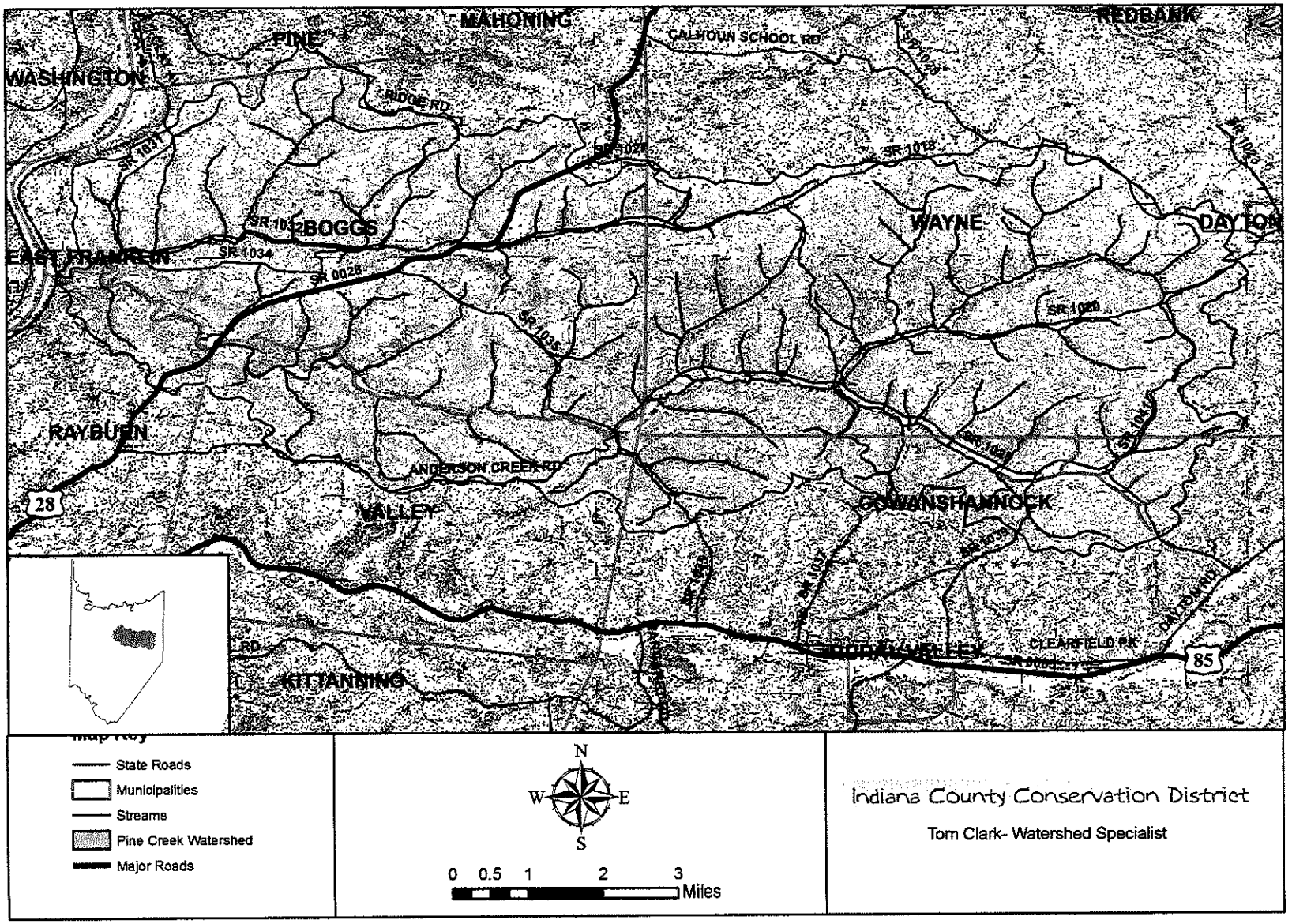

Figure 7. The 303d List of Impaired Waters in the Pine Creek Watershed. AMD is noted in orange, agriculture in brown.

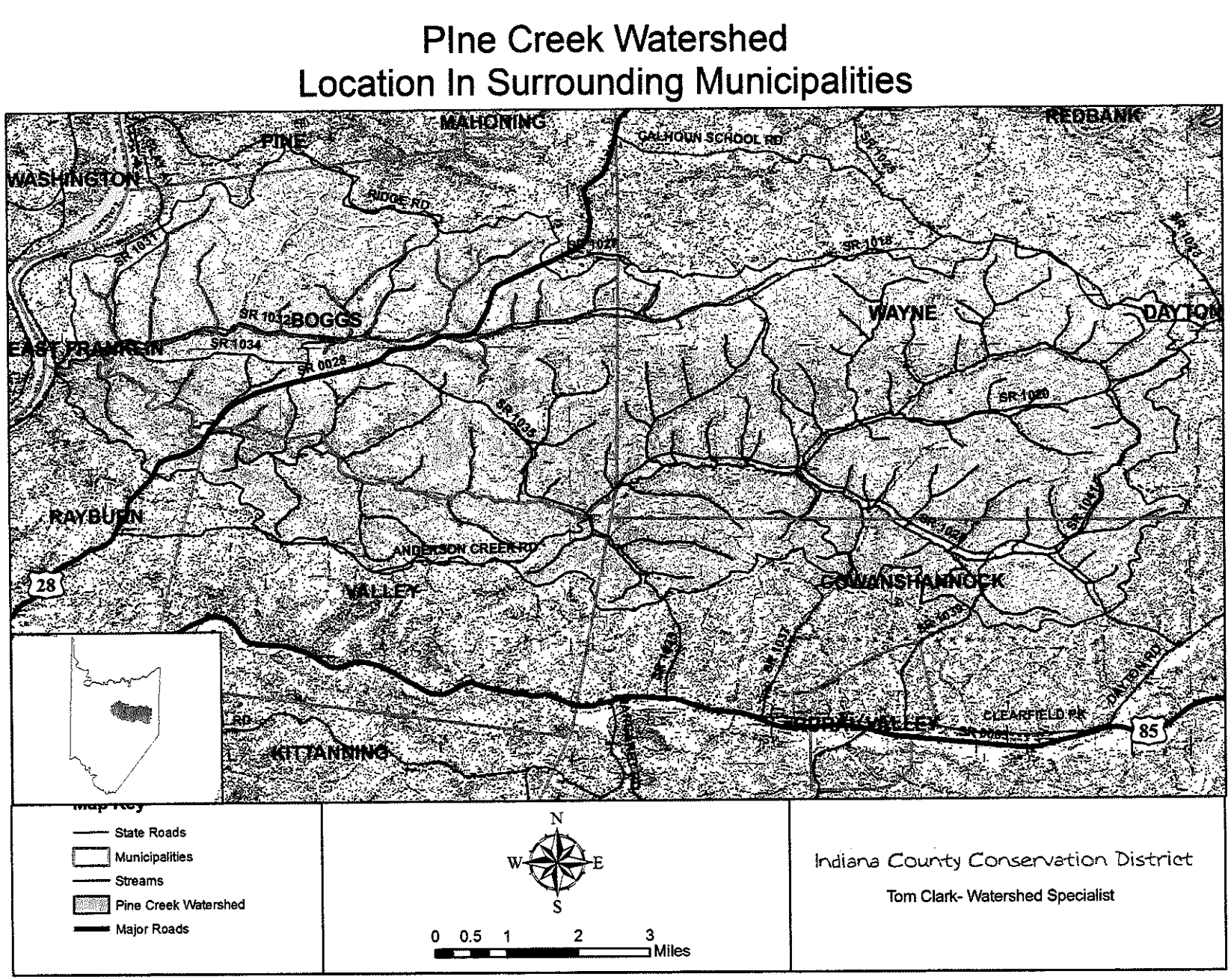

Figure 8. PFBC wild trout listed sections of the Pine Creek Watershed, Bullock Run in yellow, North Fork of Pine Creek in green.

and Rainbow Trout *(Oncorhynchus mykiss).* It is stocked from State Route 66/28 to the confluence with the SFPC. The SFPC is stocked by the PFBC once preseason with Brook Trout *(Salvelinus fontinalis)* and Brown Trout (*Salmo trutta).* It is stocked from the NBSF and SBSF confluence to the confluence with the Allegheny River (Figure 9).

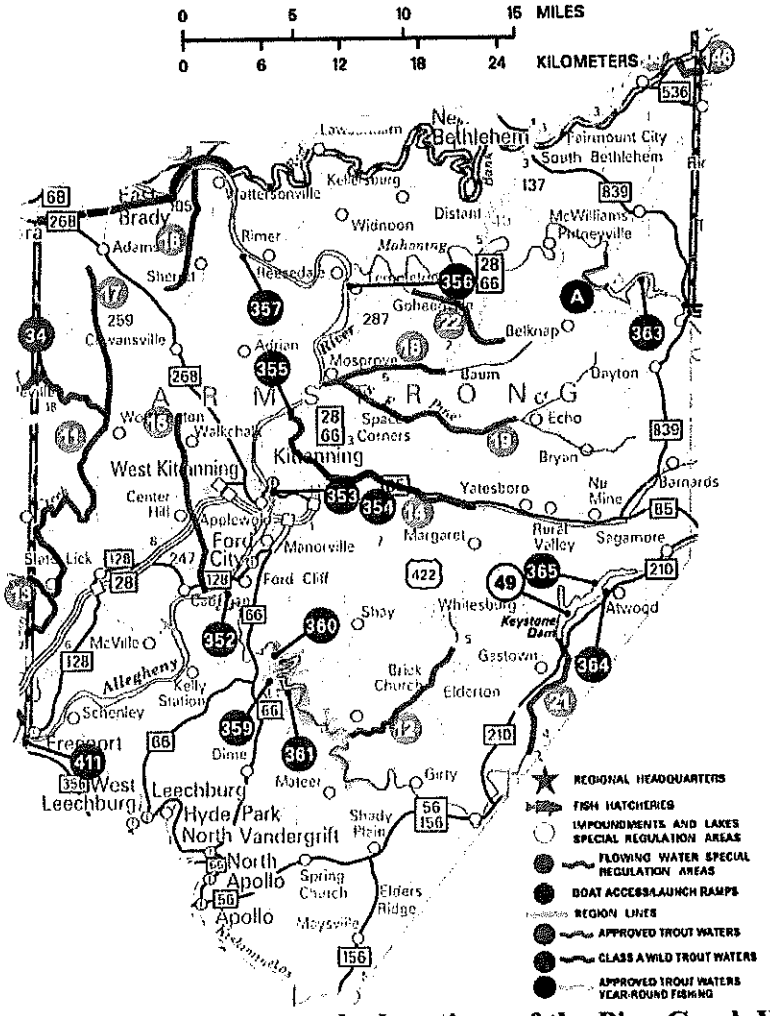

Figure 9. PFBC map of the trout stocked sections of the Pine Creek Watershed.

According the Stan Rupert of the Pine Creek Sportsmen's Club, 3225 trout, obtained from the PFBC and raised, were stocked over six separate stockings from April 9th, 2006 to May 15th, 2006. Of these 3225 trout, 1100 were Brook Trout *(Salvelinus fontinalis)*, 1650 were Rainbow

Trout *(Oncorhynchus mykiss)*, 395 were Golden Rainbow Trout *(Oncorhynchus mykiss)* and 80 were Brown Trout *(Salmo trutta)*.

Historical Water Quality and Present Conditions

All of the historical water quality collected in the Pine Creek Watershed found during research was either completed by the United States Geological Service (USGS) or PFBC. Table 4 lists where these collections were completed, who they were collected by and a range of dates the samples were collected.

Table 4. Historical water quality samples collected throughout the Pine Creek Watershed.

Location	Collector	Dates Collected	# of Samples
NFPC			
RM 3.93	USGS	6/71-9/75	5
	PFBC	7/78-7/00	3
RM 2.77	PFBC	7/78-7/00	3
Bullock Run	PFBC	6/98	1
RM 0.72	PFBC	7/78-7/00	2
RM 0.06	USGS	6/79-8/81	6
SFPC			
RM 10.93	PFBC	7/78-6/88	2
UNT47188 "Millers Hollow"	PFBC	6/00	1
RM 7.12	PFBC	7/78-6/88	2
RM 4.00	PFBC	7/78-6/88	2
RM 0.33	PFBC	7/78-6/88	2
NBSF			
RM 2.25	PFBC	6/78	1
RM 0.55	PFBC	6/78	1
RM 0.06	USGS	6/79-8/98	7
	PFBC	6/78	1
SBSF			
RM 1.11	USGS	6/79-8/81	6
		Total	**45**

When comparing the historical water quality to the water quality samples collected during this project, very little has changed in the Pine Creek Watershed except for what seems to be an increase in the amount of alkalinity in the NFPC. This increase in alkalinity, from active abandoned mine drainage treatment systems according to the PFBC, has improved the fertility of

this stream dramatically. This improvement will be discussed further in the Fish Population Data Chapter.

Flow measurements and tributary mouth and strategic main stem water quality samples were the first task completed during the field data collection portion of this project. Much of this work was completed in June 2004 to document the impact from AMD on the water quality integrity of the Pine Creek Watershed. From this work it was realized that AMD has very little to no impact, particularly on the main stems of each Pine Creek Watershed Management Unit. The only significant impact noted was on UNT 47161 near the mouth of SFPC. Iron, manganese and aluminum concentrations were relatively elevated at 1.38 mg/l, 3.53 mg/l and 1.70 mg/l respectively. UNT 47161 is noted as AMD impaired on the PA DEP 303d List of Impaired waters, however, this is inconsequently to the water quality of the main stem of the SFPC as it causes little to no impact.

Most tributaries, however, do exhibit high concentrations of sulfate (SO_4), illustrating that mining does have an affect on the water quality, but not a detrimental impact as many other Armstrong County streams possess. Consequently, focus was moved away from AMD to other impacts that Pine Creek does contain namely thermal pollution, sedimentation and nutrients.

Generally, taking all water quality samples as a whole, the Pine Creek Watershed has extremely high pH and alkalinity values for a free stone stream, possibly influenced by active AMD treatment systems, low concentrations of metals besides sulfate and areas of sedimentation and nutrient pollution, particularly throughout the NBSF and SBSF Watershed Management Units and in the headwaters of the NFPC (Table 5 and 6).

All historical water quality samples and samples collected during this project are summarized and located in Figures 10-13 and Tables 7-10.

Table 5. The average of all water quality samples collected by the USGS, PFBC and the Armstrong Conservation District in each Pine Creek Watershed Management Unit. Notice elevated TSS concentrations in the SBSF and NBSF Watershed Management Units.

Water Management Unit	pH	Alk	Fe	Mn	Al	SO_4	TSS
	Lab	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
SBSF	7.29	42.63	0.82	0.49	0.25	65.85	18.43
NBSF	7.13	27.19	0.55	0.16	0.14	49.91	12.13
SFPC	7.45	53.86	0.27	0.30	0.24	185.50	9.24
NFPC	7.74	78.66	0.32	0.04	0.17	90.62	9.79

Table 6. The average selected water qualities collected at the mouth of all Pine Creek Management Units.

Water Management Unit	Flow	pH	Cond.	Alk	Fe	Mn	Al	Nitrate/Nitrite	Potassium	SO4	TSS
	GPM	Lab	uS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
SBSF	3680.00	7.43	323.00	48.60	0.35	0.36	0.12	0.79	1.75	90.60	4.00
NBSF	5418.00	7.47	228.25	33.14	0.78	0.23	0.09	1.51	2.38	52.88	19.43
SFPC	26696.00	7.66	399.00	41.40	0.11	0.05	0.10	0.92	1.81	115.00	3.00
NFPC	7995.00	8.01	382.00	89.58	0.43	0.04	0.10	0.88	1.97	90.62	13.13

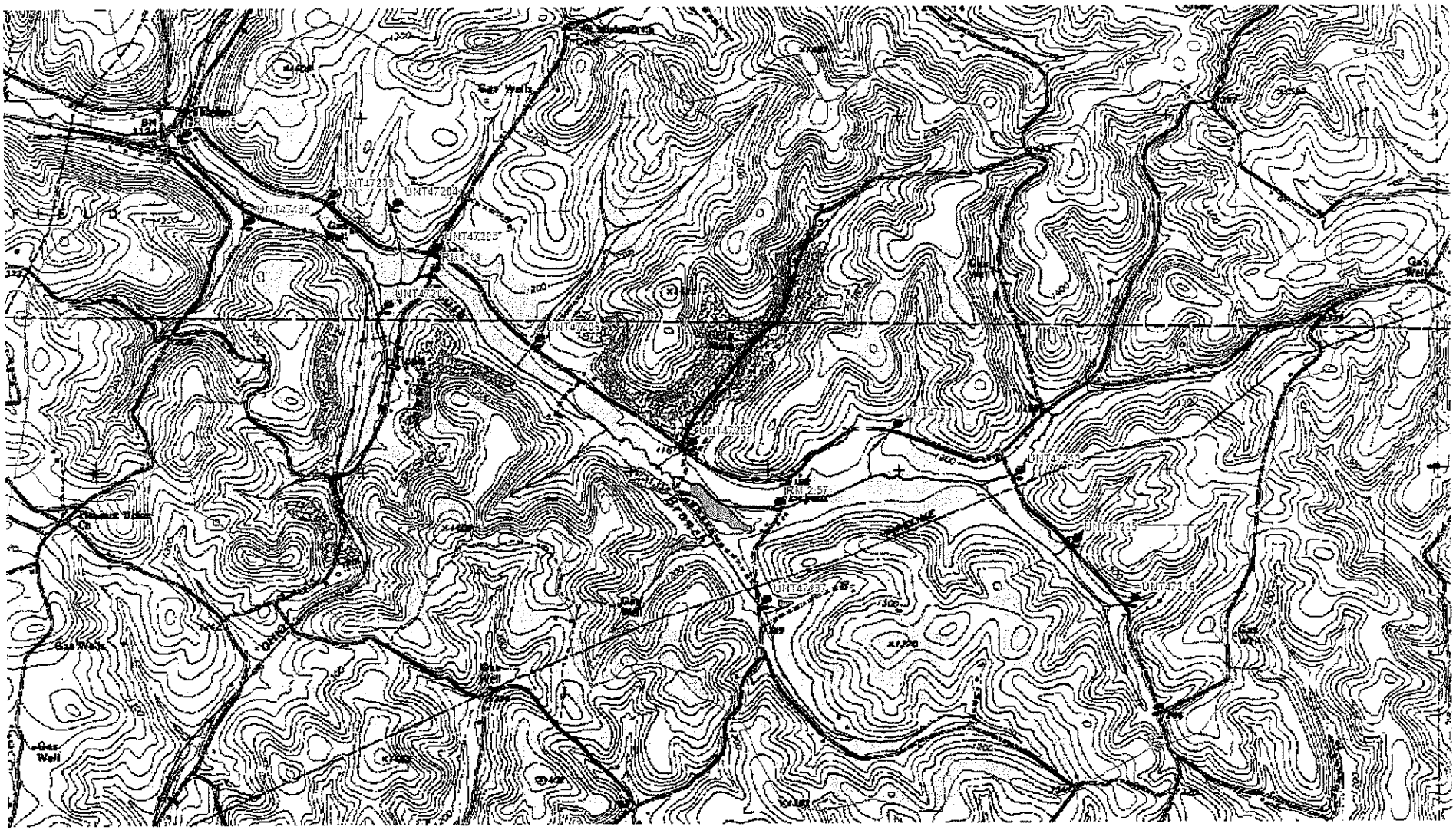

Figure 10. Water sampling locations in the SBSF Pine Creek Management Unit.

Table 7. Historical and current water quality of the SBSF Pine Creek Management Unit.

Location	Collector	Date	Flow	pH	pH	Cond	alk	acid	Fe	Mn	Al	Nitrate/Nitrite	K	SO_4	TDS	TSS	Temp
			GPM	Field	Lab	uS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	°F
UNT47216	ACD	6/23/04	nd	7.40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	100.00	nd	nd
UNT47215	ACD	6/23/04	nd	6.80	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	70.00	nd	nd
UNT47212	ACD	6/23/04	nd	7.40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	80.00	nd	nd
UNT47211	ACD	6/23/04	nd	7.40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	100.00	nd	nd
South Branch RM 2.57	ACD	6/23/04	7807.06	8.00	6.90	95.00	17.20	0.00	0.44	0.05	0.29	nd	nd	16.90	60.00	23.00	nd
	ACD	10/25/04	1158.00	8.20	7.11	nd	21.20	nd	nd	nd	nd	1.09	1.26	nd	80.00	3.00	44.70
UNT47197	ACD	10/25/06	467.00	8.20	7.34	nd	44.40	nd	nd	nd	nd	1.23	2.09	nd	110.00	6.00	46.90
UNT47209	ACD	6/21/04	616.43	7.20	6.88	322.00	37.20	0.00	0.29	0.14	0.16	nd	nd	105.40	170.00	6.00	nd
UNT47206	ACD	6/21/04	478.06	7.60	6.82	108.00	17.60	0.00	0.64	0.07	0.44	nd	nd	31.50	50.00	11.00	nd
South Branch RM 1.11	USGS	6/12/79	1301.52	7.60	nd	180.00	32.00	nd	0.49	0.14	nd	nd	nd	45.00	nd	7.00	59.90
	USGS	8/11/79	1301.52	6.90	nd	220.00	38.00	nd	2.70	0.54	nd	nd	nd	49.00	nd	100.00	66.20
	USGS	3/25/80	8078.40	7.20	nd	130.00	20.00	nd	0.50	0.15	nd	nd	nd	29.00	nd	26.00	41.00
	USGS	8/19/80	nd	7.30	nd	135.00	24.00	nd	0.64	0.16	nd	nd	nd	38.00	nd	10.00	68.00
	USGS	3/24/81	2513.28	7.20	7.50	220.00	92.00	nd	0.41	0.77	nd	nd	nd	66.00	nd	14.00	41.00
	USGS	8/10/81	nd	7.30	7.90	585.00	86.00	nd	1.80	2.70	nd	nd	nd	190.00	nd	36.00	67.10
UNT47205	ACD	6/21/04	nd	7.10	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	140.00	nd	nd
UNT47204	ACD	6/21/04	nd	7.30	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	50.00	nd	nd
UNT47201	ACD	6/21/04	961.51	7.30	7.56	284.00	70.00	0.00	0.75	0.32	0.24	nd	nd	62.90	170.00	8.00	nd
UNT47200	ACD	6/21/04	nd	6.80	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	250.00	nd	nd
UNT47198	ACD	6/21/04	nd	7.20	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	210.00	nd	nd
South Branch RM 0.05	ACD	6/8/04	952.64	7.80	7.41	323.00	54.40	0.00	0.35	0.36	0.12	nd	nd	90.60	200.00	4.00	nd
	ACD	10/25/06	6408.00	7.90	7.44	nd	42.80	nd	nd	nd	nd	0.79	1.75	nd	140.00	4.00	46.90

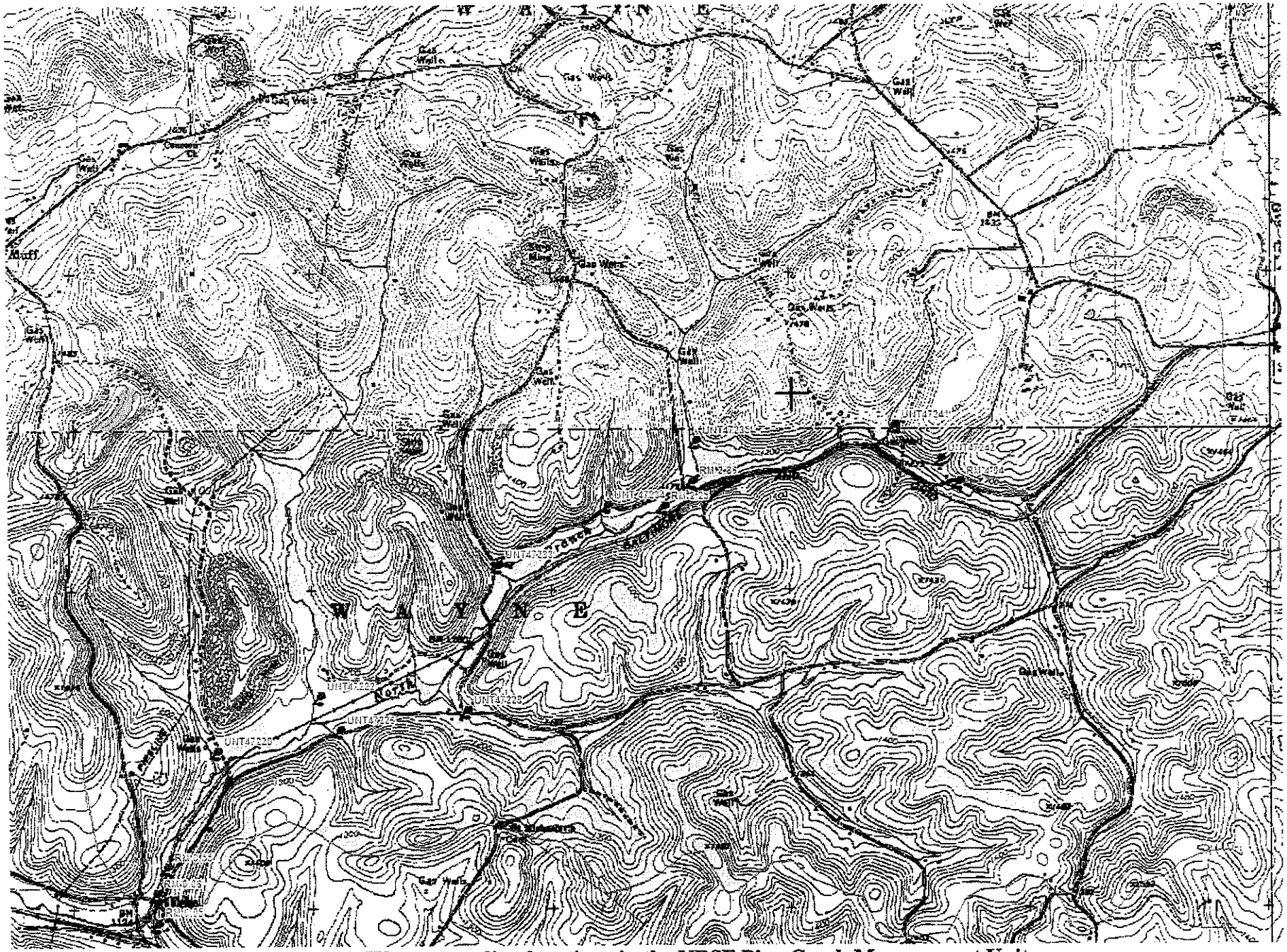

Figure 11. Water sampling locations in the NBSF Pine Creek Management Unit.

Table 8. Historical and current water quality of the NBSF Pine Creek Management Unit.

Location	Collector	Date	Flow	pH	pH	Cond	alk	acid	Fe	Mn	Al	Nitrate/Nitrite	K	SO_4	TDS	TSS	Temp
			GPM	Field	Lab	uS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	°F
North Branch RM 4.04	ACD	10/25/06	1163.00	7.90	7.07	nd	16.40	0.00	nd	nd	nd	2.17	1.39	nd	100.00	<3.00	46.00
UNT47242	ACD	6/21/04	nd	7.40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	150.00	nd	nd
UNT47241	ACD	6/21/04	nd	7.40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	110.00	nd	nd
UNT47235	ACD	6/21/04	849.67	7.50	7.02	131.00	17.20	0.00	0.21	0.04	0.16	nd	nd	23.10	60.00	4.00	nd
	ACD	10/25/06	1150.00	8.00	6.93	nd	11.20	0.00	nd	nd	nd	1.57	1.44	nd	70.00	10.00	45.20
North Branch RM 2.86	ACD	6/21/04	3590.49	7.40	6.86	111.00	13.20	0.00	0.25	0.04	0.18	nd	nd	19.70	70.00	9.00	nd
North Branch RM 2.25	PFBC	6/28/78	nd	7.20	nd	nd	21.00	nd	nd	nd	nd	nd	nd	nd	nd	nd	66.02
UNT47234	ACD	6/21/094	nd	7.80	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	530.00	nd	nd
UNT47233	ACD	6/21/04	468.77	7.30	6.94	223.00	31.60	0.00	0.28	0.04	0.17	nd	nd	72.80	120.00	6.00	nd
UNT47228	ACD	6/21/04	1853.99	7.40	6.94	129.00	22.40	0.00	0.30	0.08	0.18	nd	nd	22.60	70.00	5.00	nd
	ACD	10/25/06	1428.00	8.00	6.95	nd	22.00	0.00	nd	nd	nd	1.94	2.04	nd	90.00	6.00	46.50
UNT47226	ACD	6/21/04	nd	7.20	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	40.00	nd	nd
UNT47222	ACD	6/21/04	2113.94	7.10	6.99	222.00	36.00	0.00	0.27	0.10	0.14	nd	nd	63.50	120.00	5.00	nd
	ACD	10/25/06	2507.00	7.70	7.08	nd	26.00	0.00	nd	nd	nd	0.85	1.29	nd	130.00	5.00	45.00
UNT47220	ACD	6/21/04	761.26	7.00	6.74	254.00	22.80	0.00	0.22	0.09	0.14	nd	nd	74.00	150.00	8.00	nd
North Branch RM 0.55	PFBC	6/28/78	nd	7.20	nd	nd	27.00	nd	nd	nd	nd	nd	nd	nd	nd	nd	66.20

North Branch RM 0.06	PFBC	6/28/78	nd	7.20	nd	nd	21.00	nd	nd	nd	nd	nd	nd	nd	nd	nd	66.02
	USGS	6/12/79	2468.40	7.10	nd	175.00	30.00	0.00	0.84	0.21	nd	nd	nd	41.00	nd	6.00	55.40
	USGS	8/11/79	3276.24	6.90	nd	186.00	46.00	0.00	1.90	0.56	nd	nd	nd	40.00	nd	49.00	68.00
	USGS	3/25/80	17952.00	7.10	nd	150.00	16.00	0.00	0.72	0.08	nd	nd	nd	34.00	nd	20.00	41.00
	USGS	8/19/80	nd	7.10	nd	220.00	20.00	0.00	0.40	0.17	nd	nd	nd	66.00	nd	9.00	64.40
	USGS	3/24/81	6283.20	7.00	7.40	155.00	24.00	0.00	0.44	0.10	nd	nd	nd	45.00	nd	10.00	37.40
	USGS	8/10/81	1256.64	7.60	7.70	220.00	36.00	0.00	1.20	0.35	nd	nd	nd	42.00	nd	36.00	68.90
	USGS	8/15/98	148.10	7.50	7.70	438.00	70.00	0.00	0.40	0.26	0.06	nd	3.33	90.40	nd	nd	67.10
	ACD	6/8/04	2342.74	7.80	7.39	282.00	43.60	0.00	0.33	0.14	0.11	nd	nd	64.60	170.00	6.00	nd
	ACD	10/25/06	9617.00	8.00	7.17	nd	24.80	0.00	nd	nd	nd	1.51	1.42	nd	110.00	<3.00	44.90

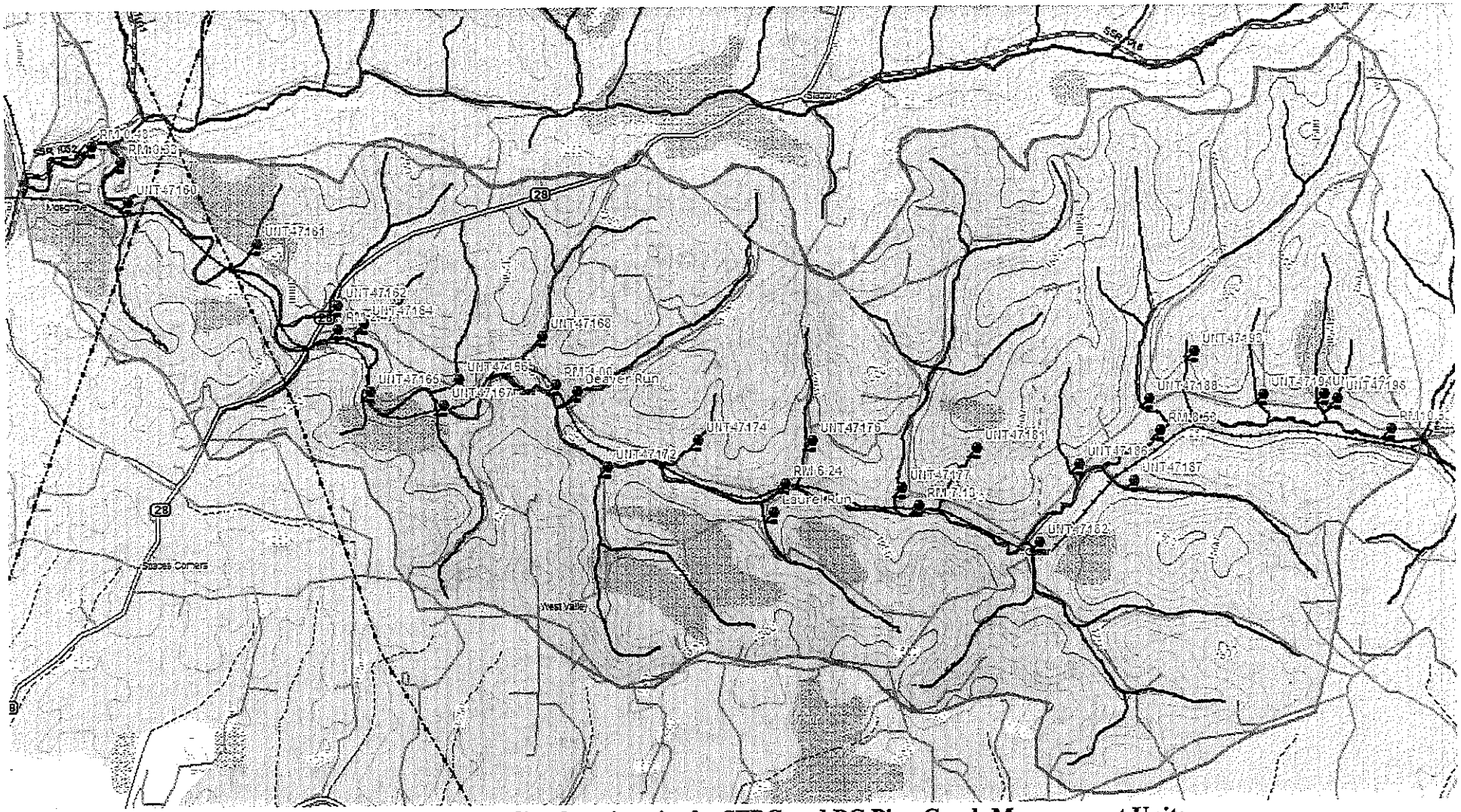

Figure 12. Water sampling locations in the SFPC and PC Pine Creek Management Units.

Table 9. Historical and current water quality of the SFPC and PC Pine Creek Management Unit.

Location	Collector	Date	Flow	pH	pH	Cond	alk	acid	Fe	Mn	Al	Nitrate/Nitrite	K	SO4	TDS	TSS	Temp
			GPM	Field	Lab	uS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	°F
South Form RM 10.53	PFBC	7/18/1978	nd	7.10	nd	230.00	31.00	nd	nd	nd	nd	nd	nd	nd	nd	nd	64.40
	PFBC	6/28/1988	nd	7.60	nd	438.00	80.00	nd	nd	nd	nd	nd	nd	nd	nd	nd	59.90
	ACD	6/8/2004	3703.40	7.70	7.57	299.00	45.20	0.00	0.33	0.23	0.10	nd	nd	69.80	180.00	<3.00	nd
UNT47195	ACD	6/21/2004	nd	7.10	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	150.00	nd	nd
UNT47196	ACD	6/21/2004	nd	7.10	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	230.00	nd	nd
UNT47194	ACD	6/21/2004	nd	7.40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	40.00	nd	nd
UNT47193	ACD	6/21/2004	nd	7.60	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	50.00	nd	nd
UNT47188	PFBC	6/12/2000	nd	6.90	nd	118.00	14.00	0.00	nd	nd	nd	nd	nd	nd	nd	nd	64.40
	ACD	6/21/2004	1745.47	7.60	6.70	114.00	10.00	0.00	0.21	0.02	0.14	nd	nd	20.90	70.00	8.00	nd
	ACD	10/25/2006	1435.00	8.20	6.84	nd	9.60	0.00	nd	nd	nd	0.59	1.46	nd	70.00	3.00	46.40
South Fork RM 8.53	ACD	10/25/2006	16322.00	8.10	7.30	nd	26.80	0.00	nd	nd	nd	1.14	1.64	nd	130.00	3.00	45.20
UNT47187	ACD	6/10/2004	nd	8.00	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	50.00	nd	nd
UNT47186	ACD	6/10/2004	nd	7.40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	400.00	nd	nd
UNT47182	ACD	6/10/2004	341.00	7.80	7.39	251.00	42.00	0.00	0.10	0.02	0.10	nd	nd	58.00	150.00	4.00	nd
	ACD	10/25/2006	1939.00	8.20	7.24	nd	24.40	0.00	nd	nd	nd	0.74	1.92	nd	110.00	31.00	46.40
UNT47181	ACD	6/10/2004	nd	7.80	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	160.00	nd	nd
South Fork RM 7.13	PFBC	7/18/1978	nd	8.30	nd	375.00	39.00	nd	nd	nd	nd	nd	nd	nd	nd	nd	71.96
	PFBC	6/29/1988	nd	7.60	nd	402.00	64.00	nd	nd	nd	nd	nd	nd	nd	nd	nd	62.60
UNT47177	ACD	6/10/2004	256.00	8.00	7.40	329.00	43.60	0.00	0.09	0.02	0.12	nd	nd	107.40	200.00	4.00	nd
	ACD	10/25/2006	1212.00	8.35	7.28	nd	21.60	0.00	nd	nd	nd	0.41	1.74	nd	140.00	<3.00	45.50
UNT47176	ACD	6/10/2004	130.00	7.80	7.86	1396.00	160.00	0.00	0.15	0.02	0.18	nd	nd	667.00	810.00	13.00	nd

South Fork RM 6.24	ACD	10/25/2006	28940.00	8.10	7.32	nd	26.40	0.00	nd	nd	nd	1.03	1.67	nd	130.00	5.00	44.90
Laurel Run	ACD	6/10/2004	98.00	7.40	7.48	278.00	48.00	0.00	0.12	0.02	0.12	nd	nd	58.60	180.00	15.00	nd
UNT47174	ACD	6/10/2004	nd	7.30	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	400.00	nd	nd
UNT47172	ACD	6/10/2004	275.00	7.10	7.37	716.00	50.00	0.00	0.16	0.03	0.20	nd	nd	310.00	440.00	8.00	nd
Deaver Run	ACD	6/9/2004	188.00	7.70	7.87	774.00	87.20	0.00	0.14	0.03	0.13	nd	nd	283.00	470.00	8.00	nd
UNT47169	ACD	6/9/2004	nd	7.30	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	210.00	nd	nd
South Fork RM 4.00	PFBC	7/18/1978	nd	8.00	nd	320.00	31.00	nd	nd	nd	nd	nd	nd	nd	nd	nd	71.96
	PFBC	6/29/1988	nd	7.60	nd	500.00	72.00	nd	nd	nd	nd	nd	nd	nd	nd	nd	60.62
	ACD	6/7/2004	7560.00	7.60	7.80	389.00	49.20	0.00	0.21	0.06	0.10	nd	nd	72.80	230.00	<3.00	nd
	ACD	10/25/2006	36047.00	8.20	7.39	nd	30.00	0.00	nd	nd	nd	0.97	1.73		160.00	6.00	44.90
UNT47168	ACD	6/9/2004	215.00	7.00	7.13	220.00	34.80	0.00	0.13	0.02	0.10	nd	nd	61.60	140.00	8.00	nd
UNT47167	ACD	6/9/2004	46.00	6.50	8.09	503.00	110.00	0.00	0.86	0.09	0.45	nd	nd	110.00	500.00	3.00	nd
UNT47166	ACD	6/9/2004	nd	8.40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	250.00	nd	nd
UNT47165	ACD	6/9/2004	113.00	7.50	8.08	1047.00	237.00	0.00	0.27	0.72	0.28	nd	nd	359.00	640.00	15.00	nd
UNT47164	ACD	6/9/2004	nd	7.60	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	230.00	nd	nd
South Fork RM 2.47	ACD	6/7/2004	10187.80	7.50	7.79	398.00	49.60	0.00	0.12	0.08	0.10	nd	nd	110.00	240.00	<3.00	nd
	ACD	10/25/2006	41524.00	8.20	7.51	nd	34.40	0.00	nd	nd	nd	0.94	1.87	nd	170.00	5.00	45.10
UNT47162	ACD	6/9/2004	47.00	7.10	7.18	461.00	37.20	0.00	0.04	0.03	0.13	nd	nd	144.00	240.00	5.00	nd
UNT47161	ACD	6/9/2004	93.00	6.70	7.14	885.00	66.40	0.00	1.38	3.53	1.70	nd	nd	408.00	550.00	28.00	nd
UNT47160	ACD	6/9/2004	53.00	7.40	6.96	494.00	47.20	0.00	0.19	0.06	0.10	nd	nd	199.00	310.00	16.00	nd

South Fork RM 0.33	PFBC	7/18/1978	nd	nd	7.80	390.00	55.00	nd	nd	nd	nd	nd	nd	nd	nd	nd	69.08
	PFBC	6/28/1988	nd	8.00	nd	510.00	72.00	nd	nd	nd	nd	nd	nd	nd	nd	nd	53.60
	ACD	6/7/2004	9500.00	7.20	7.82	399.00	50.40	0.00	0.11	0.05	0.10	nd	nd	115.00	250.00	3.00	nd
	ACD	10/25/2006	43892.00	8.20	7.50	nd	32.40	0.00	nd	nd	nd	0.92	1.81	nd	160.00	<3.00	44.60
Pine Creek RM 0.48	ACD	10/25/06	57695	nd	7.73	nd	44.00	0.00	nd	nd	nd	nd	0.88	<0.10	1.87	nd	4.00

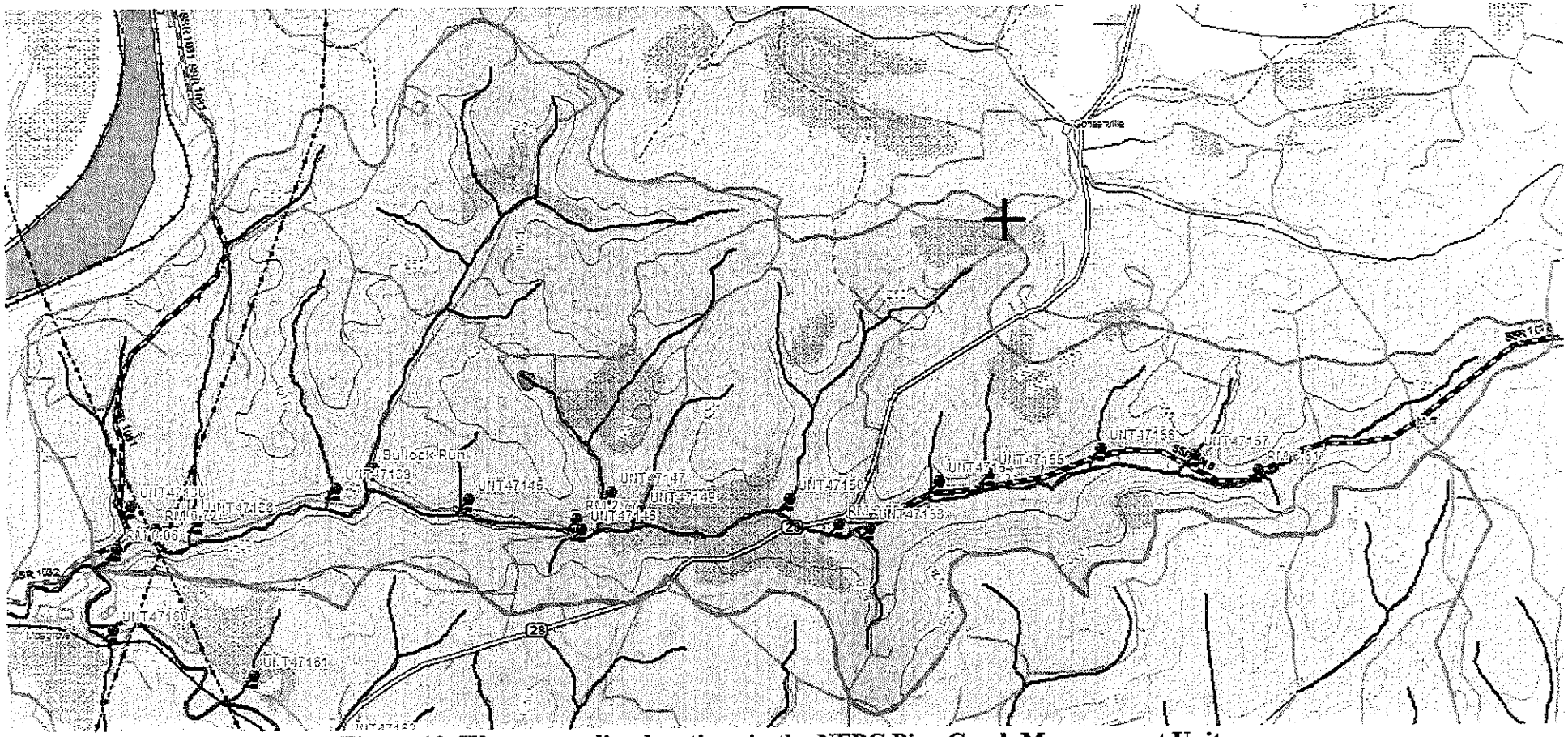

Figure 13. Water sampling locations in the NFPC Pine Creek Management Units

Table 10. Historical and current water quality of the NFPC Pine Creek Management Unit.

Location	Collector	Date	Flow	pH	pH	Cond	alk	acid	Fe	Mn	Al	Nitrate/Nitrite	K	SO_4	TDS	TSS	Temp
			GPM	Field	Lab	uS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	°F
North Fork RM 6.61	ACD	10/25/06	506.00	7.70	6.72	nd	13.60	0.00	nd	nd	nd	2.20	2.14	nd	100.00	4.00	47.80
UNT47157	ACD	6/4/04	nd	8.00	nd	nd	nd	n	nd	nd	nd	nd	nd	nd	80.00	nd	nd
UNT47156	ACD	6/4/04	35.90	8.00	7.48	219.00	45.60	0.00	0.22	0.09	0.13	nd	nd	50.00	120.00	3.00	nd
UNT47155	ACD	6/4/04	54.56	8.00	7.20	276.00	34.80	0.00	0.11	0.02	0.10	nd	nd	87.00	160.00	7.00	nd
UNT47154	ACD	6/3/04	94.24	8.00	7.96	831.00	171.00	0.00	0.06	0.02	0.10	nd	nd	258.00	500.00	9.00	nd
UNT47153	ACD	6/3/04	70.37	7.80	7.56	372.00	42.00	0.00	0.16	0.02	0.12	nd	nd	119.00	200.00	21.00	nd
North Fork RM 3.93	USGS	6/1/71	327.62	7.00	nd	338.00	34.00	0.00	nd	nd	nd	1.40	nd	99.00	nd	nd	55.40
	USGS	8/31/71	260.30	7.40	nd	393.00	39.00	0.00	nd	nd	nd	3.00	nd	91.00	nd	nd	64.40
	USGS	9/27/74	1077.12	6.80	nd	247.00	32.00	0.00	nd	nd	nd	nd	nd	70.00	nd	nd	57.20
	USGS	4/17/75	897.60	nd	nd	298.00	27.00	0.00	nd	nd	nd	nd	nd	110.00	nd	nd	41.00
	USGS	9/16/75	807.84	6.60	nd	250.00	30.00	0.00	0.15	nd	nd	nd	nd	50.00	nd	nd	55.40
	PFBC	7/18/78	nd	7.50	nd	400.00	46.00	nd	nd	nd	nd	nd	nd	nd	nd	nd	62.60
	PFBC	6/29/88	nd	7.60	nd	330.00	100.00	nd	nd	nd	nd	nd	nd	nd	nd	nd	61.70
	PFBC	7/14/00	nd	7.50	nd	434.00	80.00	0.00	nd	nd	nd	nd	nd	nd	nd	nd	65.30
	ACD	6/1/04	1332.94	7.60	7.76	365.00	52.80	0.00	0.08	0.02	0.10	nd	nd	89.00	220.00	3.00	nd
	ACD	10/25/06	2068.00	7.70	7.54	nd	40.00	0.00	nd	nd	nd	1.00	2.18	nd	190.00	3.00	46.30
UNT47150	ACD	6/3/04	890.96	7.70	7.83	563.00	106.00	0.00	0.24	0.06	0.14	nd	nd	148.00	340.00	11.00	nd
UNT47149	ACD	6/3/04	105.92	7.90	8.09	503.00	110.00	0.00	0.86	0.09	0.45	nd	nd	110.00	300.00	3.00	nd
UNT47147	ACD	6/3/04	457.10	7.80	8.08	435.00	119.00	0.00	0.41	0.02	0.25	nd	nd	75.00	270.00	11.00	nd
UNT47146	ACD	6/3/04	nd	7.90	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	70.00	nd	nd
North Fork RM 2.77	PFBC	7/17/78	nd	7.60	nd	490.00	75.00	nd	nd	nd	nd	nd	nd	nd	nd	nd	62.60
	PFBC	6/29/88	nd	8.00	nd	455.00	80.00	nd	nd	nd	nd	nd	nd	nd	nd	nd	61.70
	PFBC	7/13/00	nd	7.80	nd	605.00	107.00	0.00	nd	nd	nd	nd	nd	nd	nd	nd	66.20
	ACD	6/1/04	4380.47	7.50	7.92	460.00	88.40	0.00	0.06	0.02	0.10	nd	nd	106.00	270.00	6.00	nd

	ACD	10/25/06	7433.00	8.00	7.88	nd	81.20	0.00	nd	nd	nd	1.96	2.45	nd	390.00	7.00	46.70
UNT47145	ACD	6/3/04	nd	7.50	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	60.00	nd	nd
Bullock Run	PFBC	6/4/98	nd	8.00	nd	450.00	198.00	0.00	nd	nd	nd	nd	nd	nd	nd	nd	54.14
	ACD	6/3/04	2009.91	7.60	8.27	464.00	158.00	0.00	0.20	0.02	0.11	nd	nd	67.60	270.00	<3.00	nd
UNT47139	ACD	6/3/04	nd	7.20	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	50.00	nd	nd
UNT47138	ACD	6/3/04	493.68	7.10	7.35	139.00	44.00	0.00	0.41	0.02	0.25	nd	nd	17.80	80.00	7.00	nd
UNT47136	ACD	6/3/04	160.22	5.50	7.46	190.00	37.60	0.00	0.34	0.02	0.24	nd	nd	22.90	110.00	12.00	nd
North Fork RM 0.72	PFBC	7/17/78	nd	8.10	nd	490.00	40.00	nd	nd	nd	nd	nd	nd	nd	nd	nd	66.20
	PFBC	7/13/00	nd	8.00	nd	550.00	162.00	0.00	nd	nd	nd	nd	nd	nd	nd	nd	67.64
North Fork RM 0.06	USGS	6/11/79	2647.92	8.20	nd	nd	85.00	0.00	0.27	0.04	nd	nd	nd	89.00	nd	7.00	64.40
	USGS	8/14/79	1166.88	8.10	nd	nd	136.00	0.00	0.52	0.04	nd	nd	nd	120.00	nd	23.00	nd
	USGS	3/25/80	15708.00	7.90	nd	nd	36.00	0.00	0.79	0.07	nd	nd	nd	58.00	nd	43.00	41.00
	USGS	8/19/80	14810.40	7.70	nd	nd	40.00	0.00	0.34	0.05	nd	nd	nd	88.00	nd	9.00	61.70
	USGS	3/24/81	6283.20	7.90	8.10	nd	154.00	0.00	0.18	0.01	nd	nd	nd	73.00	nd	8.00	39.20
	USGS	8/10/81	2154.24	8.40	8.10	nd	118.00	0.00	0.87	0.06	nd	nd	nd	100.00	nd	3.00	67.10
	ACD	6/1/04	7390.48	7.10	7.97	382.00	80.80	0.00	0.07	0.02	0.10	nd	nd	76.50	210.00	7.00	nd
	ACD	10/25/06	13803.00	8.10	7.86	nd	66.80	0.00	nd	nd	nd	0.88	1.97	nd	220.00	5.00	45.30

Thermal Pollution

As mentioned previously, as the field data collection portion of this project was being completed, I came to the conclusion that thermal pollution may be more of an impact to the Pine Creek Watershed, an HQ-CWF, than any other pollution source, even sediment. In addition, this pollution seems to be focused in three areas; the headwaters of NFPC and throughout the NBSF and SBSF Pine Creek Management Units. To document this case, in stream temperature loggers were placed throughout the watershed to illustrate if this thermal pollution theory was accurate.

Optic StowAway Temperature Loggers made by the Onset Computer Corporation were placed at the mouth of the NFPC, as a control, at five locations (RM 0.33, RM 2.47, RM 4.00, RM 6.24 and RM 8.53) on the SFPC and one to document atmospheric temperatures. All of these locations correspond to water quality sampling sites. Temperatures were then stored from June 6th, 2006 to June 25th, 2006 at three minute intervals.

To summarize, three significant points were documented through this portion of the project (Figure 14 and Table 11).

1. The NFPC has significantly cooler temperatures that the rest of the Pine Creek Watershed mainly due to the fact that a greater portion of it is shaded (Figure 6). NFPC is even cooler than the most upstream site analyzed on the SFPC (RM 8.53) even though the mouth of the NFPC is approximately 275 ft lower in elevation.
2. The NBSF and SBSF lose their cold water characteristics quickly and impact the SFPC to the point that there is limited holdover and no documented reproduction of salmonid species in the SFPC.
3. After the poor start, the SFPC maintains temperatures very well, increasing only 0.08° F per stream mile.

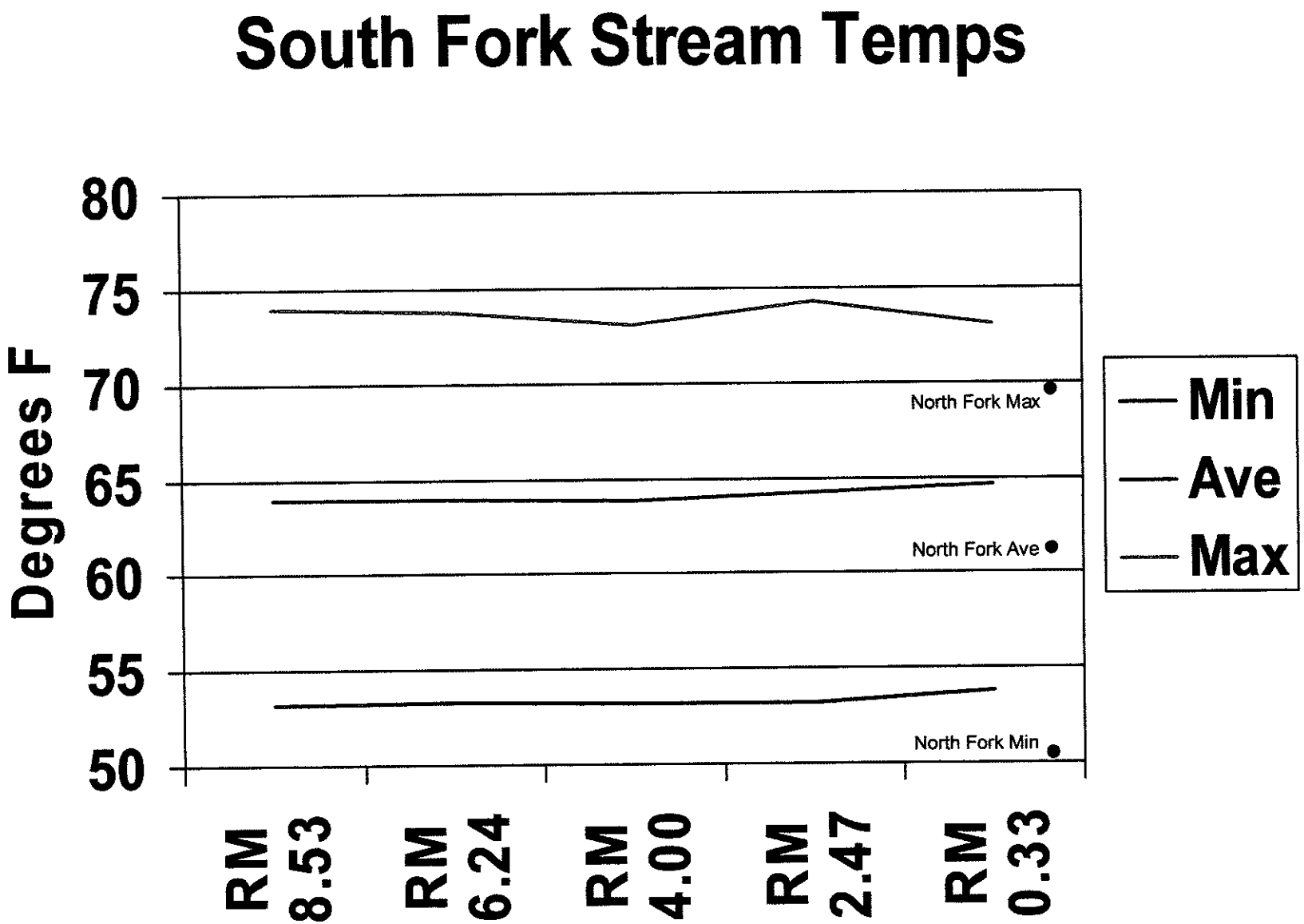

Figure 14. A graph of the SFPC stream temperatures as compared to at the mouth of the NFPC. Notice that the mouth of the NFPC is cooler than the headwaters of the SFPC even though it is 275 ft lower in elevation.

Table 11. Maximum, average and minimum temperatures Fahrenheit throughout the SFPC compared to the mouth of the NFPC and the atmosphere.

	RM 8.53	RM 6.24	RM 4.00	RM 2.47	RM 0.33	Mouth NFPC	Atmosphere
Max	74.01	73.80	73.07	74.28	73.07	69.85	100.63
Ave	63.95	63.98	63.87	64.20	64.64	61.54	65.98
Min	53.22	53.27	53.20	53.20	53.78	51.01	34.71

Consequently, because of this data and the water quality data already presented, restoration work should be completed in the headwaters of the NFPC and throughout the NBSF and SBSF Pine Creek Management Units to decrease stream temperatures thus improving the sustainability of possible wild salmonid populations, particularly in SFPC.

Fish Population Data

The PFBC has collected fish population data in five sections of the Pine Creek Watershed; at three locations along the NFPC, Bullock Run, at four locations along the SFPC, UNT47188 "Miller's Hollow", and at two sites along the NBSF.

Most of the PFBC's attention has been focused in the NFPC Management Unit due to the presence of a wild Brown Trout (*Salmo trutta)* population that is improving. Three sites, at RM 3.93, RM 2.72 and RM 0.72, have been surveyed in 1978, 1988 and 2000. Improvements in the fish and wild Brown Trout (Salmo trutta) populations have been significant at RM 2.72 and especially at RM 0.72 (Table 12-14 and Figure 15 and 16). In 2000, the KG/HA of wild Brown Trout (*Salmo trutta)* at RM 0.72 was 10.39, still much below the 39.90 KG/HA needed for Class A designation, but much better than in 1988 when it was near 0.0 KG/HA.

In 2000 a wild Brown Trout (*Salmo trutta)* population was also documented in the NFPC's largest tributary, Bullock Run. Bullock Run contains approximately 9.99 KG/HA.

Because of this emerging and improving wild trout fishery, the NFPC and Bullock Run need to be conserved actively and restored where needed. This is a recommendation of this plan.

Table 12. Fish population data collected by the PFBC at NFPC RM 3.93

RM 3.93			
Collected by PFBC			
7/18/1978			
Species Common Name	**Species Scientific Name**	**Number Collected**	**Length Group**
Blacknose Dace	*Rhinichythys atratulus*		
Brook Trout	*Salvelinus fontinalis*	3	175 mm 225 mm 250 mm
Creek Chub	*Semotilus atromaculatus*		
Mottled Sculpin	*Cottus bairdi*		
White Sucker	*Catostomus commersoni*		
Total Species	**5**	**3**	
6/29/1988			
Blacknose Dace	*Rhinichythys atratulus*		
Creek Chub	*Semotilus atromaculatus*		
Mottled Sculpin	*Cottus bairdi*		
Rainbow Trout	*Oncorhynchus mykiss*	1	425 mm
White Sucker	*Catostomus commersoni*		
Total Species	**5**	**1**	
7/14/2000			
Blacknose Dace	*Rhinichythys atratulus*		
Creek Chub	*Semotilus atromaculatus*		
Mottled Sculpin	*Cottus bairdi*		
White Sucker	*Catostomus commersoni*		
Total Species	**4**		

Table 13. Fish population data collected by the PFBC at NFPC RM 2.72

RM 2.72			
7/17/1978			
Species Common Name	**Species Scientific Name**	**Number Collected**	**Length Group**
Blacknose Dace	*Rhinichythys atratulus*		
Brown Trout	*Salmo trutta*	2	250 mm 350 mm
Creek Chub	*Semotilus atromaculatus*		
Mottled Sculpin	*Cottus bairdi*		
Northern Hog Sucker	*Hypentelium nigricans*		
White Sucker	*Catostomus commersoni*		
Total Species	**6**	**2**	
6/29/1988			
Blacknose Dace	*Rhinichythys atratulus*		
Brook Trout	*Salvelinus fontinalis*	1	225 mm
Brown Trout	*Salmo trutta*	1	50 mm
Creek Chub	*Semotilus atromaculatus*		
Johnny Darter	*Etheostoma nigrum*		
Mottled Sculpin	*Cottus bairdi*		
Northern Hog Sucker	*Hypentelium nigricans*		
White Sucker	*Catostomus commersoni*		
Total Species	**8**	**2**	
7/13/2000			
Blacknose Dace	*Rhinichythys atratulus*		
Brown Trout	*Salmo trutta*	2	250 mm
Brook Trout - Hatchery	*Salvelinus fontinalis*	8	175 mm 200 mm 250 mm 275 mm 300 mm
Creek Chub	*Semotilus atromaculatus*		
Johnny Darter	*Etheostoma nigrum*		
Longnose Dace	*Rhinichythys cataractae*		
Mottled Sculpin	*Cottus bairdi*		
Northern Hog Sucker	*Hypentelium nigricans*		
Rainbow Trout - Hatchery	*Oncorhynchus mykiss*	2	300 mm, 400 mm
Redside Dace	*Clinostomus elongatus*		
White Sucker	*Catostomus commersoni*		
Total Species	**11**	**12**	

Table 14. Fish population data collected by the PFBC at NFPC RM 0.72 including population data for the 2000 survey.

RM 0.72			
Collected by PAFBC			
7/17/1978			
Species Common Name	**Species Scientific Name**	**Number Collected**	**Length Group**
Blacknose Dace	*Rhinichythys atratulus*		
Brook Trout	*Salvelinus fontinalis*	2	175 mm 200 mm
Central Stoneroller	*Campostoma anomalum*		
Creek Chub	*Semotilus atromaculatus*		
Longnose Dace	*Rhinichythys cataractae*		
Mottled Sculpin	*Cottus bairdi*		
Northern Common Shiner	*Notropis cornutus*		
Northern Hog Sucker	*Hypentelium nigricans*		
Silver Shiner	*Notropis photogenis*		
Walleye	*Stizostedion vitreum*		
White Sucker	*Catostomus commersoni*		
Total Species	**11**	**2**	
6/29/1988			
Blacknose Dace	*Rhinichythys atratulus*		
Brown Trout	*Salmo trutta*	3	50 mm 75 mm 275 mm
Central Stoneroller	*Campostoma anomalum*		
Fantail Darter	*Etheostoma flabellare*		
Johnny Darter	*Etheostoma nigrum*		
Mottled Sculpin	*Cottus bairdi*		
Northern Hog Sucker	*Hypentelium nigricans*		
Rainbow Darter	*Etheostoma caeruleum*		
White Sucker	*Catostomus commersoni*		
Total Species	**9**	**3**	

7/13/2000			
Blacknose Dace	*Rhinichythys atratulus*		
Bluntonose Minnow	*Pimephales notatus*		
Brook Trout - Hatchery	*Salvelinus fontinalis*	4	250 mm 275 mm
Brown Trout	*Salmo trutta*	69	
Central Stoneroller	*Campostoma anomalum*		
Creek Chub	*Semotilus atromaculatus*		
Common Shiner	*Luxilus cornutus*		
Fantail Darter	*Etheostoma flabellare*		
Johnny Darter	*Etheostoma nigrum*		
Lamprey	*Lamprey*		
Longnose Dace	*Rhinichythys cataractae*		
Mottled Sculpin	*Cottus bairdi*		
Northern Hog Sucker	*Hypentelium nigricans*		
Rainbow Darter	*Etheostoma caeruleum*		
White Sucker	*Catostomus commersoni*		
Total Species	**15**	**73**	

Length Group	Number Collected	#/HA	KG/HA	#/KM
50 mm	32	160	0.48	104
75 mm	19	95	0.48	62
125 mm	1	5	0.16	3
150 mm	6	30	1.47	19
175 mm	2	10	0.7	6
225 mm	1	5	0.75	3
250 mm	2	10	1.97	6
275 mm	2	10	2.84	6
300mm	1	5	1.54	3
Totals	**66**	**330**	**10.39**	**212**

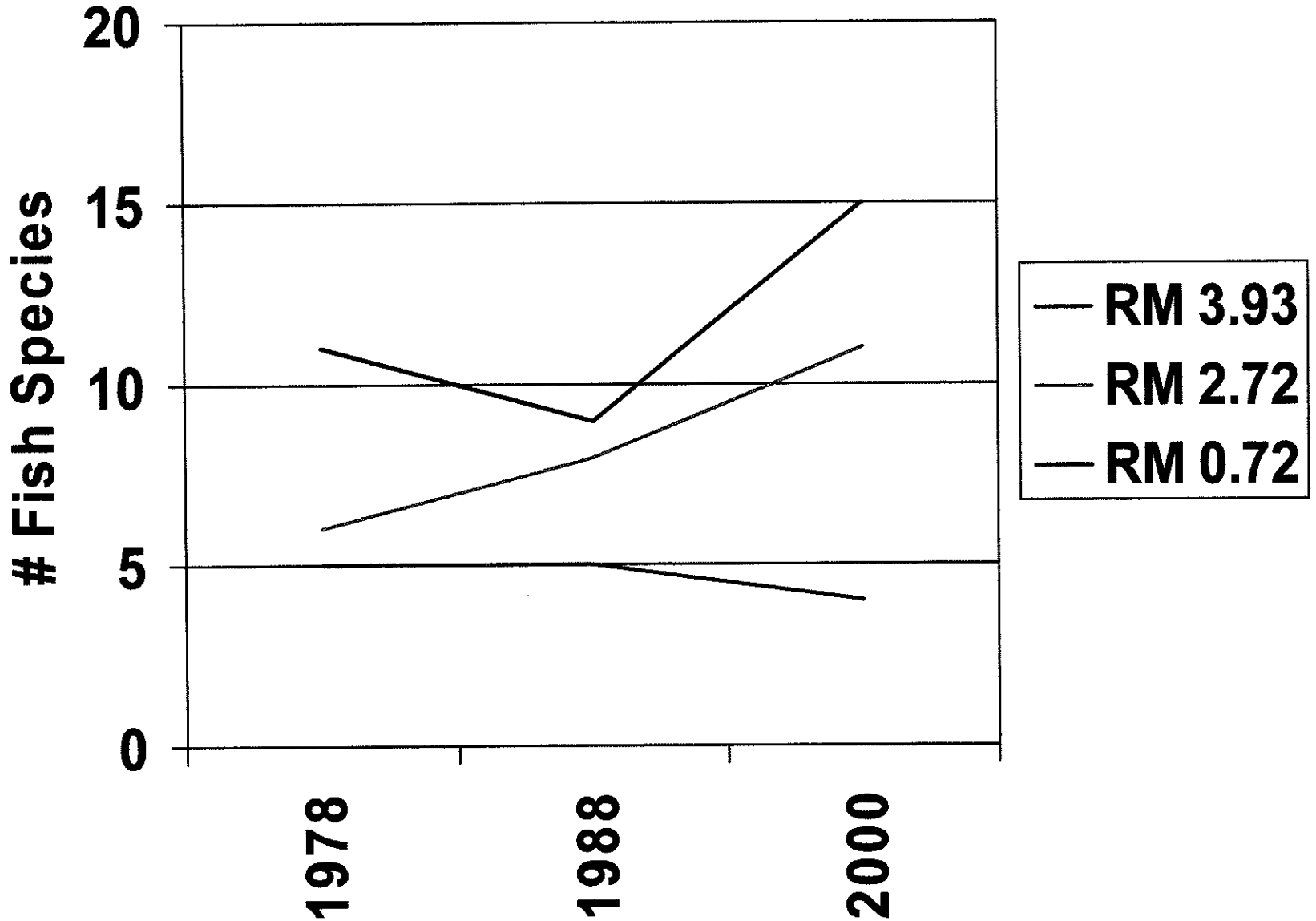

Figure 15. The number of fish species collected at each of the three NFPC PFBC sampling locations. Notice the increase in species at RM 2.72 and RM 0.72.

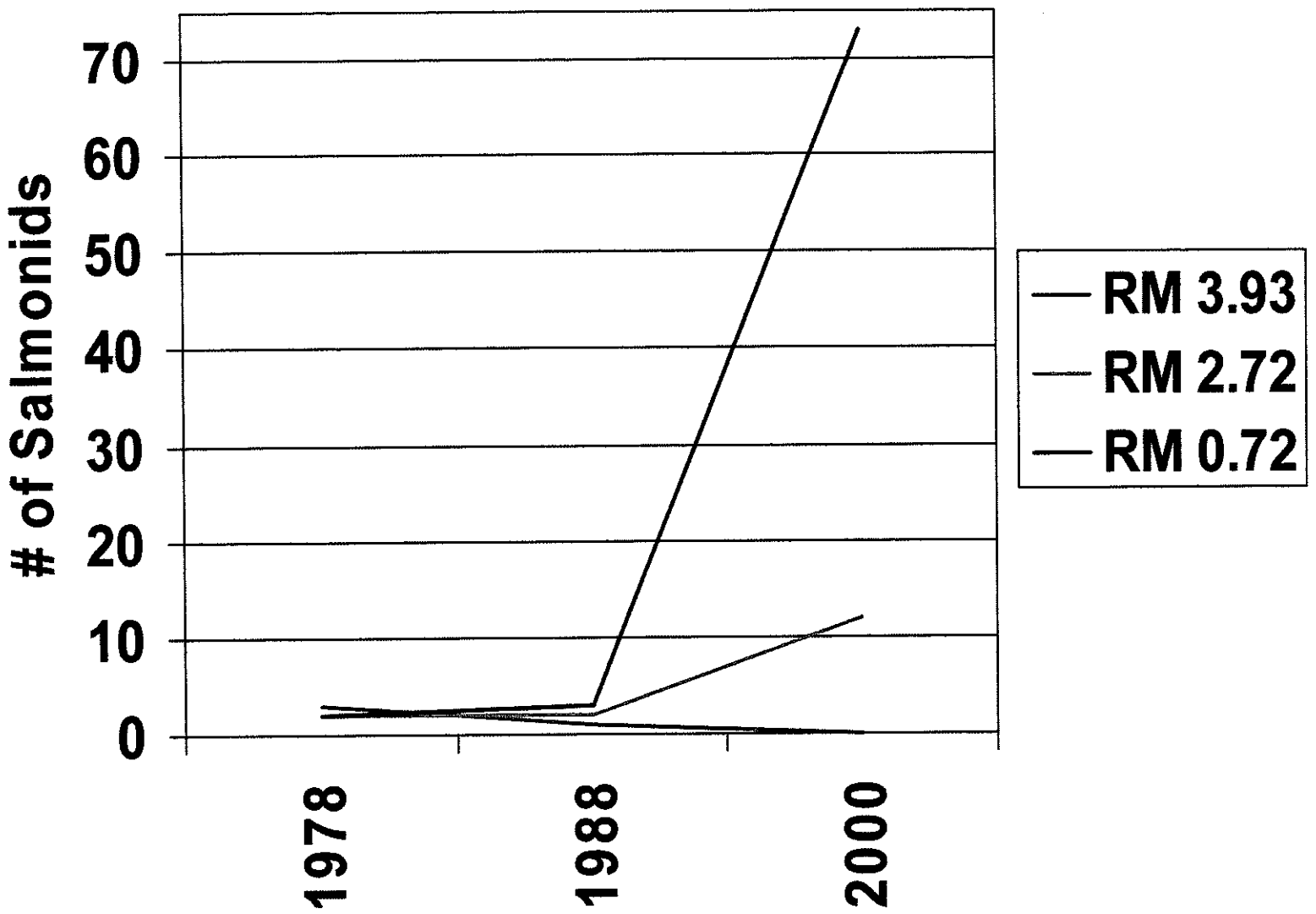

Figure 16. The number of salmonids collected at each of the three NFPC PFBC sampling locations. Notice the increase in numbers at RM 2.72 and the massive increase in numbers at RM 0.72.

Adversely, PFBC data does not show this type of improvement in the SFPC, in fact it illustrates declining fish populations. Four sites (RM 10.53, RM 7.13, RM 4.00 and RM 0.33) were surveyed in 1978 and 1988. Three of the four sites show declines in number of fish species and number of salmonids captured and only one shows an insignificant increase (Table 15).

Table 15. Declining fish and salmonid populations in the SFPC.

Location	# of Species Captured	# of Salmonids Captured.
RM 10.53		
1978	9	6
1988	6	0
RM 7.13		
1978	11	2
1988	9	0
RM 4.00		
1978	10	1
1988	7	0
RM 0.33		
1978	8	0
1988	9	2

Once again, this data illustrates the impact that upstream areas, NBSF and SBSF, have on the cold water integrity of the SFPC. Great efforts should be taken to lessen these impacts. If completed, the SFPC has arguably even more potential that the NFPC due to its greater habitat and larger size.

PFBC fish surveys have also been completed on the NBSF in 1978 and on UNT 47188 "Miller's Hollow" in 2000. However, the data contained in these reports is insignificant to this restoration plan. Nevertheless, these PFBC reports can be found in Appendix A of this restoration plan along with the NFPC, SFPC and Bullock Run PFBC reports.

Macroinvertebrate Population Data

Macroinvertebrates were collected in 1978 by the PFBC at all locations where fish surveys were completed; RM 3.93, RM 2.77 and RM 0.72 on the NFPC; RM 10.53, RM 7.13, RM 4.00 and RM 0.33 on the SFPC; and RM 2.25 and RM 0.55 on the NBSF (Table 16). Most of the

sites, besides NBSF RM 2.55, show populations that are impacted. Other observation include a slightly improving population as you move downstream on the NFPC and a declining population as you move downstream on the SFPC and the NBSF.

Table 16. Macroinvertebrate populations in sections of the Pine Creek Watershed sampled by the PFBC in 1978. EPT = Mayfly, Stonefly and Caddisfly Taxa. E = Mayfly Taxa.

	NFPC RM 3.93	NFPC RM 2.77	NFPC RM 0.72	
Total Taxa	8	9	10	
EPT Taxa	50%	56%	30%	
E Taxa	25%	11%	10%	
Density	Poor	Fair	Fair	
	SFPC RM 10.53	SFPC RM 7.13	SFPC RM 4.00	SFPC RM 0.33
Total Taxa	8	12	5	6
EPT Taxa	50%	42%	60%	50%
E Taxa	38%	33%	20%	17%
Density	Fair	Fair	Poor	Poor
	NBSF RM 2.25	NBSF RM 0.55		
Total Taxa	14	10		
EPT Taxa	50%	40%		
E Taxa	21%	10%		
Density	Good	Fair		

Macroinvertebrates were collected for this project in October 2006. Samples were collected at mouths of NFPC (RM 0.33), NBSF (RM 0.55) and SBSF (RM 1.11) and at three locations along the SFPC (RM 0.33, RM 4.00, and RM 8.53). Comparisons to the 1978 samples can be made at four locations; NFPC RM 0.33, NBSF RM 0.55, SFPC RM 0.33, and SFPC RM 4.00.

Macroinvertebrates were collected with a D-Frame Kick Net. Two samples were taken at each station totaling approximately a 3.0 square foot sample. One minute kicks were completed for each of the two samples collected at each station to obtain similar efforts throughout the sampling process.

The macroinvertebrate population in the NFPC is the healthiest, which corresponds to the good water quality, low temperatures and fish populations within. Fifty-seven individuals were

collected from twelve different taxa. Sixty-seven percent of those taxa were from the Ephemeroptera (E), Plecoptera (P) or Tricoptera (T) Orders, generally thought as the most pollution sensitive Orders of macroinvertebrates. Twenty-five percent of all taxa were from the Ephemeroptera (E) Order, generally though as the most pollution sensitive Order of all macroinvertebrate Orders. These statistics are all improvements over the population collected in 1978 by the PFBC and consequently should be used as the control when analyzing future populations of Pine Creek macroinvertebrates (Table 16).

The 2006 macroinvertebrate populations in the NBSF also showed slight improvements from the population collected in 1978 by the PFBC. Although total taxa collected (10) did not increase, the EPT and E increased from 40% and 10% in 1978 to 60% and 20% in 2006 respectively. However, the 2006 population was dominated by *Hydropsychidae* from the Tricoptera Order (38% of the individuals collected). These caddisflies are filter feeders that tend to thrive in waters with high sediment loadings. This is another indication of sediment issues within this portion or the Pine Creek Watershed.

The most impacted population was collected from the SBSF. Only 23 individuals were collected representing only seven different taxa. Only 29% were EPT and no Ephemeropteras were collected. In addition, 48% of the population was comprised of *Hydropsychidae* from the Tricoptera Order, demonstrating the sedimentation issues in this portion of the Pine Creek Watershed.

The three samples collected along the SFPC at RM 8.53, RM 4.00 and RM 0.33 are summarized in Figure 17-25. Overall, this portion of the Pine Creek Watershed seems to have improved slightly since 1978 as well. At RM 4.00, total taxa increased from five to eleven and EPT and T taxa remained generally unchanged. At RM 0.33, total taxa increases from six to ten

and EPT and T taxa increased slightly from 50% and 17% in 1978 to 60% and 20% respectively in 2006.

As mentioned, all 2006 macroinvertebrate populations sampled are summarized in Figure 17-25.

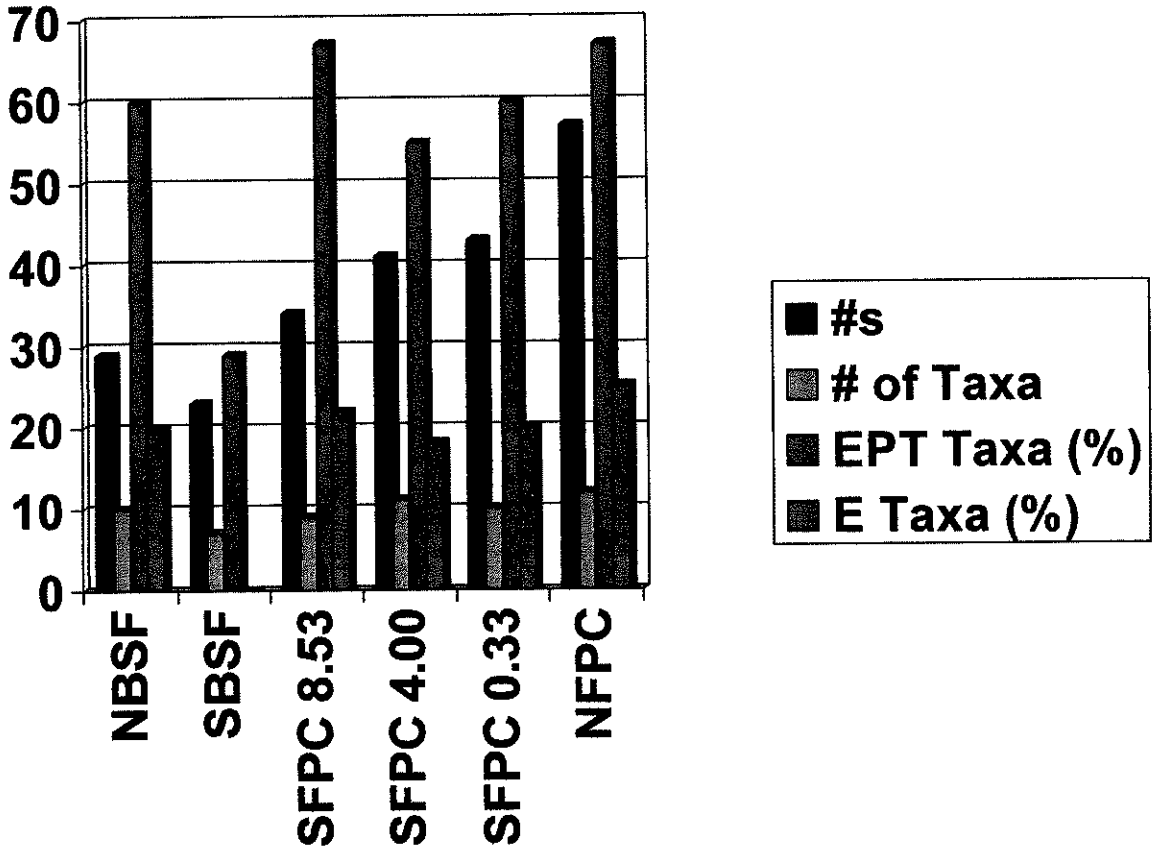

Figure 17. Summary of the 2006 macroinvertebrate populations throughout the Pine Creek Watershed.

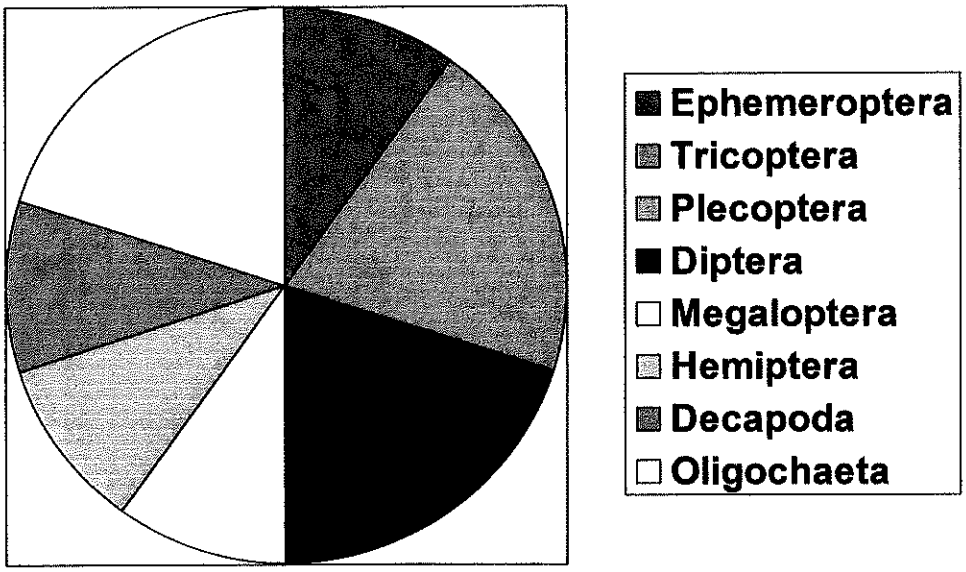

Figure 18. Macroinvertebrate population composition at NFPC in 1978.

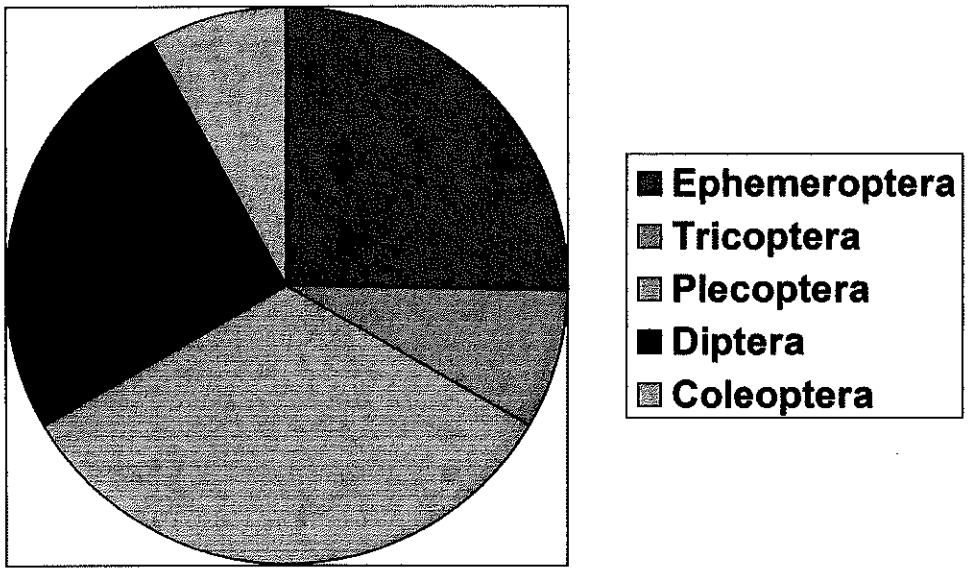

Figure 19. Macroinvertebrate population composition at NFPC in 2006.

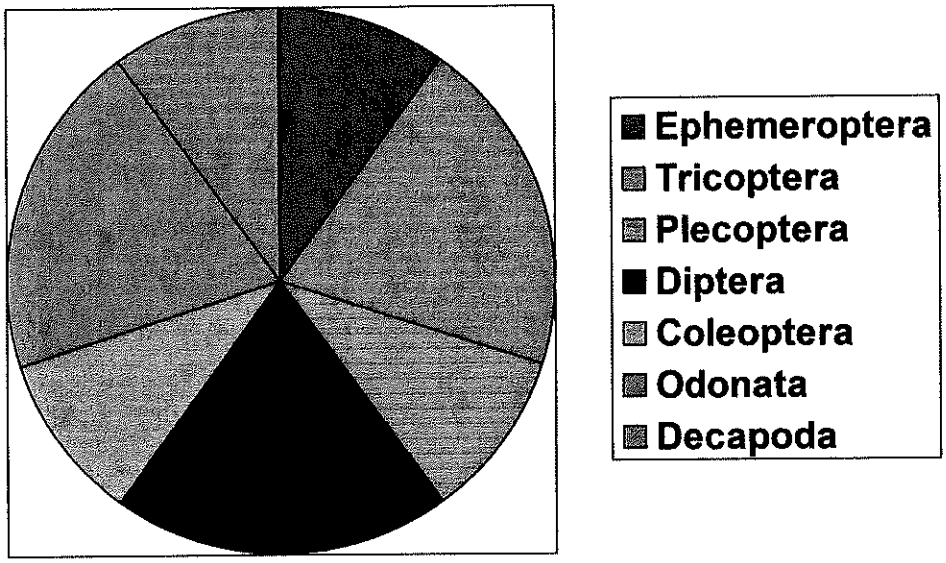

Figure 20. Macroinvertebrate population composition at NBSF in 1978

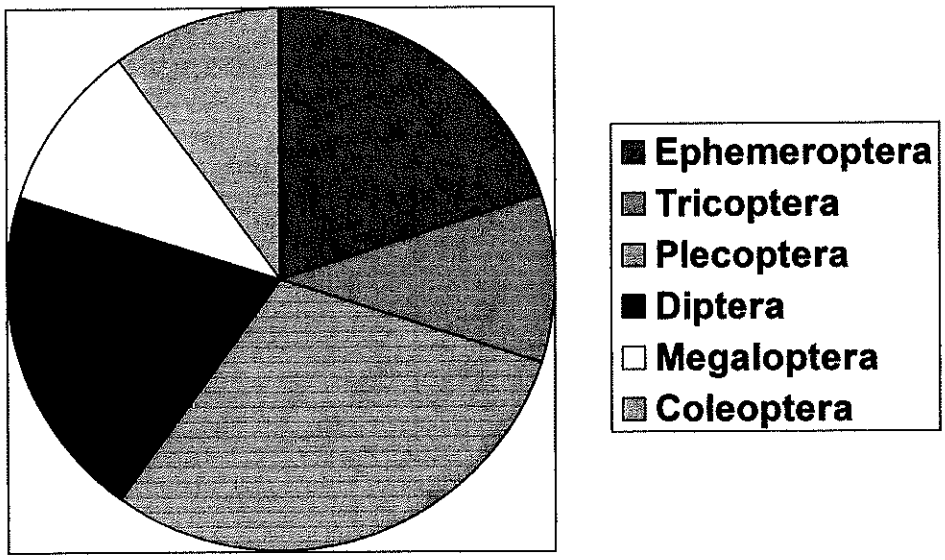

Figure 21. Macroinvertebrate population composition at NBSF in 2006.

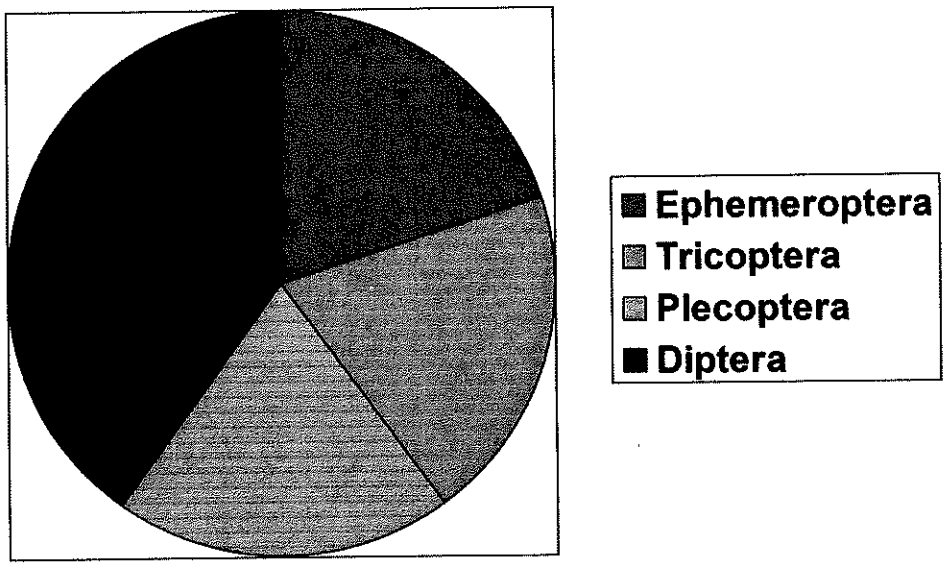

Figure 22. Macroinvertebrate population composition at SFPC RM 4.00 in 1978.

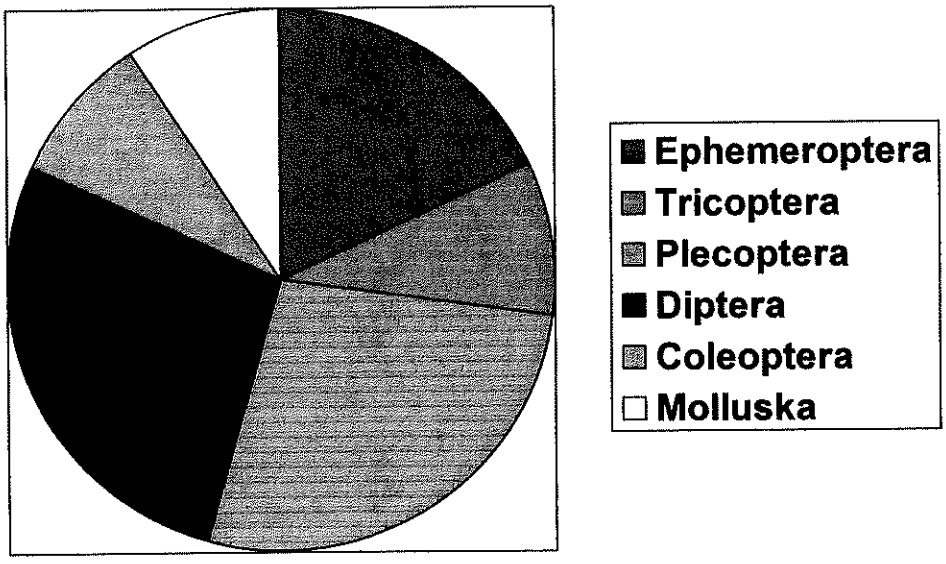

Figure 23. Macroinvertebrate population composition at SFPC RM 4.00 in 2006.

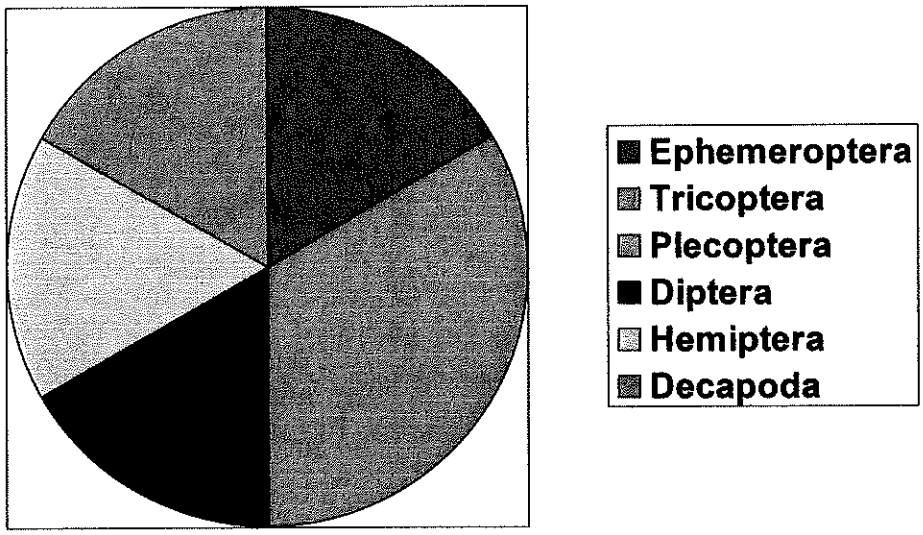

Figure 24. Macroinvertebrate population composition at SFPC RM 0.33 in 1978.

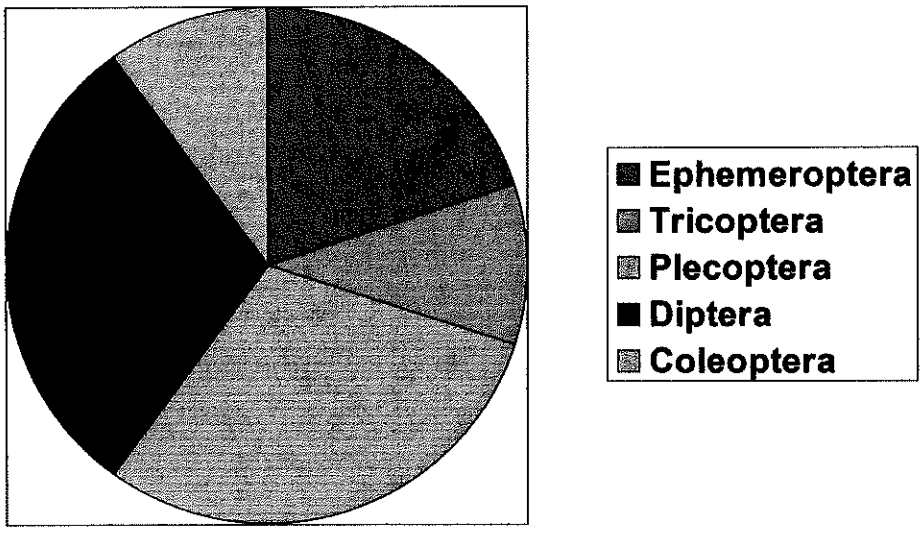

Figure 25. Macroinvertebrate population composition at SFPC RM 0.33 in 2006.

Restoration Plan

Non Restoration Recommendations

1. During the field data collection of the project, it was noted that many of the large tributaries in the Pine Creek Watershed are not named. This makes relaying where particular sites are in the watershed difficult (hence the use of the River Mile (RM) when describing sites). Several large tributaries currently not named should be named for ease in location explanations. These include UNT 47188, 47182, 47177, 47288 and 47222. Those tributaries are highlighted in Figure 26.
2. The PFBC and the Pine Creek Sportsmen's Club should be encouraged to stock all Brown Trout into the Pine Creek Watershed and to cease stockings of Brook, Rainbow and Golden Rainbow Trout. The Pine Creek Watershed has the thermal characteristics that make Brown Trout introductions more successful since they can withstand higher water temperatures. This can already be seen in the presence of a descent population of wild Brown Trout in the NFPC and Bullock Run Watersheds. Stocking all Brown Trout will only increase this wild trout potential.
3. Encourage the PA DEP to list other sections of the Pine Creek Watershed as impaired, particularly the headwaters of the NFPC and the entire NBSF and SBSF watersheds, the prime pollution impact areas affecting Pine Creek. Pollution in these areas is comprised of thermal, sediment loading and nutrient loading prioritized in that order.
4. Establish the Pine Creek Watershed Association to implement the recommendations of this plan. Enlist the assistance of the Armstrong Conservation District, the Pine Creek Sportsmen's Club and Pine Creek Watershed municipalities.

Pine Creek Watershed
Location In Surrounding Municipalities

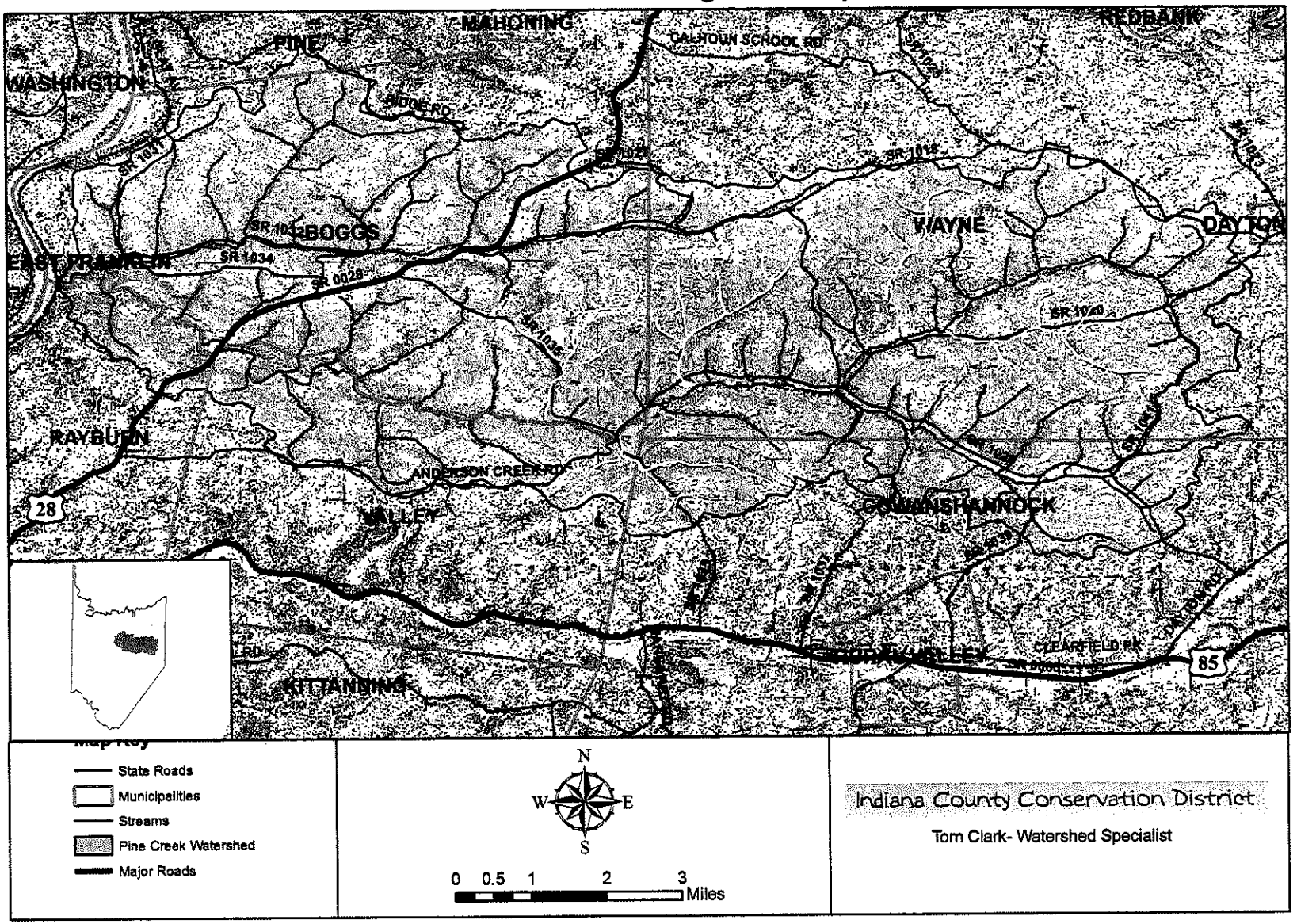

Figure 26. Unnamed tributaries noted in yellow that should be named through the USGS stream naming procedure.

SBSF Recommendations

1. A majority of the pollution impacting the SBSF originates from agricultural production mainly in the vicinity and upstream of the town of Bryan. These sites are the major thermal and sedimentation and nutrient loading impacts to the SBSF. UNT 47197, 47210-47212, 47215 and 47216 are all impacted heavily. All of these tributaries besides UNT 47197 are listed as impaired by agriculture on the PA DEP 303d List of Impaired Waters (Table 3 and Figure 7). Pictures of these impacts can be found in Figures 27 and 28. A watershed wide, agricultural BMP project should be implemented to correct these issues.
2. The second largest impact is sedimentation from SBSF dirt and gravel roadways. According to Armstrong County data there is 7.74 miles of dirt and gravel roadways in the SBSF Watershed Management Unit. Of that, 0.0 miles have had a dirt and gravel road project completed, 4.70 miles have not been inspected for potential and 3.04 miles have been identified as possible project sites. The Armstrong Conservation District needs to encourage Cowanshannock and Wayne Townships to submit project applications to the Armstrong County Dirt and Gravel Road Grant Program. In addition, Armstrong County may want to weigh applications from the Pine Creek Watershed heavier than applications from other watersheds since sedimentation is priority #2 and the HQ-CWF characteristics that should be displayed by Pine Creek. Roadway listings and lengths can be found in Table 17 and locations can be found in Figure 29.
3. As mentioned, thermal pollution is a major impact to the integrity of the Pine Creek Watershed. Much of this pollution originates on the agricultural sites covered under Recommendation #1. There is also an approximate seven acre impoundment just downstream of the town of Bryan that surely increases the temperatures of this HQ-CWF

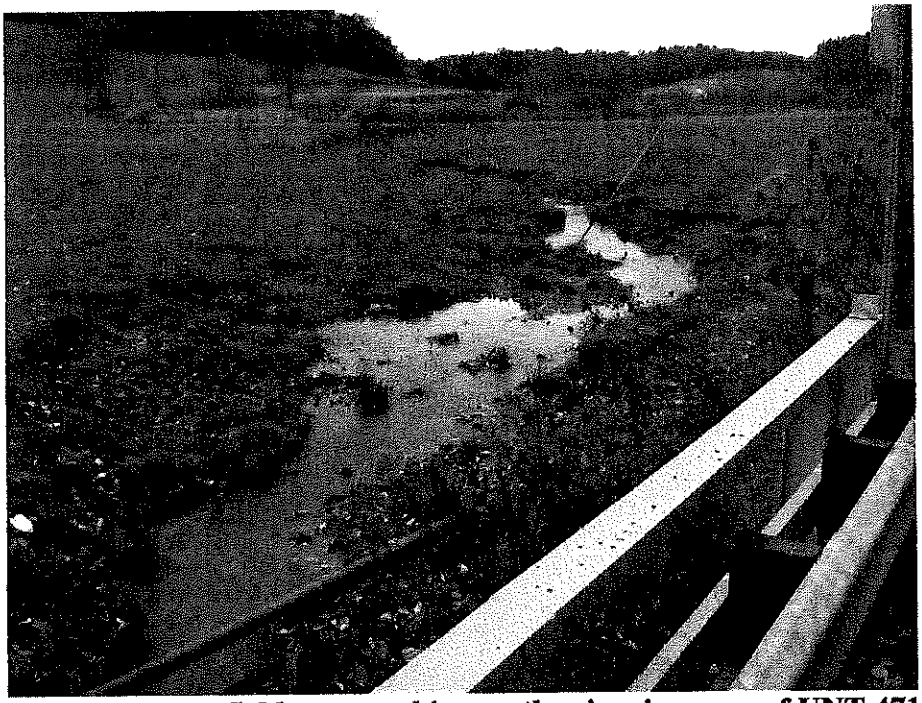

Figure 27. Pasture fields encroaching on the riparian area of UNT 47197.

Figure 28. Sediment in the SBSF just downstream of the town of Bryan.

Pine Creek

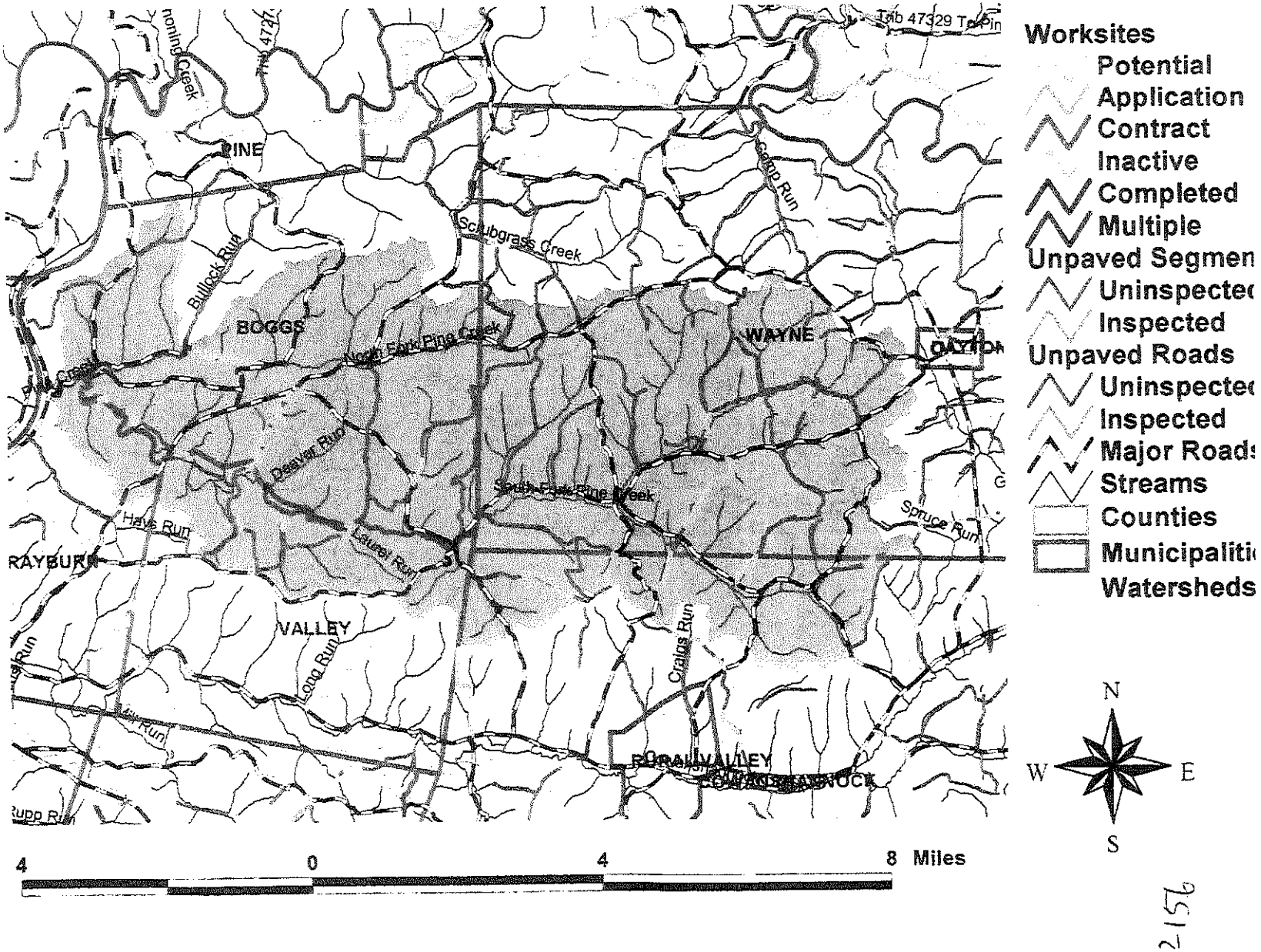

Figure 29. Map identifying the dirt and gravel roadways of the Pine Creek Watershed.

Table 17. Dirt and gravel roadways in the SBSF Watershed Management Unit.

Roadway	Length in Feet	Listed As	Township
Wind Road	8025	Uninspected	Cowanshannock
Logan Road	2152	Uninspected	Cowanshannock
Crytzer Road	3369	Uninspected	Wayne
Limestone Road	5808	Uninspected	Wayne
St Michaels Road	1667	Uninspected	Wayne
White Road	1172	Uninspected	Cowanshannock
Pebble Road	2642	Uninspected	Cowanshannock/Wayne
Logan Road	3792	Potential	Cowanshannock/Wayne
Reesman Road	2600	Potential	Cowanshannock
St Michaels Road	4000	Potential	Wayne
Lumstead Road	3217	Potential	Cowanshannock
White Road	2434	Potential	Cowanshannock

headwater stream. The owner of this impoundment should be researched and the possibility of removal should be discussed (Figure 30).

4. Gas is plentiful in Armstrong County and the Pine Creek Watershed. Roads leading to these gas wells and the pads that these gas wells are constructed upon do cause major sedimentation pollution to streams. According to the USGS Topographic Map, 35 gas wells (4.67 per square mile) are located in the SBSF Watershed Management Unit. The Armstrong Conservation District and PA DEP should train and assist the gas well companies in the installation of mine belt roadway diversions which are inexpensive structures to divert water flow from the roadways during precipitation events and into vegetated strips where the sediment can dissipate. The Indiana County Conservation District has assembled a brochure as to how to construct and install these diversions and this brochure can be found in Appendix B.
5. The final major problem in the SBSF Watershed Management Unit is an impact that can be found in all the Pine Creek Watershed Management Units, undersized stream culverts. Most of these culverts can be enlarged through the Armstrong County Dirt and Gravel Road Grants Program; however, some are located in state roadways. Watershed stake

holders need to inform PA Department of Transportation (PennDOT) of these problems so that when future roadway work occurs, properly sized culverts can be installed.

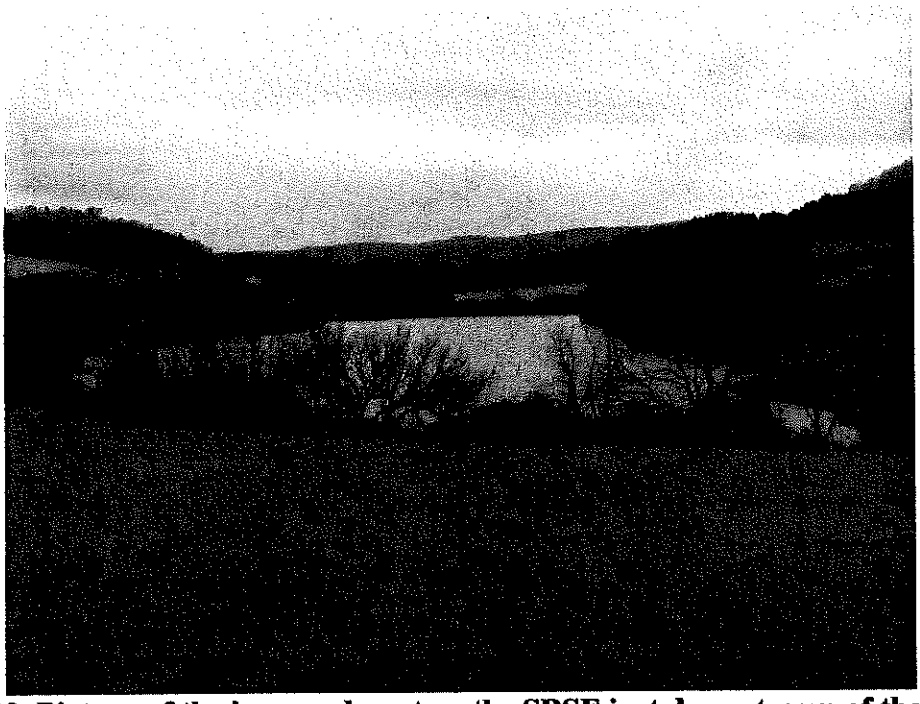

Figure 30. Picture of the impoundment on the SBSF just downstream of the town of Bryan.

NBSF Restoration Plan

1. A majority of the pollution impacting the NBSF originates from agricultural production. Areas of impact are located in Figure 31 and include a majority of UNT 47228 and the headwaters area of the NBSF. These areas should be focused on and included in a watershed wide, agricultural BMP project coupled with the agricultural restoration measures in the SBSF Watershed Management Unit. A similar project should be implemented as is being implemented by the Armstrong Conservation District currently on Patterson Creek, a major tributary of Buffalo Creek.
2. Riparian area encroachment is also a problem along a major stretch of the main stem of the NBSF located in Figure 32. This section is managed by one landowner who stocks trout for recreation and maintains lawns up to the water edge. He also seems to have constructed river run structures that may be utilized to keep his stocked trout in designated areas owned by him. This section of stream may be prime for a Fluvial Geomorphology Project. Discussions should be made with the landowner for such a project.
3. Sedimentation from NBSF dirt and gravel roadways is also a major watershed impact. According to Armstrong County data there is 14.46 miles of dirt and gravel roadways in the NBSF Watershed Management Unit. Of that, 0.07 miles have had a dirt and gravel road project completed, 13.44 miles have not been inspected for potential and 0.95 miles have been identified as possible project sites. The Armstrong Conservation District needs to encourage Wayne Township to submit project applications to the Armstrong County Dirt and Gravel Road Grant Program. In addition, Armstrong County may want to weigh applications from the Pine Creek Watershed heavier that

Pine Creek Watershed
Location In Surrounding Municipalities

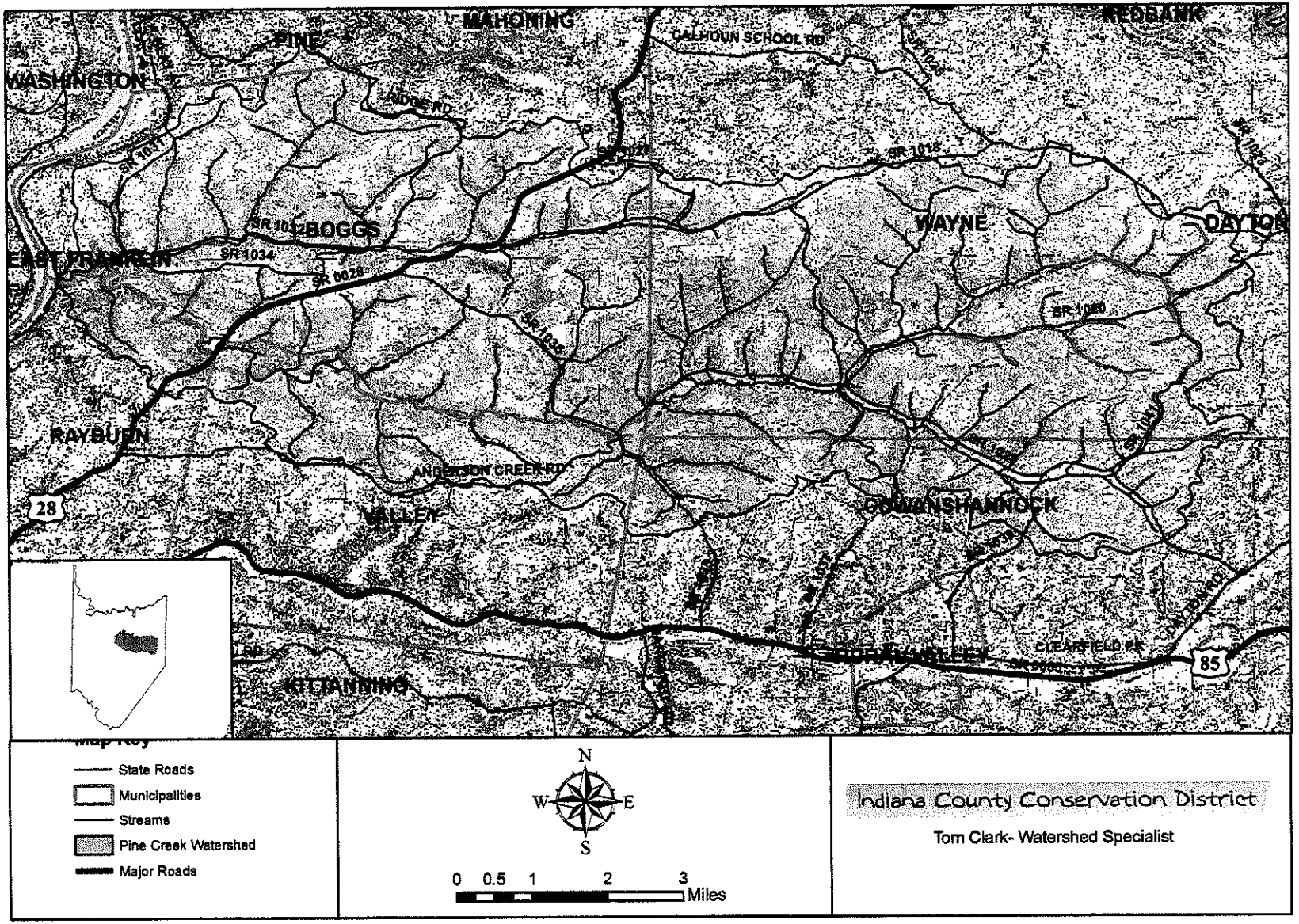

Figure 31. Location of the heavy agricultural impact areas, noted in brown, in the NBSF Watershed Management Unit.

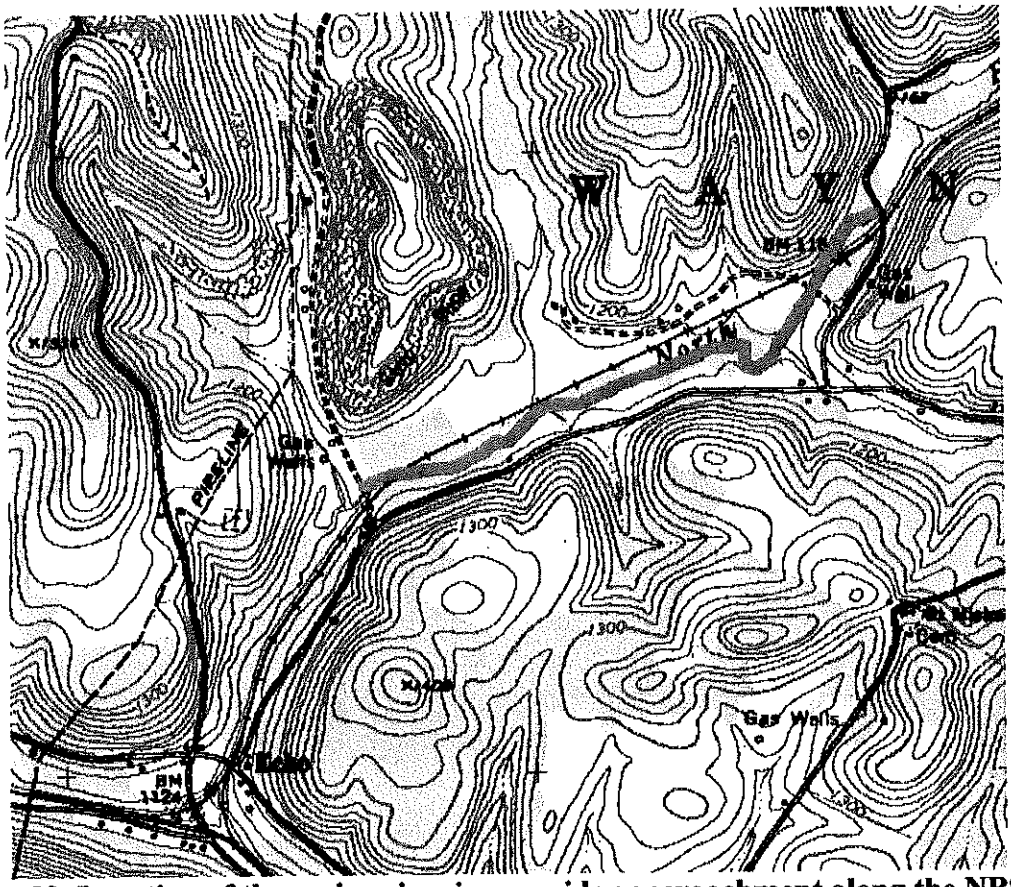

Figure 32. Location of the major riparian corridor encroachment along the NBSF.

those from other watersheds since sedimentation is priority #2 and the HQ-CWF characteristics that should be displayed by Pine Creek. Roadway listings and lengths can be found in Table 18 and locations can be found in Figure 29.

Table 18. Dirt and gravel roadways in the NBSF Watershed Management Unit.

Roadway	Length in Feet	Listed As	Township
Banjo Road	375	Completed	Wayne
Country Road	2157	Potential	Wayne
St. Michaels Road	2875	Potential	Wayne
Harris Road	179	Uninspected	Wayne
Hunter Road	3000	Uninspected	Wayne
Country Road	9303	Uninspected	Wayne
Evergreen Road	15365	Uninspected	Wayne
Wildlife Road	4892	Uninspected	Wayne
Fox Hollow Road	2122	Uninspected	Wayne
Concord Road	1556	Uninspected	Wayne
Skyline Road	4366	Uninspected	Wayne
Sun Road	6494	Uninspected	Wayne
Cherry Tree Road	1764	Uninspected	Wayne
Banjo Road	1200	Uninspected	Wayne
Russell Road	662	Uninspected	Wayne
Cornfield Road	2079	Uninspected	Wayne
Chestnut Road	1247	Uninspected	Wayne
Whippoorwill Road	4776	Uninspected	Wayne
Spur Road	1107	Uninspected	Wayne
Roads With No Names	1574	Uninspected	Wayne

4. Gas is plentiful in Armstrong County and the Pine Creek Watershed. Roads leading to these gas wells and the pads that these gas wells are constructed upon do cause major sedimentation pollution to streams. According to the USGS Topographic Map, 88 gas wells (8.0 per square mile) are located in the NBSF Watershed Management Unit. This is the highest concentrated amount in the entire Pine Creek Watershed. The Armstrong Conservation District and PA DEP should train and assist the gas well companies in the installation of mine belt roadway diversions which are inexpensive structures to divert water flow from the roadways during precipitation events and into vegetated strips where the sediment can dissipate. The Indiana County Conservation

District has assembled a brochure as to how to construct and install these diversions and this brochure can be found in Appendix B.

5. Two sites are greatly impacted by the railroad that runs through the NBSF Watershed Management Unit. The first site is caused by the elimination of the original channel of UNT 47222. When the railroad was constructed, instead of placing a culvert allowing UNT 47222 to flow underneath, no culvert was installed and UNT 47222 now flows along side the railroad track for approximately 1700 ft until finally entering the NBSF (Figure 33 and 34). This has created extensive erosion of the railroad and sedimentation of the NBSF. PA DEP needs to be notified of this problem and the owner of the railroad needs to install a culvert that will allow UNT 47222 to enter the NBSF at its original location. The second site is just upstream of NBSF's confluence with the SBSF. The railroad, when constructed, eliminated the flood plain on the east side of the NBSF and the stream is now becoming entrenched and causing heavy erosion along the west side of the NBSF for approximately 300 ft. A Fluvial Geomorphology Project should be completed to stabilize and construct a flood plain on the west side of the stream to reduce the energy that is allowing the NBSF to entrench (Figure 35).
6. The final major problem in the NBSF Watershed Management Unit is an impact that can be found in all the Pine Creek Watershed Management Units, undersized stream culverts. Most of these culverts can be enlarged through the Armstrong County Dirt and Gravel Road Grants Program; however, some are located in state roadways. Watershed stake holders need to inform PA Department of Transportation

(PennDOT) of these problems so that when future roadway work occurs, properly sized culverts can be installed.

Figure 33. Location of the UNT 47222 railroad diversion.

Figure 34. A picture of UNT 47222 flowing alongside the railroad.

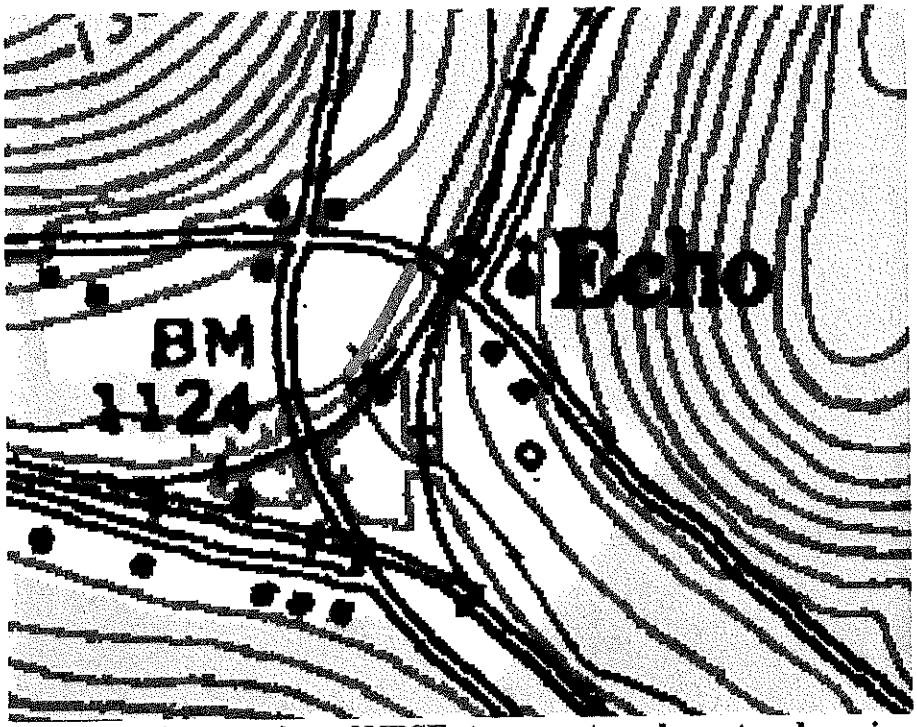

Figure 35. Location of the section of NBSF stream entrenchment and erosion caused by the elimination of the eastern floodplain by the railroad.

SFPC Recommendations

1. As mentioned previously, the best method to improve the SFPC is to focus restoration projects in the SBSF and NBSF Watershed Management Units. Analyzing the water quality and biological data in the restoration plan demonstrates that the SFPC does not begin in the best of conditions at the confluence of the NBSF and SBSF in the town of Echo, especially in terms of water temperature and sedimentation. The SFPC then slowly improves, and does not increase substantially in temperature until its confluence with the NFPC. Consequently, only three recommendations will be made for this Watershed Management Unit.
2. Sedimentation from SFPC dirt and gravel roadways is arguably the largest impact to the SFPC. According to Armstrong County data there is 24.40 miles of dirt and gravel roadways in the SFPC Watershed Management Unit. Of that, 2.43 miles have had a dirt and gravel road project completed, 18.00 miles have not been inspected for potential and 3.97 miles have been identified as possible project sites. The Armstrong Conservation District needs to encourage Cowanshannock, Wayne, Valley, Boggs and Rayburn Townships to submit project applications to the Armstrong County Dirt and Gravel Road Grant Program. In addition, Armstrong County may want to weigh applications from the Pine Creek Watershed heavier that applications from other watersheds since sedimentation is priority #2 and the HQ-CWF characteristics that should be displayed by Pine Creek. Roadway listings and lengths can be found in Table 19 and locations can be found in Figure 29.
3. Gas is plentiful in Armstrong County and the Pine Creek Watershed. Roads leading to these gas wells and the pads that these gas wells are constructed upon do cause major

sedimentation pollution to streams. According to the USGS Topographic Map, 138 gas wells (6.9 per square mile) are located in the SFPC Watershed Management Unit. This is the second highest concentrated amount in the entire Pine Creek Watershed. The Armstrong Conservation District and PA DEP should train and assist the gas well companies in the installation of mine belt roadway diversions which are inexpensive structures to divert water flow from the roadways during precipitation events and into vegetated strips where the sediment can dissipate. The Indiana County Conservation District has assembled a brochure as to how to construct and install these diversions and this brochure can be found in Appendix B.

4. A water quality and biological monitoring program should be initiated once projects to correct the impacts in the NBSF and SBSF are completed. Stream temperature, total suspended solids, macroinvertebrate populations and fish populations should be analyzed and compared with historical data within this restoration plan. Similar sampling station locations should be used as were used in this plan.

Table 19. Dirt and gravel roadways in the SFPC Watershed Management Unit.

Roadway	Length in Feet	Listed As	Township
Pine Creek	124	Completed	Boggs
South Oliver	1825	Completed	Boggs
Pebble Road	1596	Completed	Wayne
Pine Road	1072	Completed	Cowanshannock
Pine Furnace Road	1775	Completed	Valley
Elkin Road	1655	Potential	Boggs
South Oliver/Laurel Run/Martins Mill Roads	3000	Potential	Boggs/Valley
Deaver Hollow	6442	Potential	Boggs
Pine Creek Road	1281	Potential	Boggs/Valley
McCauley Falls Road	1821	Potential	Boggs
McCauley Falls Road	644	Potential	Boggs/Rayburn
Pine Road	3795	Potential	Cowanshannock
Rammer Road	1000	Potential	Valley
Slease Road	1348	Potential	Valley
Matteer Road	8342	Uninspected	Wayne
Miller Hollow	9557	Uninspected	Wayne
Beck Road	8976	Uninspected	Boggs/Wayne
Elkin Road	11880	Uninspected	Boggs/Wayne
Calhoun Road	4042	Uninspected	Boggs
South Oliver Road	4823	Uninspected	Boggs
Pine Creek Road	7550	Uninspected	Boggs/Valley
Pine Creek Road	636	Uninspected	Boggs/Valley
McCauley Falls Road	2916	Uninspected	Boggs
McCauley Falls Road	1173	Uninspected	Boggs
McCauley Falls Road	3349	Uninspected	Boggs/Rayburn
Pebble Road	6706	Uninspected	Wayne
Poney Farm Road	5131	Uninspected	Wayne/Cowanshannock
Pine Road	2670	Uninspected	Cowanshannock
Laurel Run Road	7239	Uninspected	Valley
Rammer Road	1140	Uninspected	Valley
Slease Road	3356	Uninspected	Valley
Pine Furnace Road	5573	Uninspected	Valley

NFPC Recommendations

1. A majority of the thermal and sedimentation pollution impacting the NFPC is centered on the headwaters section of the stream upstream of the town of Slabtown (Figure 36). This is where most of the agricultural impacts are located as well as the areas of riparian area encroachment. This is confirmed by water quality samples collected on October 25, 2006. At RM 6.61 in the headwaters, the Nitrate/Nitrite concentration was found to be 2.20 mg/l and the stream temperature was 47.80° Fahrenheit. At RM 0.06 at the mouth of the NFPC, Nitrate/Nitrite concentration was found to be 0.88 mg/l and the stream temperature was cooler at 45.30° Fahrenheit. The same is shown by the macroinvertebrate and fish data collected by the PFBC since 1978. Consequently, agricultural BMP and riparian corridor restoration projects should be focused on this portion of the NFPC Watershed Management Unit.
2. Sedimentation from NFPC dirt and gravel roadways is a major watershed impact. According to Armstrong County data there is 8.86 miles of dirt and gravel roadways in the NFPC Watershed Management Unit. Of that, 0.44 miles have had a dirt and gravel road project completed, 7.25 miles have not been inspected for potential and 1.17 miles have been identified as possible project sites. The Armstrong Conservation District needs to encourage Wayne and Boggs Townships to submit project applications to the Armstrong County Dirt and Gravel Road Grant Program. In addition, Armstrong County may want to weigh applications from the Pine Creek Watershed heavier that applications from other watersheds since sedimentation is priority #2 and the HQ-CWF characteristics that should be displayed by Pine Creek. Roadway listings and lengths can be found in Table 20 and locations can be found in Figure 29.

Table 20. Dirt and gravel roadways in the NFPC Watershed Management Unit.

Roadway	Length in Feet	Listed As	Township
South and North Bullock Road	475	Completed	Boggs
Martin Road	1175	Completed	Wayne
Slide Road	697	Completed	Wayne
TR 1032	6178	Potential	Boggs
River Hill Road	3500	Uninspected	Boggs
Nichols/Anderson Road	5035	Uninspected	Boggs
South and North Bullock Road	12936	Uninspected	Boggs
North Oliver Road	5180	Uninspected	Boggs
TR 1027	5250	Uninspected	Wayne
Martin Road	1727	Uninspected	Wayne
Elkin Road	2073	Uninspected	Wayne
Hollow Road	1110	Uninspected	Wayne
Slide Road	1133	Uninspected	Wayne
Oak Road	330	Uninspected	Wayne

3. Gas is plentiful in Armstrong County and the Pine Creek Watershed. Roads leading to these gas wells and the pads that these gas wells are constructed upon do cause major sedimentation pollution to streams. According to the USGS Topographic Map, 69 gas wells (5.3 per square mile) are located in the SFPC Watershed Management Unit. The Armstrong Conservation District and PA DEP should train and assist the gas well companies in the installation of mine belt roadway diversions which are inexpensive structures to divert water flow from the roadways during precipitation events and into vegetated strips where the sediment can dissipate. The Indiana County Conservation District has assembled a brochure as to how to construct and install these diversions and this brochure can be found in Appendix B.
4. A water quality and biological monitoring program should be initiated once projects to correct the impacts in the headwaters of the NFPC are completed. Stream temperature, total suspended solids, macroinvertebrate populations and fish populations should be analyzed and compared with historical data within this restoration plan. Similar sampling

station locations should be used as were used in this plan. The wild populations of Brown Trout should be focused on, not only in the main stem of the NFPC, but also on Bullock Run. Yearly KG/HA should be documented to demonstrate if upstream improvements are increasing this population.

5. Work with the Armstrong County Conservancy to conserve the NFPC Watershed. The NFPC may be the best watershed in terms of water quality and biology in Armstrong County.

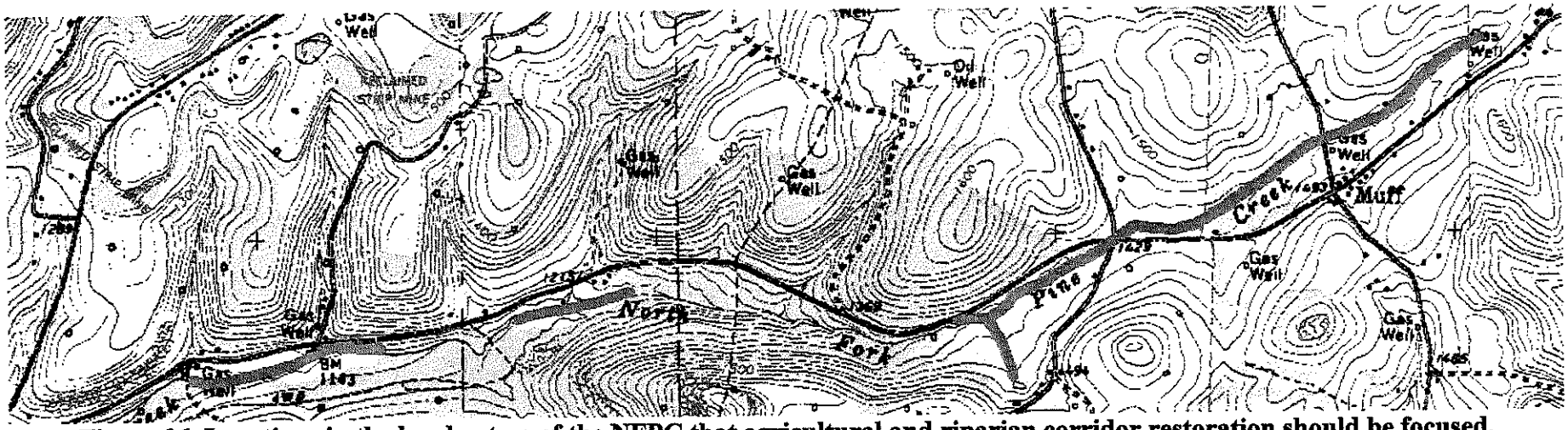

Figure 36. Locations in the headwaters of the NFPC that agricultural and riparian corridor restoration should be focused.

Appendix A

Pennsylvania Fish and Boat Commission Pine Creek Fish Data Reports

PENNSYLVANIA FISH AND BOAT COMMISSION
BUREAU OF FISHERIES
DIVISION OF FISHERIES MANAGEMENT

Bullock Run (217E)
Section 01

Prepared by
Allen Woomer and Ron Lee

Date Sampled: June 4, 1998 Date Prepared: October 1998

Abstract

Bullock Run (217E) is a small headwater stream located in Armstrong County and flowing into the North Fork of Pine Creek. It has not been previously surveyed by Area Two staff. It was sampled in 1998 to verify natural reproduction of trout reported by Waterways Conservation Officer Gundlach. The stream has had extensive strip mining for coal in the watershed with much reclamation. Water chemistry results (Table 1) indicate Bullock Run has high levels of alkalinity, hardness, and conductivity most likely associated with the effects of strip mining and its treatment. A single site was electrofished at River Mile (RM) 0.38 (Fig. 1) and four fish species were sampled (Table 2). Brown trout ranged in size from 50 to 299 mm and biomass was estimated at 9.99 kg/ha based the trout handled in a single pass (Table 3). Characteristics such as coloration and fin wear indicated all the trout were wild in origin. The minimum standard (0.1 kg/ha <150 mm in length) for verification of reproducing trout waters was met at this stream along with several older year classes being present. Bullock Run has been sectioned into a single Section 01 running from headwaters to the mouth. It should be managed as a wild trout fishery under the natural yield option. Bullock Run is part of the Pine Creek basin which is classified High Quality Cold Water Fishery (HQ-CWF) by PA DEP Chapter 93 Water Quality Standards.

Table 1. Chemical-thermal analyses of Bullock Run (217E) Site RM 0.38 on June 4, 1998.

Characteristic	01
Air Temp	19
Water Temp	12.3
pH	8.0
Spec Cond	450
Tot Alk	198
Tot Hard	140

Table 2. Species composition in Bullock Run (217E) Site RM 0.38 on June 4, 1998.

Common Name	Scientific Name
Brown trout	Salmo trutta
Blacknose dace	Rhinichthys atratulus
Creek chub	Semotilus atromaculatus
Mottled sculpin	Cottus bairdi
Species Total: 4	

Table 3. Abundance index and biomass of brown trout in Bullock Run (217E) Site RM 0.38 on June 4, 1998.

LENGTH GROUP (mm)	AVE. POP. EST.	LOW CI	HIGH CI	#/HA	KG/HA	#/KM
50	2	NA	NA	50	0.15	18
175	1	NA	NA	25	1.63	9
200	1	NA	NA	25	2.38	9
275	1	NA	NA	25	5.83	9
TOTALS	5			125	9.99	45

PA FISH AND BOAT COMMISSION
COMMENTS AND RECOMMENDATIONS
October 8, 1998

WATER: Bullock Run (217E) Armstrong County

EXAMINED: June 4, 1998

BY: Allen Woomer and Ron Lee

Bureau Director Action: _____ Date: _____

Division Chief Action: _____ Date: _____

WW Unit Leader Action: _____ Date: _____

CW Unit Leader Action: _____ Date: _____

AREA COMMENTS:

Bullock Run is a small headwaters type stream that was surveyed in 1998 to verify reproduction of trout. Sampling of the brown trout population met the 0.1 kg/ha standard of trout <150 mm to qualify as a reproducing trout water. A total brown trout biomass of 9.99 kg/ha was estimated from a single electrofishing pass.

AREA RECOMMENDATIONS:

1. Manage as a wild trout stream under the natural yield option.

This work made possible by funding from the Sport Fish Restoration Act Project F-57-R Fisheries Management.

PENNSYLVANIA FISH AND BOAT COMMISSION
BUREAU OF FISHERIES
DIVISION OF FISHERIES MANAGEMENT

Unnamed Tributary to Pine Creek, South Fork (217E)
Lat/Lon 405103/792121
Section 01

Prepared by
Allen Woomer and Ron Lee

Date Sampled: June 12, 2000 Date Prepared: January 2001

Abstract

The Unnamed Tributary to Pine Creek, South Fork (217E) is a small headwater stream located in Armstrong County. It is locally known as Miller Hollow. Table 1 lists some general facts about the stream. It was surveyed in 2000 to verify the presence of a reproducing population of trout. Armstrong County Waterways Conservation Officer Gundlach suggested the stream as a possible wild trout stream after receiving reports of wild trout being caught by anglers (Gundlach 1999). No previous surveys of this stream are present in Area Two files. A single site was sampled at the SR 1028 crossing (Fig. 1) located at River Mile (RM) 0.20. Water chemistry results (Table 2) indicate good water quality conditions well within the range of tolerance for trout. Three fish species were identified in the 116 m site (mean width 2.3 m) (Table 3). A single brook trout was sampled in the 175 mm size group (Table 4). It was questionable whether this trout was wild or not but it was entered into the database as a hatchery stocked trout. Because no trout <150 mm were sampled in the site we were unable to verify the presence of trout reproduction. It is recommended that this Unnamed Tributary to Pine Creek, South Fork not be added to the List of Reproducing Trout Streams at this time. Due to small size no intensive management or stocking is recommended. The Unnamed Tributary is part of the Pine Creek basin that is classified High Quality Coldwater Fishery in PA DEP Chapter 93 Water Quality Standards.

Literature Cited

Gundlach, B. 1999. Memo: Cherry Run Stocking. PFBC Area Two files, Tionesta, PA.

Table 1. General stream report for Unnamed Tributary to Pine Creek, South Fork (217E).

Mouth Latitude:	40 deg 51 min 03 sec
Longitude:	79 deg 21 min 21 sec
Major Basin:	Ohio River
Receiving Water:	Pine Ck S Fk
River Mile of Entry:	8.98
County of the Mouth:	Armstrong
Total Length:	3 km
Drainage Area:	4 sq km

Table 2. Chemical-thermal analyses in Unnamed Tributary to Pine Creek, South Fork (217E) on June 12, 2000.

Air Temp	22
Water Temp	18.0
pH	6.9
Spec Cond	118
Tot Alk	14
Tot Hard	38

Table 3. Fish species occurrence in Unnamed Tributary to Pine Creek, South Fork (217E) Site RM 0.20 on June 12, 2000.

Common Name	Scientific Name
Brook trout - hatchery	Salvelinus fontinalis
Blacknose dace	Rhinichthys atratulus
Mottled sculpin	Cottus bairdi
Species Total: 3	

Table 4. Abundance index and biomass of brook trout - hatchery Unnamed Tributary to Pine Creek, South Fork (217E) Site R.M. 0.20 Lat/Lon 405108/792131 Survey date: June 12, 2000.

LENGTH GROUP (mm)	AVE. POP. EST.	LOW CI	HIGH CI	#/HA	KG/HA	#/KM
175	1	NA	NA	33	2.37	9
TOTALS	1			33	2.37	9

PA FISH AND BOAT COMMISSION
COMMENTS AND RECOMMENDATIONS
January 12, 2000

WATER: Unnamed Tributary to Pine Creek, South Fork (217E)
Lat/Lon 405103/792121

EXAMINED: June 12, 2000

BY: Allen Woomer and Ron Lee

Bureau Director Action:_____ Date:

Division Chief Action:_____ Date:

WW Unit Leader Action:_____ Date:

CW Unit Leader Action:_____ Date:

==========

AREA COMMENTS:

An initial survey was conducted to verify reproduction of wild trout in this small headwater stream. No trout <150 mm were sampled in the 116 m site. Due to this fact the stream does not qualify for management as a reproducing trout stream.

AREA RECOMMENDATIONS:

1. No intensive management or stocking is recommended for this stream due to small size.

PENNSYLVANIA FISH COMMISSION — Stream Examination Report

STREAM LOCATION

Card Format: 01 | Latitude 40 51 10 | Longitude 79 19 40 | Stream Name PINE CK S FK N BR

County LARMS 03 | Length 009 | Drainage 002901 | Mgt. Area 2 17E

Tributary to PINE CK S FK | Latitude 40 52 32 | Longitude 79 28 10 | C 1

SECTION LIMITS

Card Format: 02 Dup. col. 3-14 | Sec. No. 02 | Yr. 78 | Length 945 | Area 003407 | Class XXXX | USGS Quad. 50627

Latitude 40 51 00 | Longitude 79 19 40 | Upstream to | Latitude 40 52 17 | Longitude 79 17 27 | 1 | C 1

DESCRIPTION (Do Not Punch)

Stream Examiners: Lee, Obert, Dinger, W.W. Smith

Downstream Limit: Confluence of S. Br. Pine Ck

Upstream Limit: Bridge at Jct. of T-531 and T-748

SOCIAL DATA

Card Format: 03 Dup. col. 3-18 | Mo. 04 | Yr. 77

Riparian Ownership

#/km	FOR	PARK	PGC	PFC	CIV	FED	PVT OPEN	PVT CLOSED
016	000	000	000	000	000	000	100	000

Accessibility — Parking — Boat Launch

Pop. Dens.	RdX/km	% 100m	% 300m	% 500m	PVT	PUB	CM	PUB	C
008	007	070	100	100	145	000	000	000	1

FOR CENTRAL OFFICE USE ONLY

Unit Recommendations: Date: 2/5/79

Sec. 02 of the N. Br. of the S. Fk. of Pine Creek is approved for the catchable trout program (from the mouth at Echo upstream to the bridge at the junction of T-531 and T-748). Length 2.8 mi. (4.5 km). Area 8.5 A (3.47 ha.). A mixed brook-brown trout program should work well and an inseason stocking should be considered when trout are available.

Section Chief Action: Rec. approved. Robert Bielo 2/6/79

Division Chief Action: Approved 2-6-79 Delmar E. Graff

Stream Name: Pine CK S.FK N.BR Sec. No. 02 Hgmt. Area 217E County ARMS-3

STATION LOCATION

Card Format: [0|4] Dup. col. 3-18 | Sta. No. 01 | Mo. Da. Yr. 06 28 78 | Latitude 40 52 11 | Longitude 79 17 14 | USGS Quad. 05062 | 5 | C 1

DESCRIPTION (Do Not Punch) 500M downstream from Jct of T531 and T748

PHYSICAL DATA

Card Format: [0|5] Dup. col. 3-26 | Length 0012 2 | Width 0003 4 | Area 0004 1 | Grad. 0061 | Geo. 0703

	Flow			Bnk.Ersn.				Shade			Rank Veg.				Sub. Comp.						
	High	Norm	Low	Hvy	Mod	Lite	None	Dens	Prtl	Open	Agri	GsSl	Shrb	Tree	Bdrk	Bldr	Rubl	Grvl	Sand	Silt	Clay
(Punch No. Circled)	1	2	(3)	(0)	2	3	4	(0)	2	3	1	2	(3)	4	1	2	(3)	4	(5)	6	7
	(51)			(52)				(53)			(54)				(55, 56)						

6 | C 2

CHEMICAL DATA

Card Format: [0|6] Dup. col. 3-26 | Time 1230 | Air Temp. 80 | H.O. Temp. 189 | Spec.Cond. 0160 | pH 072 | Tot.Alk. 021 | Tot.Hard. 047 | D.O. 997 | 7 | C 2

INVERTEBRATE DATA

Card Format: [0|7] Dup. col. 3-26 (Punch code number(s) checked, start with col. 27, end card with complete number, use same card format.) | 8 | C 1

Ameroptera
- ___ 010101 Ametropodidae
- ✓ 010102 Baetidae
- ___ 010103 Baetiscidae
- ___ 010105 Caenidae
- ✓ 010106 Ephemerellidae
- ___ 010107 Ephemeridae
- ___ 010108 Heptageniidae
- ___ 010109 Leptophlebiidae
- ___ 010110 Neoephemeridae
- ___ 010113 Potamanthidae
- ✓ 010114 Siphlonuridae
- ___ 010115 Tricorythidae

Plecoptera
- ___ 010201 Capniidae
- ___ 010202 Chloroperlidae
- ___ 010203 Leuctridae
- ___ 010204 Nemouridae
- ___ 010205 Peltoperlidae
- ✓ 010206 Perlidae
- ___ 010207 Perlodidae
- ___ 010208 Pteronarcidae
- ___ 010209 Taeniopterygidae

Coleoptera
- ___ 010301 Amphizoidae
- ___ 010306 Dryopidae
- ___ 010307 Dytiscidae
- ✓ 010308 Elmidae
- ___ 010310 Gyrinidae
- ___ 010311 Haliplidae
- ___ 010312 Helodidae
- ___ 010316 Hydrophilidae
- ___ 010322 Psephenidae

Trichoptera
- ___ 010401 Brachycentridae
- ___ 010402 Calamoceratidae
- ___ 010403 Glossosomatidae
- ___ 010404 Goeridae
- ___ 010405 Helicopsychidae
- ✓ 010406 Hydropsychidae
- ___ 010407 Hydroptilidae
- ___ 010408 Lepidostomatidae
- ___ 010409 Leptoceridae
- ✓ 010410 Limnephilidae
- ___ 010411 Molannidae
- ___ 010412 Odontoceridae
- ✓ 010413 Philopotamidae
- ___ 010414 Phryganeidae
- ___ 010415 Polycentropodidae
- ___ 010416 Psychomyiidae
- ___ 010417 Rhyacophilidae

Odonata
- ✓ 010511 Aeshnidae
- ___ 010512 Cordulegastridae
- ✓ 010513 Gomphidae
- ___ 010514 Libellulidae
- ___ 010515 Macromiidae
- ___ 010521 Calopterygidae
- ___ 010522 Coenagrionidae
- ___ 010523 Lestidae

Diptera
- ✓ 010602 Chironomidae
- ___ 010603 Culicidae
- ___ 010605 Dixidae
- ___ 010607 Empididae
- ✓ 010614 Rhagionidae

Diptera
- ✓ 010617 Simuliidae
- ___ 010619 Syrphidae
- ___ 010620 Tabanidae
- ___ 010623 Tipulidae

Megaloptera
- ___ 010701 Corydalidae
- ___ 010702 Sialidae

Hemiptera
- ___ 010802 Corixidae
- ___ 010805 Gerridae
- ___ 010811 Nepidae
- ___ 010812 Notonectidae
- ___ 010816 Veliidae

Neuroptera
- ___ 010901 Sisyridae

Lepidoptera
- ___ 011001 Noctuidae
- ___ 011002 Pyralidae

Decapoda
- ✓ 020101 Astacidae
- ___ 020102 Cambaridae

Amphipoda
- ___ 020201 Gammaridae
- ___ 020203 Talitridae

Isopoda
- ___ 020301 Asellidae

- ___ 030200 Hydracarina

Haploscierina
- ___ 110101 Spongillidae

Hydroida
- ___ 210101 Hydridae

Tricladida
- ___ 310101 Planariidae
- ___ 310102 Dendrocoelidae
- ___ 500000 PHYLUM NEMATODA
- ___ 810100 Plesiopora
- ___ 810200 Opisthopora
- ___ 820000 CLASS HIRUDINEA
- ___ 910000 CLASS GASTROPODA
- ___ 920000 CLASS PELECYPODA

PENNSYLVANIA FISH COMMISSION — Stream Examination Report

FISH DATA

Card
Format: [0][8] Dup. col. 3-26 (Punch card numbers checked, start with col. 27, end with complete number, use same card format.) [9] 78 [C] [1] 79

___ 060301 Salmo gairdneri
✓ 060302 Salmo trutta
✓ 060401 Salvelinus fontinalis
___ 100102 Esox a. vermiculatus
___ 100103 Esox lucius
___ 100104 Esox masquinongy
___ 100105 Esox niger
___ 100107 E. lucius x masquinongy
___ 110101 Campostoma anomalum
___ 110201 Carassius auratus
___ 110501 Cyprinus carpio
___ 110601 Ericymba buccata
___ 110701 Exoglossum maxillingua
___ 111101 Notemigonus crysoleucas
___ 111204 Notropis atherinoides
___ 111207 Notropis cornutus
___ 111211 Notropis hudsonius
___ 111213 Notropis procne
___ 111214 Notropis rubellus
___ 111215 Notropis spilopterus
___ 111218 Notropis volucellus
___ 111301 Pimephales notatus
___ 111302 Pimephales promelas
✓ 111401 Rhinichythys atratulus
___ 111402 Rhinichythys cataractae
✓ 111501 Semotilus atromaculatus
___ 111502 Semotilus corporalus
___ 111503 Semotilus margarita
___ 111702 Nocomis micropogon
✓ 120201 Catostomus commersoni
___ 120301 Erimyzon oblongus
___ 120401 Hypentelium nigricans
___ 120603 Moxostoma erythrurum
___ 120604 Moxostoma macrolepidotum
___ 130103 Ictalurus natalis
___ 130104 Ictalurus nebulosus
___ 130105 Ictalurus punctatus
___ 130201 Noturus flavus
___ 130203 Noturus insignis
___ 140101 Anguilla rostrata
___ 150101 Fundulus diaphanus
___ 230201 Ambloplites rupestris
___ 230401 Lepomis auritus
___ 230402 Lepomis cyanellus
___ 230403 Lepomis gibbosus
___ 230404 Lepomis macrochirus
___ 230501 Micropterus dolomieui
___ 230502 Micropterus salmoides
___ 230601 Pomoxis annularis
___ 230602 Pomoxis nigromaculatus
___ 240201 Etheostoma olmstedi
___ 240202 Etheostoma blennioides
___ 240203 Etheostoma caeruleum
___ 240206 Etheostoma flabellare
___ 240209 Etheostoma nigrum
___ 240211 Etheostoma variatum
___ 240212 Etheostoma zonale
___ 240301 Perca flavescens
___ 240401 Percina caprodes
___ 240405 Percina maculata
___ 240406 Percina peltata
___ 240502 Stizostedion v. vitreum
✓ 260101 Cottus bairdi
___ 260102 Cottus cognatus
✓ 110401 Clinostoma elongatus
___ ___ _____
___ ___ _____
___ ___ _____

PENNSYLVANIA FISH COMMISSION

Pineck. S.Br. N.F.

•2- 01

Stream Examination Report

FISH ABUNDANCE

Card Format [0 9] (1) Dup. col. 3-26 | Gear [0 3] (27) | Mthd [4] (29) | [A] (30) | Hr. Fished [0 0 0 4] (31) | Voltage [0 3 0 0] (35) | AC [1] (39) | DC [0] (40) | Net Length [ ] (41) | No Sets [ ] (44) | [0] (78) | C [1] (79)

	Sp. Code (30)	Cd. No. (36)	Size Group (38)	M (42)	C (46)	R (50)	Mean Wt. (54)
du. cl. 1-29	060302	01	0175	0001			
du. cl. 1-29	060302	02	0275	0001			
du. cl. 1-29	060401	01	0225	0001			
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. c 1-29							

Stream Name Pine Ck. S.F. N. Br. Sec. No. 02 Hgmt. Area 217 F County Ams

STATION LOCATION

Card Format: 0 4 Dup. col. 3-18 | Sta. No. 02 | Mo. Da. Yr. 06 28 78 | Latitude 40 52 11 | Longitude 79 12 44 | USGS Quad. 05062 | C 1

DESCRIPTION (Do Not Punch) 100 m downstream from first Trib; upstream from Echo

PHYSICAL DATA

Card Format: 0 5 Dup. col. 3-26 | Length 09.1 | Width 03.5 | Area 06.31 | Grad. 02.2 | Geo. 7.3

	Flow			Bnk.Ersn.			Shade			Bank Veg.				Sub. Comp.						
	High	Norm	Low	Hvy	Mod	Lite	None	Dens	Prtl	Open	Agri	GsSl	Shrb	Tree	Bldr	Rubl	Grvl	Sand	Silt	Clay
(Punch No. Circled)	1	2	(3)	1	2	3	(4)	(1)	2	3	1	2	(3)	4	1	2	(3)	4	(5)	6	7
	(51)			(52)				(53)			(54)				(55, 56)						

Card 6 | C 2

CHEMICAL DATA

Card Format: 0 6 Dup. col. 3-26 | Time 1430 | Air Temp. 29 | H.O. Temp. 18.9 | Spec.Cond. 0216 | pH 07.2 | Tot.Alk. 027 | Tot.Hard. 041 | D.O. 9.9 | 7 | C 4

INVERTEBRATE DATA

Card Format: 0 7 Dup. col. 3-26 (Punch code number(s) checked, start with col. 27, end card with complete number, use same card format.) | 8 | C

Ephemeroptera
- 010101 Ametropodidae
- ✓ 010102 Raetidae
- 010103 Raetiscidae
- 010105 Caenidae
- 010106 Ephemerellidae
- 010107 Ephemeridae
- 010108 Heptageniidae
- 010109 Leptophlebiidae
- 010110 Neoephemeridae
- 010113 Potamanthidae
- 010114 Siphlonuridae
- 010115 Tricorythidae

Plecoptera
- 010201 Capniidae
- 010202 Chloroperlidae
- 010203 Leuctridae
- 010204 Nemouridae
- 010205 Peltoperlidae
- ✓ 010206 Perlidae
- 010207 Perlodidae
- 010208 Pteronarcidae
- 010209 Taeniopterygidae

Coleoptera
- 010301 Amphizoidae
- 010306 Dryopidae
- 010307 Dytiscidae
- 010308 Elmidae
- 010310 Gyrinidae
- 010311 Haliplidae
- 010312 Helodidae
- 010316 Hydrophilidae
- 010322 Psephenidae

Trichoptera
- 010401 Brachycentridae
- 010402 Calamoceratidae
- 010403 Glossosomatidae
- 010404 Goeridae
- 010405 Helicopsychidae
- ✓ 010406 Hydropsychidae
- 010407 Hydroptilidae
- 010408 Lepidostomatidae
- 010409 Leptoceridae
- 010410 Limnephilidae
- 010411 Molannidae
- 010412 Odontoceridae
- 010413 Philopotamidae
- 010414 Phryganeidae
- ✓ 010415 Polycentropodidae
- 010416 Psychomyiidae
- 010417 Rhyacophilidae

Odonata
- 010511 Aeshnidae
- 010512 Cordulegastridae
- 010513 Gomphidae
- 010514 Libellulidae
- 010515 Macromiidae
- 010521 Calopterygidae
- 010522 Coenagrionidae
- 010523 Lestidae

Diptera
- ✓ 010602 Chironomidae
- 010603 Culicidae
- 010605 Dixidae
- 010607 Empididae
- ✓ 010614 Rhagionidae

Diptera
- 010617 Simuliidae
- 010619 Syrphidae
- 010620 Tabanidae
- 010623 Tipulidae

Megaloptera
- 010701 Corydalidae
- 010702 Sialidae

Hemiptera
- 010802 Corixidae
- 010805 Gerridae
- 010811 Nepidae
- 010812 Notonectidae
- 010816 Veliidae

Neuroptera
- 010901 Sisyridae

Lepidoptera
- 011001 Noctuidae
- 011002 Pyralidae

Decapoda
- ✓ 020101 Astacidae
- 020102 Cambaridae

Amphipoda
- 020201 Gammaridae
- 020203 Talitridae

Isopoda
- 020301 Asellidae

- 030200 Hydracarina

Haplosclerina
- 110101 Spongillidae

Hydroida
- 210101 Hydridae

Tricladida
- 310101 Planariidae
- 310102 Dendrocoelidae
- 500000 PHYLUM NEMATODA
- 810100 Plesiopora
- 810200 Opisthopora
- 820000 CLASS HIRUDINEA
- 910000 CLASS GASTROPODA
- 920000 CLASS PELECYPODA

FISH DATA

PENNSYLVANIA FISH COMMISSION — Stream Examination Report

Card Format: [0][8] Dup. col. 3-26 (Punch card numbers checked, start with col. 27, end with complete number, use same card format.) [9] 78 C [1] 79

___ 060301 Salmo gairdneri
✓ 060302 Salmo trutta
✓ 060401 Salvelinus fontinalis
___ 100102 Esox a. vermiculatus
___ 100103 Esox lucius
___ 100104 Esox masquinongy
___ 100105 Esox niger
___ 100107 E. lucius x masquinongy
___ 110101 Campostoma anomalum
___ 110201 Carassius auratus
___ 110501 Cyprinus carpio
___ 110601 Ericymba buccata
___ 110701 Exoglossum maxillingua
___ 111101 Notemigonus crysoleucas
___ 111204 Notropis atherinoides
___ 111207 Notropis cornutus
___ 111211 Notropis hudsonius
___ 111213 Notropis procne
___ 111214 Notropis rubellus
___ 111215 Notropis spilopterus
___ 111218 Notropis volucellus
___ 111301 Pimephales notatus
___ 111302 Pimephales promelas
✓ 111401 Rhinichythys atratulus
___ 111402 Rhinichythys cataractae
✓ 111501 Semotilus atromaculatus
___ 111502 Semotilus corporalus
___ 111503 Semotilus margarita
___ 111702 Nocomis micropogon
✓ 120201 Catostomus commersoni
___ 120301 Erimyzon oblongus
___ 120401 Hypentelium nigricans
___ 120603 Moxostoma erythrurum
___ 120604 Moxostoma macrolepidotum
___ 130103 Ictalurus natalis
___ 130104 Ictalurus nebulosus
___ 130105 Ictalurus punctatus
___ 130201 Noturus flavus
___ 130203 Noturus insignis
___ 140101 Anguilla rostrata
___ 150101 Fundulus diaphanus
___ 230201 Ambloplites rupestris
___ 230401 Lepomis auritus
___ 230402 Lepomis cyanellus
___ 230403 Lepomis gibbosus
___ 230404 Lepomis macrochirus
___ 230501 Micropterus dolomieui
___ 230502 Micropterus salmoides
___ 230601 Pomoxis annularis
___ 230602 Pomoxis nigromaculatus
___ 240201 Etheostoma olmstedi
___ 240202 Etheostoma blennioides
___ 240203 Etheostoma caeruleum
___ 240206 Etheostoma flabellare
___ 240209 Etheostoma nigrum
___ 240211 Etheostoma variatum
___ 240212 Etheostoma zonale
___ 240301 Perca flavescens
___ 240401 Percina caprodes
___ 240405 Percina maculata
___ 240406 Percina peltata
___ 240502 Stizostedion v. vitreum
✓ 260101 Cottus bairdi
___ 260102 Cottus cognatus
✓ 110401 Clinostoma elongatus
___ _____
___ _____
___ _____

PENNSYLVANIA FISH COMMISSION

a02

Stream Examination Report

FISH ABUNDANCE

Card Format [0|9] (1) Dup. col. 3-26 Gear [0|3] (27) Mthd [4] (29) [A] (30) Hr. Fished [0|0|0|3] (31–Δ) Voltage [0|3|0|0] (35) AC [1] (39) DC [0] (40) Net Length (41) No Sets (44) [0] (78) C [1] (79)

	Sp.Code (30)	Cd.No. (36)	Size Group (38)	M (42)	C (46)	R (50)	Mean Wt. (54)
du. cl. 1-29	060302	01	0300	0001			
du. cl. 1-29	060302	02	0500	0001			
du. cl. 1-29	060401	01	0250	0001			
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							

PENNSYLVANIA FISH COMMISSION — Stream Examination Report

Stream Name Pine Ck.,S.Fk.N.Br. Sec. No. 02 Mgmt. Area 217E Cnty Arms.

COMMENTS AND RECOMMENDATIONS (Punch written comments, each line to a card. Col. 80 will be marked with a < where indicated.)

Card Format: 1 0 (1) Dup. col. 3-18 Yr. 7 8 (19)

	Data Group (21)	Card No. (23 24)		Col.80
Dup. col. 1-20	0 1	0 1	Pine Ck. S.Fk., N.Br. originates west of Dayton and	
Dup. col. 1-20	0 1	0 2	along with the south branch forms the South Fork of	
Dup. col. 1-20	0 1	0 3	Pine Creek.	
Dup. col. 1-20	0 2	0 1	Section Limits: Mouth at Echo upstream to bridge at	<
Dup. col. 1-20	0 2	0 2	Jct. of T-531 and T-748.	<
Dup. col. 1-20	0 2	0 3	Examiners: Lee, Obert, Dinger, WWP Smith. Present Mgmt:	
Dup. col. 1-20	0 2	0 4	650 ST preseason only. Recommend: mixed ST-BT	
Dup. col. 1-20	0 2	0 5	stocking, approval for inseason stocking if trout are	
Dup. col. 1-20	0 2	0 6	available.	
Dup. col. 1-20	0 3	0 1	Riparian Ownership: 100% Pvt-Open, access & parking	
Dup. col. 1-20	0 3	0 2	excellent.	
Dup. col. 1-20	0 4	0 1	Downstream Station Limit: Sta. 01: 500 m. downstream	
Dup. col. 1-20	0 4	0 2	from Jct. of T-531 & T-748. Sta. 02 100 m. downstream	
Dup. col. 1-20	0 4	0 3	from first trib. upstream from Echo.	
Dup. col. 1-20	0 7	0 1	Invertebrates: Sta. 01: Diversity & density - good.	
Dup. col. 1-20	0 7	0 2	Sta. 02: diversity-low, density-fair.	
Dup. col. 1-20	0 8	0 1	Fish diversity - good.	
Dup. col. 1-20	0 9	0 1	Gear: Coffelt backpack with TAS generator.	
Dup. col. 1-20				
Dup. col. 1-20				
Dup. col. 1-20				
Dup. col. 1-20				
Dup. col. 1-20				
Dup. col. 1-20				

PENNSYLVANIA FISH COMMISSION — **Stream Examination Report**

STREAM LOCATION

Card Format: 01 | Latitude 405232 | Longitude 792810 | Stream Name PINE CR N FK

County Lycoming 03 | Length 010 | Drainage 003341 | Mgt. Area 2 17E

Tributary to PINE CK | Latitude 405219 | Longitude 792843 | C 2

SECTION LIMITS

Card Format: 02 Dup. col. 3-14 | Sec. No. 03 | Yr. 78 | Length 0643 | Area 014818 | Class XXXX | USGS Quad. 05061

Latitude 405232 | Longitude 792810 | Upstream to | Latitude 405239 | Longitude 792400 | 1 | C 1

DESCRIPTION (Do Not Punch)

Stream Examiners: Obard Dingus Bulls

Downstream Limit: Mouth

Upstream Limit: Rt. 66 Bridge

SOCIAL DATA

Card Format: 03 Dup. col. 3-18 | No. | Yr. 7778

Riparian Ownership

#/km	FOR	PARK	PGC	PFC	CIV	FED	PVT OPEN	PVT CLOSED
024	000	000	000	000	000	000	100	000

Accessibility — Parking — Boat Launch

Pop. Dens.	RdX/km	% 100m	% 300m	% 500m	PVT	PUB	CM	PUB	C
013	006	100	100	100	026	000	005	000	1

FOR CENTRAL OFFICE USE ONLY

Unit Recommendations:

Date: 2/5/79

Pine Creek, N. Fk. from the mouth upstream to the bridge on T-628 at Slabtown is approved for the catchable trout program (Sections 02 & 03). Length 4.4 mi. (7.0 km). Area 12.7 A (5.1 ha.).

Section Chief Action: approved - Robert B Reece 2/6/79

Division Chief Action: Approved 2-6-79 Delano R Graff

Stream Name *N. FK PINE CR.* Sec. No. *03* Mgnt. Area *2-17-E* County *ARMSTRONG*

STATION LOCATION

Card Format:	Dup. col. 3-18	Sta. No.	Mo. Da. Yr.	Latitude	Longitude	USGS Quad.		C
0 4		01	072778	405235	792576	050644	5	1

DESCRIPTION (Do Not Punch) *Bridge at L.R. 03111*

PHYSICAL DATA

Card Format:	Dup. col. 3-26	Length	Width	Area	Grad.	Geo.
0 5		00208	00066	000137	0107	0703

(Punch No. Circled)	Flow	Bnk. Ersn.	Shade	Bank Veg.	Sub. Comp.		C
	High 1, Norm 2, Low 3 (51)	Hvy 1, Mod 2, Lite 3, None 4 (52)	Dens 1, Prtl 2, Open 3 (53)	Agri 1, GsSl 2, Shrb 3, Tree 4 (54)	Bdrk 1, Bldr 2, Rubl 3, Grvl 4, Sand 5, Silt 6, Clay 7 (55, 56)		
Circled	2	4	1	4	3, 4	6	1

CHEMICAL DATA

Card Format:	Dup. col. 3-26	Time	Air Temp.	H_2O Temp.	Spec. Cond.	pH	Tot. Alk.	Tot. Hard.	D.O.		C
0 6		1130	220	170	0490	076	075	190	089	7	1

INVERTEBRATE DATA

Card Format: 0 7 Dup. col. 3-26 (Punch code number(s) checked, start with col. 27, end card with complete number, use same card format.) 8 C 1

Ephemeroptera
- ___ 010101 Ametropodidae
- ✓ 010102 Baetidae
- ___ 010103 Baetiscidae
- ___ 010105 Caenidae
- ___ 010106 Ephemerellidae
- ___ 010107 Ephemeridae
- ___ 010108 Heptageniidae
- ___ 010109 Leptophlebiidae
- ___ 010110 Neoephemeridae
- ___ 010113 Potamanthidae
- ___ 010114 Siphlonuridae
- ___ 010115 Tricorythidae

Plecoptera
- ✓ 010201 Capniidae
- ___ 010202 Chloroperlidae
- ___ 010203 Leuctridae
- ___ 010204 Nemouridae
- ___ 010205 Peltoperlidae
- ✓ 010206 Perlidae
- ___ 010207 Perlodidae
- ___ 010208 Pteronarcidae
- ___ 010209 Taeniopterygidae

Coleoptera
- ___ 010301 Amphizoidae
- ___ 010306 Dryopidae
- ___ 010307 Dytiscidae
- ___ 010308 Elmidae
- ___ 010310 Gyrinidae
- ___ 010311 Haliplidae
- ___ 010312 Helodidae
- ___ 010316 Hydrophilidae
- ___ 010322 Psephenidae

Trichoptera
- ___ 010401 Brachycentridae
- ___ 010402 Calamoceratidae
- ✓ 010403 Glossosomatidae
- ___ 010404 Goeridae
- ___ 010405 Helicopsychidae
- ✓ 010406 Hydropsychidae
- ___ 010407 Hydroptilidae
- ___ 010408 Lepidostomatidae
- ___ 010409 Leptoceridae
- ___ 010410 Limnephilidae
- ___ 010411 Molannidae
- ___ 010412 Odontoceridae
- ___ 010413 Philopotamidae
- ___ 010414 Phryganeidae
- ___ 010415 Polycentropodidae
- ___ 010416 Psychomyiidae
- ___ 010417 Rhyacophilidae

Odonata
- ___ 010511 Aeshnidae
- ___ 010512 Cordulegastridae
- ___ 010513 Gomphidae
- ___ 010514 Libellulidae
- ___ 010515 Macromiidae
- ___ 010521 Calopterygidae
- ___ 010522 Coenagrionidae
- ___ 010523 Lestidae

Diptera
- ___ 010602 Chironomidae
- ___ 010603 Culicidae
- ___ 010605 Dixidae
- ___ 010607 Empididae
- ✓ 010614 Rhagionidae

Diptera
- ✓ 010617 Simuliidae
- ___ 010619 Syrphidae
- ___ 010620 Tabanidae
- ___ 010623 Tipulidae

Megaloptera
- ___ 010701 Corydalidae
- ___ 010702 Sialidae

Hemiptera
- ___ 010802 Corixidae
- ✓ 010805 Gerridae
- ___ 010811 Nepidae
- ___ 010812 Notonectidae
- ___ 010816 Veliidae

Neuroptera
- ___ 010901 Sisyridae

Lepidoptera
- ___ 011001 Noctuidae
- ___ 011002 Pyralidae

Decapoda
- ✓ 020101 Astacidae
- ___ 020102 Cambaridae

Amphipoda
- ___ 020201 Gammaridae
- ___ 020203 Talitridae

Isopoda
- ___ 020301 Asellidae

- ___ 030200 Hydracarina

Haplosclerina
- ___ 110101 Spongillidae

Hydroida
- ___ 210101 Hydridae

Tricladida
- ___ 310101 Planariidae
- ___ 310102 Dendrocoelidae

- ___ 500000 PHYLUM NEMATODA
- ___ 810100 Plesiopora
- ___ 810200 Opisthopora
- ___ 820000 CLASS HIRUDINEA
- ___ 910000 CLASS GASTROPODA
- ___ 920000 CLASS PELECYPODA

FISH DATA

PENNSYLVANIA FISH COMMISSION

Stream Examination Report

Card
Format: [0][8] Dup. col. 3-26 (Punch card numbers checked, start with col. 27, end with complete number, use same card format.) [9] 78 C [1] 79

___ 060301 Salmo gairdneri
✓ 060302 Salmo trutta
___ 060401 Salvelinus fontinalis
___ 100102 Esox a. vermiculatus
___ 100103 Esox lucius
___ 100104 Esox masquinongy
___ 100105 Esox niger
___ 100107 E. lucius x masquinongy
___ 110101 Campostoma anomalum
___ 110201 Carassius auratus
___ 110501 Cyprinus carpio
___ 110601 Ericymba buccata
___ 110701 Exoglossum maxillingua
___ 111101 Notemigonus crysoleucas
___ 111204 Notropis atherinoides
___ 111207 Notropis cornutus
___ 111211 Notropis hudsonius
___ 111213 Notropis procne
___ 111214 Notropis rubellus
___ 111215 Notropis spilopterus
___ 111218 Notropis volucellus
___ 111301 Pimephales notatus
___ 111302 Pimephales promelas
✓ 111401 Rhinichythys atratulus
___ 111402 Rhinichythys cataractae
✓ 111501 Semotilus atromaculatus
___ 111502 Semotilus corporalus
___ 111503 Semotilus margarita
___ 111702 Nocomis micropogon
✓ 120201 Catostomus commersoni
___ 120301 Erimyzon oblongus
✓ 120401 Hypentelium nigricans
___ 120603 Moxostoma erythrurum
___ 120604 Moxostoma macrolepidotum
___ 130103 Ictalurus natalis
___ 130104 Ictalurus nebulosus
___ 130105 Ictalurus punctatus
___ 130201 Noturus flavus
___ 130203 Noturus insignis
___ 140101 Anguilla rostrata
___ 150101 Fundulus diaphanus
___ 230201 Ambloplites rupestris
___ 230401 Lepomis auritus
___ 230402 Lepomis cyanellus
___ 230403 Lepomis gibbosus
___ 230404 Lepomis macrochirus
___ 230501 Micropterus dolomieui
___ 230502 Micropterus salmoides
___ 230601 Pomoxis annularis
___ 230602 Pomoxis nigromaculatus
___ 240201 Etheostoma olmstedi
___ 240202 Etheostoma blennioides
___ 240203 Etheostoma caeruleum
___ 240206 Etheostoma flabellare
___ 240209 Etheostoma nigrum
___ 240211 Etheostoma variatum
___ 240212 Etheostoma zonale
___ 240301 Perca flavescens
___ 240401 Percina caprodes
___ 240405 Percina maculata
___ 240406 Percina peltata
___ 240502 Stizostedion v. vitreum
✓ 260101 Cottus bairdi
___ 260102 Cottus cognatus

___ ____ _____

___ ____ _____

___ ____ _____

___ ____ _____

PENNSYLVANIA FISH COMMISSION

Stream Examination Report

FISH ABUNDANCE

Card Format [0][9] (1) Dup. col. 3-26 | Gear [0][3] (27) | Mthd [4] (29) | [A] (30) | Hr. Fished [0][0][0][3] (31–Δ) | Voltage [0][1][0][0] (35) | AC [1] (39) | DC [0] (40) | Net Length (41) | No Sets (44) | [0] (78) | C [1] (79)

	Sp. Code (30)	Cd. No. (36)	Size Group (38)	M (42)	C (46)	R (50)	Mean Wt. (54)
du. cl. 1-29	060302	01	0256	0001			
du. cl. 1-29	060302	02	0350	0001			
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. c 1-29							

Stream Name N. FK PINE CK. Sec. No. 03 Mgmt. Area 217E County ARMSTRONG

STATION LOCATION

Card Format: 0 4 Dup. col. 3-18

Sta. No.	Mo. Da. Yr.	Latitude	Longitude	USGS Quad.		C
02	071778	405234	792725	05064	5	1

DESCRIPTION (Do Not Punch) 1.5 km. downstream from confluence of Bullock Rn.

PHYSICAL DATA

Card Format: 0 5 Dup. col. 3-26

Length	Width	Area	Grad.	Geo.
002110	00084	000187	0089	0703

	Flow	Bnk. Ersn.	Shade	Bank Veg.	Sub. Comp.		C
	High Norm Low	Hvy Mod Lite None	Dens Prtl Open	Agri GsSd Shrb Tree	Bdrk Bldr Rubl Grvl Sand Silt Clay		
(Punch No. Circled)	1 2 3	1 2 (3) 4	(1) 2 3	1 2 3 (4)	1 2 (3) (4) 5 6 7	6	1
	(51)	(52)	(53)	(54)	(55, 56)	78	79

CHEMICAL DATA

Card Format: 0 6 Dup. col. 3-26

Time	Air Temp.	H_2O Temp.	Spec. Cond.	pH	Tot. Alk.	Tot. Hard.	D.O.		C
1400	250	190	0490	071	090	230	097	7	1

INVERTEBRATE DATA

Card Format: 0 7 Dup. col. 3-26 (Punch code number(s) checked, start with col. 27, end card with complete number, use same card format.) 8 C 1

Ephemeroptera
- ___ 010101 Ametropodidae
- ✓ 010102 Baetidae
- ___ 010103 Baetiscidae
- ___ 010105 Caenidae
- ___ 010106 Ephemerellidae
- ___ 010107 Ephemeridae
- ___ 010108 Heptageniidae
- ___ 010109 Leptophlebiidae
- ___ 010110 Neoephemeridae
- ___ 010113 Potamanthidae
- ___ 010114 Siphlonuridae
- ___ 010115 Tricorythidae

Plecoptera
- ___ 010201 Capniidae
- ___ 010202 Chloroperlidae
- ___ 010203 Leuctridae
- ___ 010204 Nemouridae
- ___ 010205 Peltoperlidae
- ___ 010206 Perlidae
- ___ 010207 Perlodidae
- ___ 010208 Pteronarcidae
- ___ 010209 Taeniopterygidae

Coleoptera
- ___ 010301 Amphizoidae
- ___ 010306 Dryopidae
- ___ 010307 Dytiscidae
- ___ 010308 Elmidae
- ___ 010310 Gyrinidae
- ___ 010311 Haliplidae
- ___ 010312 Helodidae
- ___ 010316 Hydrophilidae
- ___ 010322 Psephenidae

Trichoptera
- ___ 010401 Brachycentridae
- ___ 010402 Calamoceratidae
- ✓ 010403 Glossosomatidae
- ___ 010404 Goeridae
- ___ 010405 Helicopsychidae
- ✓ 010406 Hydropsychidae
- ___ 010407 Hydroptilidae
- ___ 010408 Lepidostomatidae
- ___ 010409 Leptoceridae
- ___ 010410 Limnephilidae
- ___ 010411 Molannidae
- ___ 010412 Odontoceridae
- ___ 010413 Philopotamidae
- ___ 010414 Phryganeidae
- ___ 010415 Polycentropodidae
- ___ 010416 Psychomyiidae
- ___ 010417 Rhyacophilidae

Odonata
- ___ 010511 Aeshnidae
- ___ 010512 Cordulegastridae
- ___ 010513 Gomphidae
- ___ 010514 Libellulidae
- ___ 010515 Macromiidae
- ___ 010521 Calopterygidae
- ___ 010522 Coenagrionidae
- ___ 010523 Lestidae

Diptera
- ✓ 010602 Chironomidae
- ___ 010603 Culicidae
- ___ 010605 Dixidae
- ___ 010607 Empididae
- ✓ 010614 Rhagionidae

Diptera
- ___ 010617 Simuliidae
- ___ 010619 Syrphidae
- ___ 010620 Tabanidae
- ___ 010623 Tipulidae

Megaloptera
- ✓ 010701 Corydalidae
- ___ 010702 Sialidae

Hemiptera
- ___ 010802 Corixidae
- ✓ 010805 Gerridae
- ___ 010811 Nepidae
- ___ 010812 Notonectidae
- ___ 010816 Veliidae

Neuroptera
- ___ 010901 Sisyridae

Lepidoptera
- ___ 011001 Noctuidae
- ___ 011002 Pyralidae

Decapoda
- ✓ 020101 Astacidae
- ___ 020102 Cambaridae

Amphipoda
- ___ 020201 Gammaridae
- ___ 020203 Talitridae

Isopoda
- ___ 020301 Asellidae

- ___ 030200 Hydracarina

Haplosclerina
- ___ 110101 Spongillidae

Hydroida
- ___ 210101 Hydridae

Tricladida
- ___ 310101 Planariidae
- ___ 310102 Dendrocoelidae
- ___ 500000 PHYLUM NEMATODA
- ___ 810100 Plesiopora
- ___ 810200 Opisthopora
- ___ 820000 CLASS HIRUDINEA
- ___ 910000 CLASS GASTROPODA
- ___ 920000 CLASS PELECYPODA
- ✓ 010111 oligoneuriidae
- ✓ 810000 oligochaeta

FISH DATA

PENNSYLVANIA FISH COMMISSION

Stream Examination Report

Card Format: [0][8] Dup. col. 3-26 (Punch card numbers checked, start with col. 27, end with complete number, use same card format.) [9] 78 C [1] 79

___ 060301 Salmo gairdneri
___ 060302 Salmo trutta
✓ 060401 Salvelinus fontinalis
___ 100102 Esox a. vermiculatus
___ 100103 Esox lucius
___ 100104 Esox masquinongy
___ 100105 Esox niger
___ 100107 E. lucius x masquinongy
✓ 110101 Campostoma anomalum
___ 110201 Carassius auratus
___ 110501 Cyprinus carpio
___ 110601 Ericymba buccata
___ 110701 Exoglossum maxillingua
___ 111101 Notemigonus crysoleucas
___ 111204 Notropis atherinoides
✓ 111207 Notropis cornutus
___ 111211 Notropis hudsonius
___ 111213 Notropis procne
___ 111214 Notropis rubellus
___ 111215 Notropis spilopterus
___ 111218 Notropis volucellus
___ 111301 Pimephales notatus
___ 111302 Pimephales promelas
✓ 111401 Rhinichythys atratulus
✓ 111402 Rhinichythys cataractae
✓ 111501 Semotilus atromaculatus
___ 111502 Semotilus corporalus
___ 111503 Semotilus margarita
___ 111702 Nocomis micropogon
✓ 120201 Catostomus commersoni
___ 120301 Erimyzon oblongus
✓ 120401 Hypentelium nigricans
120603 Moxostoma erythrurum
___ 120604 Moxostoma macrolepidotum
___ 130103 Ictalurus natalis
___ 130104 Ictalurus nebulosus
___ 130105 Ictalurus punctatus
___ 130201 Noturus flavus
___ 130203 Noturus insignis
___ 140101 Anguilla rostrata
___ 150101 Fundulus diaphanus
___ 230201 Ambloplites rupestris
___ 230401 Lepomis auritus
___ 230402 Lepomis cyanellus
___ 230403 Lepomis gibbosus
___ 230404 Lepomis macrochirus
___ 230501 Micropterus dolomieui
___ 230502 Micropterus salmoides
___ 230601 Pomoxis annularis
___ 230602 Pomoxis nigromaculatus
___ 240201 Etheostoma olmstedi
___ 240202 Etheostoma blennioides
___ 240203 Etheostoma caeruleum
___ 240206 Etheostoma flabellare
___ 240209 Etheostoma nigrum
___ 240211 Etheostoma variatum
___ 240212 Etheostoma zonale
___ 240301 Perca flavescens
___ 240401 Percina caprodes
___ 240405 Percina maculata
___ 240406 Percina peltata
✓ 240502 Stizostedion v. vitreum
✓ 260101 Cottus bairdi
___ 260102 Cottus cognatus
✓ 111212 NOTROPIS PHOTOGENIS

PENNSYLVANIA FISH COMMISSION

Stream Examination Report

FISH ABUNDANCE

Card Format [0 9] (1) Dup. col. 3-26 | Gear [0 3] (27) | Mthd [4] (29) | [A] (30) | Hr. Fished [0 0 0 3] (31 Δ) | Voltage [0 1 0 0] (35) | AC [1] (39) | DC [0] (40) | Net Length [ ] (41) | No Sets [ ] (44) | [0] (78) | C [1] (79)

	Sp. Code (30)	Cd. No. (36)	Size Group (38)	M (42)	C (46)	R (50)	Mean Wt. (54)
du. cl. 1-29	060401	01	0175	0001			
du. cl. 1-29	060401	02	0200	0001			
du. cl. 1-29	240502	01	0200	0001			
du. cl. 1-29	240502	02	0275	0001			
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. 1-29							

PENNSYLVANIA FISH COMMISSION — Stream Examination Report

Stream Name Pine Ck., N.Fk. Sec. No. 03 Mgmt. Area 217E Cnty Arms.

COMMENTS AND RECOMMENDATIONS (Punch written comments, each line to a card. Col. 80 will be marked with a < where indicated.)

Card Format: 1 0 (1) Dup. col. 3-18 Yr. 7 8 (19)

	Data Group (21)	Card No. (23 24)		Col.80
Dup. col. 1-20	0 2	0 1	Section Limits: mouth upstream to Rt. 66 bridge.	<
Dup. col. 1-20	0 2	0 2	Examiners: Obert, Dinger, & Bules. Additional USGS	
Dup. col. 1-20	0 2	0 3	Maps: 05063. Present Mgmt: along with Sec. 03	
Dup. col. 1-20	0 2	0 4	receives 1,400 ST preseason.	
Dup. col. 1-20	0 3	0 1	Riparian Ownership: 100% pvt.-open. Access very good,	
Dup. col. 1-20	0 3	0 2	parking poor.	
Dup. col. 1-20	0 4	0 1	Downstream Sta. Limits: Sta. 01 bridge on L.R. 03111.	
Dup. col. 1-20	0 4	0 2	Sta. 02: 1.5 km downstream from the confl. of Bullock	
Dup. col. 1-20	0 4	0 3	Rn.	
Dup. col. 1-20	0 5	0 1	Physical characteristics good, stream tends to be	
Dup. col. 1-20	0 5	0 2	turbid after rain storms. No evidence of silt during	
Dup. col. 1-20	0 5	0 3	survey.	
Dup. col. 1-20	0 6	0 1	Chemical characteristics good.	
Dup. col. 1-20	0 7	0 1	Invertebrates: diversity fair, density-fair.	
Dup. col. 1-20	0 8	0 1	Fish diversity high - density good - Sta. 03 had high	
Dup. col. 1-20	0 8	0 2	diversity, several warmwater species including three	
Dup. col. 1-20	0 8	0 3	walleye.	
Dup. col. 1-20	0 9	0 1	Gear: Coffelt with TAS generator.	
Dup. col. 1-20				
Dup. col. 1-20				
Dup. col. 1-20				
Dup. col. 1-20				
Dup. col. 1-20				
Dup. col. 1-20				

PENNSYLVANIA FISH COMMISSION — **Stream Examination Report**

STREAM LOCATION

Card Format: 01 | Latitude 405232 | Longitude 792810 | Stream Name PINE CK N FK

County Arms 03 | Length 010 | Drainage 03341 | Mgt. Area 2 | 7E

Tributary to PINE CK | Latitude 405219 | Longitude 792143 | C 1

SECTION LIMITS

Card Format: 02 Dup. col. 3-14 | Sec. No. C2 - Yr. 78 | Length 007 | Area 0010 6 | Class XXXX | USGS Quad. 05062

Latitude 405237 | Longitude 792400 Upstream to | Latitude 405235 | Longitude 792337 | 1 | C 1

DESCRIPTION (Do Not Punch)

Stream Examiners: obert Pingeral Bales

Downstream Limit: RT 66 Bridge

Upstream Limit: T 628 Bridge AT SLAGTOWN.

SOCIAL DATA

Card Format: 03 Dup. col. 3-18 | No. 07 Yr. 78

Riparian Ownership

#/km	FOR	PARK	PGC	PFC	CIV	FED	PVT OPEN	PVT CLOSED
014	000	000	000	000	000	000	100	000

Accessibility — Parking — Boat Launch

Pop. Dens.	RdX/km	% 100m	% 300m	% 500m	PVT	PUB	CM	PUB	C
013	043	100	100	100	023	000	000	000	1

FOR CENTRAL OFFICE USE ONLY

Unit Recommendations: **Date:** 2/5/79

This section is presently under special regulations for the use of children and handicapped persons. Continuation of this management depends upon the outcome of management by classification category and subsequent programs.

Section Chief Action: approved Robert B Macoen 2/6/79

Division Chief Action: Approved 2-6-79. Delano L. Graff

Stream Name N. FK. PINE CK Sec. No. 02 Mgmt. Area 2-17-E County ARMSTRONG

STATION LOCATION

Card Format: [0|4] Dup. col. 3-18 | Sta. No. 01 | Mo. 07 | Da. 12 | Yr. 78 | Latitude 40 52 39 | Longitude 79 24 00 | USGS Quad. 15 06 14 | 5 | C 1

DESCRIPTION (Do Not Punch) RT. 66 Bridge

PHYSICAL DATA

Card Format: [0|5] Dup. col. 3-26 | Length 0193 | Width 0031 | Area 0017 | Grad. 109 | Geo. 3

	Flow			Bnk.Ersn.				Shade			Rank Veg.				Sub. Comp.										
	High	Norm	Low	Hvy	Mod	Lite	None	Dens	Prtl	Open	Agri	GsSl	Shrb	Tree	Brlk	Bldr	Rubl	Grvl	Sand	Silt	Clay				
(Punch No. Circled)	1	2	3	1	2	3	4	1	2	3	1	2	3	4	1	2	3	4	5	6	7	6	C 1		
	(51)			(52)				(53)			(54)				(55,56)										

CHEMICAL DATA

Card Format: [0|6] Dup. col. 3-26 | Time 1000 | Air Temp. 210 | H.O. Temp. 160 | Spec.Cond. 0400 | pH 715 | Tot.Alk. 046 | Tot.Hard. 150 | D.O. 82 | 7 | C 1

INVERTEBRATE DATA

Card Format: [0|7] Dup. col. 3-26 (Punch code number(s) checked, start with col. 27, end card with complete number, use same card format.) | 5 | C 1

Ephemeroptera
- ___ 010101 Ametropodidae
- ___ 010102 Baetidae
- ___ 010103 Baetiscidae
- ___ 010105 Caenidae
- ___ 010106 Ephemerellidae
- ___ 010107 Ephemeridae
- ✓ 010108 Heptageniidae
- ✓ 010109 Leptophlebiidae
- ___ 010110 Neoephemeridae
- ___ 010113 Potamanthidae
- ___ 010114 Siphlonuridae
- ___ 010115 Tricorythidae

Plecoptera
- ___ 010201 Capniidae
- ___ 010202 Chloroperlidae
- ___ 010203 Leuctridae
- ___ 010204 Nemouridae
- ___ 010205 Peltoperlidae
- ___ 010206 Perlidae
- ___ 010207 Perlodidae
- ___ 010208 Pteronarcidae
- ___ 010209 Taeniopterygidae

Coleoptera
- ___ 010301 Amphizoidae
- ___ 010306 Dryopidae
- ___ 010307 Dytiscidae
- ___ 010308 Elmidae
- ___ 010310 Gyrinidae
- ___ 010311 Haliplidae
- ___ 010312 Helodidae
- ___ 010316 Hydrophilidae
- ___ 010322 Psephenidae

Trichoptera
- ___ 010401 Brachycentridae
- ___ 010402 Calamoceratidae
- ✓ 010403 Glossosomatidae
- ___ 010404 Goeridae
- ___ 010405 Helicopsychidae
- ✓ 010406 Hydropsychidae
- ___ 010407 Hydroptilidae
- ___ 010408 Lepidostomatidae
- ___ 010409 Leptoceridae
- ___ 010410 Limnephilidae
- ___ 010411 Molannidae
- ___ 010412 Odontoceridae
- ___ 010413 Philopotamidae
- ___ 010414 Phryganeidae
- ___ 010415 Polycentropodidae
- ___ 010416 Psychomyiidae
- ___ 010417 Rhyacophilidae

Odonata
- ___ 010511 Aeshnidae
- ___ 010512 Cordulegastridae
- ___ 010513 Gomphidae
- ___ 010514 Libellulidae
- ___ 010515 Macromiidae
- ___ 010521 Calopterygidae
- ___ 010522 Coenagrionidae
- ___ 010523 Lestidae

Diptera
- ✓ 010602 Chironomidae
- ___ 010603 Culicidae
- ___ 010605 Dixidae
- ___ 010607 Empididae
- ✓ 010614 Rhagionidae

Diptera
- ___ 010617 Simuliidae
- ___ 010619 Syrphidae
- ___ 010620 Tabanidae
- ___ 010623 Tipulidae

Megaloptera
- ___ 010701 Corydalidae
- ___ 010702 Sialidae

Hemiptera
- ___ 010802 Corixidae
- ✓ 010805 Gerridae
- ___ 010811 Nepidae
- ___ 010812 Notonectidae
- ___ 010816 Veliidae

Neuroptera
- ___ 010901 Sisyridae

Lepidoptera
- ___ 011001 Noctuidae
- ___ 011002 Pyralidae

Decapoda
- ✓ 020101 Astacidae
- ___ 020102 Cambaridae

Amphipoda
- ___ 020201 Gammaridae
- ___ 020203 Talitridae

Isopoda
- ___ 020301 Asellidae

- ___ 030200 Hydracarina

Haploscierina
- ___ 110101 Spongillidae

Hydroida
- ___ 210101 Hydridae

Tricladida
- ___ 310101 Planariidae
- ___ 310102 Dendrocoelidae
- ___ 500000 PHYLUM NEMATODA
- ___ 810100 Plesiopora
- ___ 810200 Opisthopora
- ___ 820000 CLASS HIRUDINEA
- ___ 910000 CLASS GASTROPODA
- ___ 920000 CLASS PELECYPODA
- ___ _____ _____
- ___ _____ _____
- ___ _____ _____
- ___ _____ _____
- ___ _____ _____
- ___ _____ _____
- ___ _____ _____
- ___ _____ _____

PENNSYLVANIA FISH COMMISSION Stream Examination Report

FISH DATA

Card
Format: [0][8] Dup. col. 3-26 (Punch card numbers checked, start with col. 27, end with complete number, use same card format.) [9] 78 C [1] 79

___ 060301 Salmo gairdneri
___ 060302 Salmo trutta
✓ 060401 Salvelinus fontinalis
___ 100102 Esox a. vermiculatus
___ 100103 Esox lucius
___ 100104 Esox masquinongy
___ 100105 Esox niger
___ 100107 E. lucius x masquinongy
___ 110101 Campostoma anomalum
___ 110201 Carassius auratus
___ 110501 Cyprinus carpio
___ 110601 Ericymba buccata
___ 110701 Exoglossum maxillingua
___ 111101 Notemigonus crysoleucas
___ 111204 Notropis atherinoides
___ 111207 Notropis cornutus
___ 111211 Notropis hudsonius
___ 111213 Notropis procne
___ 111214 Notropis rubellus
___ 111215 Notropis spilopterus
___ 111218 Notropis volucellus
___ 111301 Pimephales notatus
___ 111302 Pimephales promelas
✓ 111401 Rhinichythys atratulus
___ 111402 Rhinichythys cataractae
✓ 111501 Semotilus atromaculatus
___ 111502 Semotilus corporalus
___ 111503 Semotilus margarita
___ 111702 Nocomis micropogon
✓ 120201 Catostomus commersoni
___ 120301 Erimyzon oblongus
___ 120401 Hypentelium nigricans
___ 120603 Moxostoma erythrurum
___ 120604 Moxostoma macrolepidotum
___ 130103 Ictalurus natalis
___ 130104 Ictalurus nebulosus
___ 130105 Ictalurus punctatus
___ 130201 Noturus flavus
___ 130203 Noturus insignis
___ 140101 Anguilla rostrata
___ 150101 Fundulus diaphanus
___ 230201 Ambloplites rupestris
___ 230401 Lepomis auritus
___ 230402 Lepomis cyanellus
___ 230403 Lepomis gibbosus
___ 230404 Lepomis macrochirus
___ 230501 Micropterus dolomieui
___ 230502 Micropterus salmoides
___ 230601 Pomoxis annularis
___ 230602 Pomoxis nigromaculatus
___ 240201 Etheostoma olmstedi
___ 240202 Etheostoma blennioides
___ 240203 Etheostoma caeruleum
___ 240206 Etheostoma flabellare
___ 240209 Etheostoma nigrum
___ 240211 Etheostoma variatum
___ 240212 Etheostoma zonale
___ 240301 Perca flavescens
___ 240401 Percina caprodes
___ 240405 Percina maculata
___ 240406 Percina peltata
___ 240502 Stizostedion v. vitreum
✓ 260101 Cottus bairdi
___ 260102 Cottus cognatus

___ _____ _____
___ _____ _____
___ _____ _____
___ _____ _____

PENNSYLVANIA FISH COMMISSION

62-01

Stream Examination Report

FISH ABUNDANCE

Card Format	Dup. col. 3-26	Gear (27)	Mthd (29)	(30)	Hr. Fished (31–Δ)	Voltage (35)	AC (39)	DC (40)	Net Length (41)	No Sets (44)	(78)	C (79)
09		03	4	A	0002	0100	1	0			0	1

	Sp. Code (30)	Cd. No. (36)	Size Group (38)	M (42)	C (46)	R (50)	Mean Wt. (54)
du. cl. 1-29	060401	01	0175	0001			
du. cl. 1-29	060401	02	0225	0003			
du. cl. 1-29	060401	03	0250	0003			
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. cl. 1-29							
du. . 1-29							

PENNSYLVANIA FISH COMMISSION — Stream Examination Report

Stream Name Pine Ck. N. Fk. Sec. No. 02 Mgmt. Area 217E Cnty Arms.

COMMENTS AND RECOMMENDATIONS (Punch written comments, each line to a card. Col. 80 will be marked with a < where indicated.)

Card Format: 10 (1) Dup. col. 3-18 Yr. 78 (19)

	Data Group	Card No.		Col.80
Dup. col. 1-20	01 (21)	01 (23 24)	The North Fork of Pine Creek originates north of Echo	
Dup. col. 1-20	01 (21)	02 (23 24)	and confluences with the S. Fk. to form Pine Creek.	
Dup. col. 1-20	01 (21)	03 (23 24)	The drainage basin contains a great deal of active	
Dup. col. 1-20	01 (21)	04 (23 24)	strip mining.	
Dup. col. 1-20	02 (21)	01 (23 24)	Section Limits: Rt. 66 bridge upstream to T-628 bridge.	<
Dup. col. 1-20	02 (21)	02 (23 24)	Examiners: Lee, Obert, Dinger and Bules. Present	
Dup. col. 1-20	02 (21)	03 (23 24)	Mgmt: this section is presently managed as special	
Dup. col. 1-20	02 (21)	04 (23 24)	waters for children and handicapped persons as	
Dup. col. 1-20	02 (21)	05 (23 24)	provided under Act. No. 456, and as described in PFC	
Dup. col. 1-20	02 (21)	06 (23 24)	Policy No. 400-5-62. The number of trout stocked is	
Dup. col. 1-20	02 (21)	07 (23 24)	not specified and is apparently at the WWP's	
Dup. col. 1-20	02 (21)	08 (23 24)	discretion while stocking Sec. 03.	
Dup. col. 1-20	03 (21)	01 (23 24)	Riparian Ownership: 100% pvt-open. Although access	
Dup. col. 1-20	03 (21)	02 (23 24)	is excellent based on normal reporting procedure, it	
Dup. col. 1-20	03 (21)	03 (23 24)	does not present an accurate picture. Since this	
Dup. col. 1-20	03 (21)	04 (23 24)	section is partially for handicapped individuals,	
Dup. col. 1-20	03 (21)	05 (23 24)	access is somewhat limited when considered in that	
Dup. col. 1-20	03 (21)	06 (23 24)	respect.	
Dup. col. 1-20	04 (21)	01 (23 24)	Downstream Station Limits: Sta. 01 at the bridge on Pa.	
Dup. col. 1-20	04 (21)	02 (23 24)	Rt. 66.	
Dup. col. 1-20	05 (21)	01 (23 24)	Habitat - fair for trout.	
Dup. col. 1-20	06 (21)	01 (23 24)	Chem. quality - good.	
Dup. col. 1-20	07 (21)	01 (23 24)	Invertebrate: Diversity fair - density poor.	
Dup. col. 1-20	08 (21)	01 (23 24)	Fish diversity low; however indicative of good water	

	Data Group (21)	Card No. (23 24)	
Dup. col. 1-20	0 8	0 2	quality. ST present.
Dup. col. 1-20	0 9	0 1	Gear: Coffelt backpack with TAS generator.
Dup. col. 1-20			
Dup. col. 1-20			
Dup. col. 1-20			
Dup. col. 1-20			
Dup. col. 1-20			
Dup. col. 1-20			
Dup. col. 1-20			
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Dup. col. 1-20			
Dup. col. 1-20			
Dup. col. 1-20			
Dup. col. 1-20			
Dup. col. 1-20			
Dup. col. 1-20			
Dup. col. 1-20			
Dup. col. 1-20			
col. 1-20			
Dup. col. 1-20			

MOUTH LATITUDE: DEG - - MIN - - SEC - - LONGITUDE: DEG - - MIN - - SEC - -

SITE RIVER MILE - - - . - -

WATER NAME BLUE-SKIN-FK - - - - - - - SUBBASIN 17 SUB-SUBBASIN E

SITE LATITUDE: DEG - - MIN - - SEC - - LONGITUDE: DEG - - MIN - - SEC - -

SITE LOCATION -

SAMPLING DATE: YEAR 1988 MO 06 DAY 29

SURVEY LEADER(LAST NAME) LEE - - - - - - - - - - - - - - - - - -

GEAR TYPE 05 (ELECTROPACK________) E1(HR:MIN) - - - : 15 MESH SIZE - - -
E2(HR:MN) - - - : - - E3(HR:MN) - - - : - - E4(HR:MN) - - - : - - E5(HR:MN) - - - : - -
CURRENT TYPE : 1 X AC 2 - DC 3 - PULSED DC VOLTAGE - 100 WATTS - - - -

ABUNDANCE METHOD 1 (CATCH/UNIT EFFT) SURVEY PURPOSE 01 (POP ABUND ESTIMATE)
NETTERS 2 # ELECTRODES 2
NET LENGTH (M) - - - POT VOLUME - - . - DEPTH - - . - BAIT -

SPECIES ABUNDANCE:
FISH SPECIES COMMON NAME BROWN-TROUT - - - - - - - - - - - - - 095

	M C R					
LENGTH GROUP 50	C1 1	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP 75	C1 1	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP 275	C1 1	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----

FISH SPECIES COMMON NAME -

	M C R					
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----

STREAM/RIVER SITE FISH OCCURRENCE DATA INPUT FORM [illegible] 01/27/87

MOUTH LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE RIVER MILE _ _ _._ _

WATER NAME PINE CK N FK _ _ _ _ _ SUBBASIN 17 SUB-SUBBASIN E

SITE LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE LOCATION _

SAMPLING DATE: YEAR 1 9 8 7 MO 0 6 DAY 2 9

SURVEY LEADER(LAST NAME) LEE _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

GEAR TYPE 0 E (ELECTROFISHER_____) E1(HR:MIN) _ _ : 1 3 MESH SIZE _ _ _

CURRENT TYPE : 1 X AC 2 _ DC 3 _ PULSED DC VOLTAGE _ 1 0 0 WATTS _ _ _ _

SPECIES OCCURRENCE (COMMON NAME)

1	BLACKNOSE DACE	6	WHITE SUCKER
2	JOHNNY DARTER	7	CENTRAL STONEROLLER
3	MOTTLED SCULPIN	8	NORTHERN HOG SUCKER
4	RAINBOW DARTER	9	BROWN TROUT
5	FANTAIL DARTER	10	

094

SPECIES OCCURRENCE (CONTINUED)

11		16	
12		17	
13		18	
14		19	
15		20	

SPECIES OCCURRENCE (CONTINUED)

21		26	
22		27	
23		28	
24		29	
25		30	

STREAM/RIVER ...

MOUTH LATITUDE: DEG - - MIN - - SEC - - LONGITUDE: DEG - - MIN - - SEC - -

SITE RIVER MILE - - 0.72 092

WATER NAME CLKE-CK-N-EK - - - - - - SUBBASIN 17 SUB-SUBBASI

SITE LATITUDE: DEG 40 MIN 52 SEC 34 LONGITUDE: DEG 79 MIN 27 SEC 25

SITE LOCATION L.5000DNSTIRONEL-BULL-RD - - - - -

SAMPLING DATE: YEAR 0088 MO 06 DAY 29 093.

SURVEY LEADER (LAST NAME) LEE - - - - - - - - - - - - - - - - - -

USGS QUADS: FIRST K.10 SECOND - - -

PHYSICAL DATA

SITE LENGTH (M) - - - 74 SITE WIDTH (M) - - - 3.8

DISCHARGE (CU M/SEC) - - - - - - METHOD -

SUBSTRATE : 1 - - - BEDROCK 2 - - - BOULDER 3 - X - RUBBLE 4 - - X GRAVE
(MAX 3) 5 - - - SAND 6 - - - SILT 7 - - - CLAY METHOD 1

RELATIVE HABITAT EVALUATIONS

BANK VEGETATION : 1 - AGRI 2 - GRASS 3 - SHRUB 4 X TREE

SHADE : 1 - DENSE 2 X PARTIAL 3 - OPEN

BANK EROSION : 1 - HEAVY 2 - MODERATE 3 X LITE 4 - NONE

FLOW : 1 - HIGH 2 - NORMAL 3 X LOW

HABITAT QUALITY INDEX - - -

EOF

MOUTH LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE RIVER MILE _ _ _ _ _

WATER NAME PINE CK N FK _ _ _ _ _ SUBBASIN LJ SUB-SUBBASIN E

SITE LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE LOCATION _

SAMPLING DATE: YEAR 1988 MO 06 DAY 29

SURVEY LEADER(LAST NAME) LEE _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

GEAR TYPE 05 (ELECTROPACK_________) E1(HR:MIN) _ _ _ : 09 MESH SIZE _ _ _
E2(HR:MN) _ _ _:_ _ E3(HR:MN) _ _ _:_ _ E4(HR:MN) _ _ _:_ _ E5(HR:MN) _ _ _:_ _
CURRENT TYPE : 1 X AC 2 _ DC 3 _ PULSED DC VOLTAGE _ 125 WATTS _ _ _ _

ABUNDANCE METHOD 1 (CATCH/UNIT EFFORT) SURVEY PURPOSE 01 (POP BOUND ESTIMATE)
NETTERS 2 # ELECTRODES 2
NET LENGTH (M) _ _ _ POT VOLUME _ _ _ _ DEPTH _ _ . _ BAIT _

SPECIES ABUNDANCE:
FISH SPECIES COMMON NAME BROWN TROUT _ _ _ _ _ _ _ _ _ _ _ _ 090

	M		C		R					
LENGTH GROUP	50	C1	1	C2	C3	C4	C5	MEAN WEIGHT		
LENGTH GROUP		C1		C2	C3	C4	C5	MEAN WEIGHT		
LENGTH GROUP		C1		C2	C3	C4	C5	MEAN WEIGHT		
LENGTH GROUP		C1		C2	C3	C4	C5	MEAN WEIGHT		
LENGTH GROUP		C1		C2	C3	C4	C5	MEAN WEIGHT		
LENGTH GROUP		C1		C2	C3	C4	C5	MEAN WEIGHT		
LENGTH GROUP		C1		C2	C3	C4	C5	MEAN WEIGHT		
LENGTH GROUP		C1		C2	C3	C4	C5	MEAN WEIGHT		
LENGTH GROUP		C1		C2	C3	C4	C5	MEAN WEIGHT		
LENGTH GROUP		C1		C2	C3	C4	C5	MEAN WEIGHT		
LENGTH GROUP		C1		C2	C3	C4	C5	MEAN WEIGHT		
LENGTH GROUP		C1		C2	C3	C4	C5	MEAN WEIGHT		

FISH SPECIES COMMON NAME BROOK TROUT _ _ _ _ _ _ _ _ _ _ _ _ 091

	M		C		R					
LENGTH GROUP	225	C1	1	C2	C3	C4	C5	MEAN WEIGHT		
LENGTH GROUP		C1		C2	C3	C4	C5	MEAN WEIGHT		
LENGTH GROUP		C1		C2	C3	C4	C5	MEAN WEIGHT		
LENGTH GROUP		C1		C2	C3	C4	C5	MEAN WEIGHT		
LENGTH GROUP		C1		C2	C3	C4	C5	MEAN WEIGHT		
LENGTH GROUP		C1		C2	C3	C4	C5	MEAN WEIGHT		
LENGTH GROUP		C1		C2	C3	C4	C5	MEAN WEIGHT		
LENGTH GROUP		C1		C2	C3	C4	C5	MEAN WEIGHT		
LENGTH GROUP		C1		C2	C3	C4	C5	MEAN WEIGHT		
LENGTH GROUP		C1		C2	C3	C4	C5	MEAN WEIGHT		
LENGTH GROUP		C1		C2	C3	C4	C5	MEAN WEIGHT		
LENGTH GROUP		C1		C2	C3	C4	C5	MEAN WEIGHT		

STREAM/RIVER SITE FISH OCCURRENCE [illegible]

MOUTH LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE RIVER MILE _ _ _._ _

WATER NAME PINE CK - N FK _ _ _ _ _ _ SUBBASIN 17 SUB-SUBBASIN 4

SITE LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE LOCATION _

SAMPLING DATE: YEAR 1992 MO 06 DAY 29

SURVEY LEADER(LAST NAME) LEE _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

GEAR TYPE 05 (ELECTROFISH_____) E1(HR:MIN) _ _ _ : 09 MESH SIZE _ _ _

CURRENT TYPE : 1 X AC 2 _ DC 3 _ PULSED DC VOLTAGE _ 12 5 WATTS _ _ _ _

SPECIES OCCURRENCE (COMMON NAME)

1	CREEK CHUB	6	WHITE SUCKER
2	MOTTLED SCULPIN	7	BROWN TROUT
3	BLACKNOSE DACE	8	BROOK TROUT
4	NORTHERN HOG SUCKER	9	
5	JOHNNY DARTER	10	

089

SPECIES OCCURRENCE (CONTINUED)

11		16	
12		17	
13		18	
14		19	
15		20	

SPECIES OCCURRENCE (CONTINUED)

21		26	
22		27	
23		28	
24		29	
25		30	

EOF

STREAM/RIVER GENERAL SITE CHEMICAL DATA INPUT FORM E + G #_27 OF _27 01/27/87

MOUTH LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE RIVER MILE _ _ _ _ _ _

WATER NAME C L N E _ C K _ N _ F K _ _ _ _ _ _ SUBBASIN 1 7 SUB-SUBBASIN E

SITE LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE LOCATION _

SAMPLING DATE: YEAR 1 9 8 8 MO 0 6 DAY 2 9

088

SURVEY LEADER (LAST NAME) L E E _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

CHEMICAL DATA:

TIME 1 0 4 4 AIR TEMPERATURE (C) 1 9 WATER TEMPERATURE (C) 1 6.5

SPECIFIC CONDUCTANCE (UMHOS) _ _ 4 5 5

PH _ 8.0 PH METHOD : 1 X COLORIMETRIC 2 _ ELECTROMETRIC

ALKALINITY (MG/L) _ 8 0 METHOD : 1 X MIX IND 2 _ METH/ORANGE 3 _ ENDPOINT

4 _ LOW ALKALINITY

HARDNESS (MG/L) _ _ _ METHOD : 1 _ EDTA FIELD 2 _ EDTA LAB

Interference

ADDITIONAL CHEMISTRIES:

			UNITS
SUBSTANCE _ _	(__________________)	CONCENTRATION _ _ _ _	(_ _ _ _)
SUBSTANCE _ _	(__________________)	CONCENTRATION _ _ _ _	(_ _ _ _)
SUBSTANCE _ _	(__________________)	CONCENTRATION _ _ _ _	(_ _ _ _)
SUBSTANCE _ _	(__________________)	CONCENTRATION _ _ _ _	(_ _ _ _)
SUBSTANCE _ _	(__________________)	CONCENTRATION _ _ _ _	(_ _ _ _)

INVERTEBRATE SAMPLING (Y OR N) N

EOF

TRERA RIVER GENERAL

MOUTH LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _

SITE RIVER MILE _ _ 277 086

WATER NAME PINE CREEK _____ SUBBASIN 17 SUB-SUBBAS 4

SITE LATITUDE: DEG 49 MIN 52 SEC 32 LONGITUDE: DEG 79 MIN 25 SEC 16

SITE LOCATION BRIDGE AT SR 1089 _____

SAMPLING DATE: YEAR 89 MO 06 DAY 29 087

SURVEY LEADER (LAST NAME) LEE _____

USGS QUADS: FIRST KIO SECOND _ _ _

PHYSICAL DATA

SITE LENGTH (M) _ _ _ 66 SITE WIDTH (M) _ _ _ 4.8

DISCHARGE (CU M/SEC) _ _ _ _ _ _ METHOD _

SUBSTRATE (MAX 3): 1 _ _ _ BEDROCK 2 _ _ _ BOULDER 3 _ X _ RUBBLE 4 _ X _ GRAVE
5 _ _ _ SAND 6 _ _ _ SILT 7 _ _ _ CLAY METHOD 1

RELATIVE HABITAT EVALUATIONS

BANK VEGETATION: 1 _ AGRI 2 _ GRASS 3 _ SHRUB 4 X TREE

SHADE: 1 _ DENSE 2 X PARTIAL 3 _ OPEN

BANK EROSION: 1 _ HEAVY 2 _ MODERATE 3 X LITE 4 _ NONE

FLOW: 1 _ HIGH 2 _ NORMAL 3 X LOW

HABITAT QUALITY INDEX _ _ _

EOF

STREAM/RIVER SECTION LOCATION DATA INPUT FORM B + C #23 OF 24 01/27/87

MOUTH LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _

SECTION # 03 YEAR OF SECTIONING 1978 084

WATER NAME PINE CREEK SUBBASIN 17 SUB-SUBBASIN E

COUNTY LOCATION:

FIRST BRUNSWICK _ _ _ _ _ SECOND _ _ _ _ _ _ _ _ _ _ _ _ _ _ 085

THIRD _ _ _ _ _ _ _ _ _ _ _ _ _ _ FOURTH _ _ _ _ _ _ _ _ _ _ _ _ _

FIFTH _ _ _ _ _ _ _ _ _ _ _ _ _ _

SECTION LENGTH (KM) _ 6.3 MEAN WIDTH _ _ _ 4.3

UPPER LIMIT: LAT = DEG 40 MIN 52 SEC 39 LON = DEG 79 MIN 24 SEC 00

RM _ _ 3.93

LOWER LIMIT: LAT = DEG 40 MIN 52 SEC 32 LON = DEG 79 MIN 28 SEC 10

RM _ _ 0.00

UPPER SECTION LIMIT RT _ 66 _ BRIDGE _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

LOWER SECTION LIMIT MOUTH _

MANAGEMENT CODE: UPDATE N MGMT DES CW 2 WW _ PROGRAM OP B STK STRAT 2 IN-FREQ

SECTION GRADIENT _ 11.3 GRADIENT METHOD 1 D.E.R. CLASS 1) _ 2) _ _

*USGS QUADRANGLE:

FIRST KLO SECOND _ _ _ THIRD _ _ _

FOURTH _ _ _ FIFTH _ _ _ SIXTH _ _ _

OF

STREAM/RIVER DATA ...

MOUTH LATITUDE: DEG - - MIN - - SEC - - LONGITUDE: DEG - - MIN - - SEC - -

SITE RIVER MILE - - - . - -

WATER NAME P L N E - C K - N - F K - - - - - SUBBASIN 1 7 SUB-SUBBASIN E

SITE LATITUDE: DEG - - MIN - - SEC - - LONGITUDE: DEG - - MIN - - SEC - -

SITE LOCATION -

SAMPLING DATE: YEAR 1 9 8 8 MO 0 6 DAY 2 9

SURVEY LEADER (LAST NAME) L E E - - - - - - - - - - - - - - - - - -

GEAR TYPE 0 5 (ELECTROPACK________) E1(HR:MIN) - - - : 1 3 MESH SIZE - - -
E2(HR:MN) - - - : - - E3(HR:MN) - - - : - - E4(HR:MN) - - - : - - E5(HR:MN) - - - : - -
CURRENT TYPE : 1 X AC 2 - DC 3 - PULSED DC VOLTAGE - - 2 5 WATTS - - - -

ABUNDANCE METHOD 1 (CATCH/UNIT EFFT) SURVEY PURPOSE 0 1 (POP ABUND ESTIMATE)
NETTERS 2 # ELECTRODES 2
NET LENGTH (M) - - - POT VOLUME - - . - DEPTH - - . - BAIT -

SPECIES ABUNDANCE: 083
FISH SPECIES COMMON NAME R A I N B O W - T R O U T - - - - - - - - - - - -

	M	C	R			
LENGTH GROUP 425	C1 1	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----

FISH SPECIES COMMON NAME -

	M	C	R			
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----

STREAM/RIVER SITE FISH OCCURRENCE DATA INPUT FORM E + H PAGE OF ___ 01/27/87

MOUTH LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE RIVER MILE _ _ _._ _

WATER NAME PINE CK N FK _ _ _ _ _ SUBBASIN 12 SUB-SUBBASIN E

SITE LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE LOCATION _

SAMPLING DATE: YEAR 1987 MO 06 DAY 29

SURVEY LEADER(LAST NAME) LEE _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

GEAR TYPE 02 (ELECTROFACK_____) E1(HR:MIN) _ _ : 13 MESH SIZE _ _ _

CURRENT TYPE : 1 X AC 2 _ DC 3 _ PULSED DC VOLTAGE _ _ 25 WATTS _ _ _ _

SPECIES OCCURRENCE (COMMON NAME)

1	BLACKNOSE_DACE	6	
2	MOTTLED_SCULPIN	7	
3	WHITE_SUCKER	8	
4	CREEK_CHUB	9	
5	RAINBOW_TROUT	10	

083

SPECIES OCCURRENCE (CONTINUED)

11		16	
12		17	
13		18	
14		19	
15		20	

SPECIES OCCURRENCE (CONTINUED)

21		26	
22		27	
23		28	
24		29	
25		30	

F

STREAM/RIVER GENERIC

MOUTH LATITUDE: DEG - - MIN - - SEC - - LONGITUDE: DEG - - MIN - - SEC - -

SITE RIVER MILE - - -.- -

WATER NAME P L A E - S K - N - F K - - - - - - SUBBASIN 1 7 SUB-SUBBASIN F

SITE LATITUDE: DEG - - MIN - - SEC - - LONGITUDE: DEG - - MIN - - SEC - -

SITE LOCATION -

081

SAMPLING DATE: YEAR 1 9 8 8 MO 0 6 DAY 2 9

SURVEY LEADER (LAST NAME) L E E - - - - - - - - - - - - - - - - -

CHEMICAL DATA:

TIME 1 0 2 8 AIR TEMPERATURE (C) 2 0 WATER TEMPERATURE (C) 1 6.5

SPECIFIC CONDUCTANCE (UMHOS) - - 3 3 0

PH - 7.6 PH METHOD : 1 X COLORIMETRIC 2 - ELECTROMETRIC

ALKALINITY (MG/L) 1 0 0 METHOD : 1 X MIX IND 2 - METH/ORANGE 3 - ENDPOINT

4 - LOW ALKALINITY

HARDNESS (MG/L) - - - METHOD : 1 - EDTA FIELD 2 - EDTA LAB

Interference

ADDITIONAL CHEMISTRIES:

		UNITS
SUBSTANCE - - (_____)	CONCENTRATION - - - -	(- - - -)
SUBSTANCE - - (_____)	CONCENTRATION - - - -	(- - - -)
SUBSTANCE - - (_____)	CONCENTRATION - - - -	(- - - -)
SUBSTANCE - - (_____)	CONCENTRATION - - - -	(- - - -)
SUBSTANCE - - (_____)	CONCENTRATION - - - -	(- - - -)

INVERTEBRATE SAMPLING (Y OR N) N

EOF

MOUTH LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _

SITE RIVER MILE _ _ 3.93 079

WATER NAME PINE SKUNK _ _ _ _ _ SUBBASIN 17 SUB-SUBBASIN

SITE LATITUDE: DEG 40 MIN 52 SEC 39 LONGITUDE: DEG 79 MIN 24 SEC 00

SITE LOCATION RT 66 BRIDGE _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

SAMPLING DATE: YEAR 1983 MO 06 DAY 29 080

SURVEY LEADER (LAST NAME) LEE _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

USGS QUADS: FIRST Latrobe SECOND _ _ _

PHYSICAL DATA

SITE LENGTH (M) _ _ _ 54 SITE WIDTH (M) _ _ _ 2.6

DISCHARGE (CU M/SEC) _ _ _ _ _ _ METHOD _

SUBSTRATE (MAX 3): 1 _ _ _ BEDROCK 2 _ _ _ BOULDER 3 _ _ _ RUBBLE 4 _ _ X GRAVI
5 _ _ X SAND 6 _ _ _ SILT 7 _ _ _ CLAY METHOD 1

RELATIVE HABITAT EVALUATIONS

BANK VEGETATION : 1 _ AGRI 2 _ GRASS 3 _ SHRUB 4 X TREE

SHADE : 1 _ DENSE 2 X PARTIAL 3 _ OPEN

BANK EROSION : 1 _ HEAVY 2 X MODERATE 3 _ LITE 4 _ NONE

FLOW : 1 _ HIGH 2 _ NORMAL 3 X LOW

HABITAT QUALITY INDEX _ _ _

EOF

STREAM/RIVER SECTION LOCATION DATA INPUT FORM B + C ---- OF ---

MOUTH LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SECTION # 02 YEAR OF SECTIONING 1978 077

WATER NAME PINE_CREEK_FK_BC_ _ SUBBASIN 17 SUB-SUBBASIN E

COUNTY LOCATION: 078

FIRST ARMSTRONG_ _ _ _ _ SECOND _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

THIRD _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ FOURTH _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

FIFTH _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

SECTION LENGTH (KM) _ 0.7 MEAN WIDTH _ _ _ 3.7

UPPER LIMIT: LAT = DEG 40 MIN 52 SEC 35 LON = DEG 79 MIN 23 SEC 39

RM _ _ 4.25

LOWER LIMIT: LAT = DEG 40 MIN 52 SEC 39 LON = DEG 79 MIN 24 SEC 00

RM _ _ 3.93

UPPER SECTION LIMIT T628_BRIDGE_SLABTOWN_ _ _ _ _ _ _ _

LOWER SECTION LIMIT RT_66_BRIDGE_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

MANAGEMENT CODE: UPDATE N MGMT DES CW _ WW 0 PROGRAM OP D STK STRAT _ IN-FREQ

SECTION GRADIENT _ _ 62 GRADIENT METHOD 1 D.E.R. CLASS 1) _ 2 2) _ _

*USGS QUADRANGLE:

FIRST 411 SECOND _ _ _ THIRD _ _ _

FOURTH _ _ _ FIFTH _ _ _ SIXTH _ _ _

STREAM/RIVER GENERAL DATA INPUT FORM A # 1 OF 14 01/27/87

A89060

STREAM LOCATION

MOUTH LATITUDE: DEG 40 MIN 52 SEC 32 LONGITUDE: DEG 79 MIN 28 SEC 10

WATER NAME PINE CK-NEK FK SUBBASIN 17 SUB-SUBBASIN E

RECEIVING WATER PINE CK

076

RIVER MILE OF ENTRY 0.72

COUNTY OF THE MOUTH ARMSTRONG

TOTAL LENGTH (KM) 10 DRAINAGE AREA (SQ KM) 33

AREA FISHERIES MANAGER LEE

AREA FISHERIES MANAGER COMMENTS:

POPULATION DENSITY IN AREA 6/23/87

TOWNSP = 16 persons/km²

MUNICIPAL TOWNSP = 16 persons/km²

UNIT COMMENTS:

EOF

This work made possible by funding from the Sport Fish Restoration Act Project F-57-R Fisheries Management.

PENNSYLVANIA FISH AND BOAT COMMISSION
BUREAU OF FISHERIES
DIVISION OF FISHERIES MANAGEMENT

Pine Creek, North Fork (217E)
Sections 02 & 03

Prepared by
Allen Woomer and Ron Lee

Date Sampled: July 13, 2000 Date Prepared: November 2000

Abstract

Pine Creek, North Fork (217E) is a small stream located in Armstrong County. Section 02 is a short section (0.7 km) that flows from T-628 bridge in Slabtown downstream to SR0028 (Rt.66) bridge and is designated as a Children/Disabled Fishing Area. It is not stocked by the PFBC. Section 03 runs from the bridge on SR0028 (Rt. 66) downstream 6.1 km to the mouth and is managed as a catchable trout stocked stream with a classification of DGR3. It currently receives 1200 trout preseason only split into half brook and half brown trout. The purpose of the 2000 survey was to assess the current management program and to monitor changes in wild trout abundance. Area Two has previously surveyed Pine Creek, North Fork in 1988 (Lee 1988) and 1978 (Obert et al. 1978). Three sites were sampled in 2000 (Figs. 1 & 2) at the following locations:

- RM 3.93 - SR0028 (Rt.66) Bridge
- RM 2.77 - Bridge at SR1029
- RM 0.72 - 1500 m downstream confluence of Bullock Run

These sites match the historical locations sampled in 1988 and 1978. Water chemistry results (Table 1) indicate an alkaline pH and high levels of alkalinity, hardness and specific conductance. This originates from treatment of coal strip mine sites within the drainage. Site RM 3.93 is in Section 02 and four fish species were sampled in 120 m (mean width 2.6 m) (Table 2). No trout either wild or hatchery were sampled. At RM 2.77 in Section 03 eleven fish species were identified (Table 3) in a 124 m site (mean width 4.4 m). Numerous hatchery stocked trout were sampled at this site (Table 4) but no wild trout were captured. Results from the 1988 survey show a single brown trout in the 50 mm size group was sampled indicating wild brown trout were present at this site in very low numbers at that time. At RM

0.72 fifteen fish species were identified in the 308 m site (mean width 6.6 m). A fair population of wild brown trout was sampled

ranging in size from 50 to 324 mm. Biomass was estimated at 10.39 kg/ha based on a modified Petersen mark and recapture method (Table 5). Seven hatchery stocked trout were also sampled (Table 6). Results from the 1988 survey show one brown trout in the 25 mm size group and one in the 50 mm size group were sampled indicating that wild brown trout were present at this site at that time but at much lower abundance. The reason why such a substantial population of wild brown trout are present at site RM 0.72 while no wild trout were sampled at site RM 2.77 is unclear. The most likely reason would be either a tributary or spring enters Pine Creek, North Fork downstream of RM 2.77 making the stream more suitable for trout most likely through lowering of water temperature. Water chemistry results do not show this pattern, however, with RM 0.72 having the highest water temperature recorded. Bullock Run is a small tributary entering Pine Creek, North Branch 1500 m upstream of RM 0.72. It has been shown to hold wild brown trout (Woomer and Lee 1998) but it is unclear if this water source is causing any improvement to the main stem. At any rate the presence of a sizeable wild brown trout population in Pine Creek, North Fork is a very encouraging sign given the history of strip mining and its effects in the watershed. Average biomass of Section 03 would be 5.20 kg/ha since no wild trout were sampled at RM 2.77. Current management of Section 03 as an Approved Trout Water under the classification DGR3 is appropriate. Continue to stock preseason only due to landowner concerns. The stream is currently posted in several areas but fishing permitted signs are in place. Pine Creek, North Fork is part of the Pine Creek drainage which is classified High Quality Cold Water Fishery in PA DEP Chapter 93 Water Quality Standards.

Literature Cited

Lee, R. 1988. Pine Creek, North Fork (217E) Stream Data Input Forms. PFBC files, 450 Robinson Lane, Bellefonte, PA.

Obert, E., D. Dinger, and Bules. 1978. Pine Creek, North Fork (217E) Stream Examination Report. PFBC files, 450 Robinson Lane, Bellefonte, PA.

Woomer, A. and R. Lee. 1998. Bullock Run (217E) Management Report. PFBC files, 450 Robinson Lane, Bellefonte, PA.

Table 1. Chemical-thermal analyses of Pine Creek, North Fork (217E), 2000.

Riv. Mile	3.93	2.77	0.72
Date	07/14	07/13	07/13
Air Temp	23	22	23
Water Temp	18.5	19.0	19.8
pH	7.5	7.8	8.0
Spec Cond	434	605	550
Tot Alk	80	107	162
Tot Hard	200	266	176

Table 2. Fish species occurrence in Pine Creek, North Fork (217E) Section 02 Site RM 3.93 on July 14, 2000.

Common Name	Scientific Name
Blacknose dace	Rhinichthys atratulus
Creek chub	Semotilus atromaculatus
White sucker	Catostomus commersoni
Mottled sculpin	Cottus bairdi
Species Total: 4	

Table 3. Fish species occurrence in Pine Creek, North Fork (217E) Section 03 on July 13, 2000.

Common Name	Scientific Name	River mile: 2.77	0.72
Lamprey unid	Lamprey		x
Brown trout	Salmo trutta	x	x
Brook trout - hatchery	Salvelinus fontinalis	x	x
Rainbow trout - hatchery	Oncorhynchus mykiss	x	
Central stoneroller	Campostoma anomalum		x
Redside dace	Clinostomus elongatus	x	
Common shiner	Luxilus cornutus		x
Bluntnose minnow	Pimephales notatus		x
Blacknose dace	Rhinichthys atratulus	x	x
Longnose dace	Rhinichthys cataractae	x	x
Creek chub	Semotilus atromaculatus	x	x
White sucker	Catostomus commersoni	x	x
Northern hog sucker	Hypentelium nigricans	x	x
Rainbow darter	Etheostoma caeruleum		x
Fantail darter	Etheostoma flabellare		x
Johnny darter	Etheostoma nigrum	x	x
Mottled sculpin	Cottus bairdi	x	x
Species Total		11	15

Table 4. Number of hatchery stocked trout sampled at Pine Creek, North Fork (217E) Site RM 2.77 Lat/Lon 405235/792516 Survey Date: July 13, 2000.

LENGTH GROUP	NUMBER SAMPLED BT	RT	ST
175	1		
200	1		
250	1		2
275	3		
300	2	1	
400		1	
TOTALS	8	2	2

Table 5. Estimated abundance and biomass of brown trout Pine Creek, North Fork (217E) Site RM 0.72 Lat/Lon 405234/792725 Survey date: July 13, 2000

LENGTH GROUP (mm)	POP. EST.	LOW CI	HIGH CI	#/HA	KG/HA	#/KM
50	32	17	65	160	0.48	104
75	19	11	37	95	0.48	62
125	1	NA	NA	5	0.16	3
150	6	3	15	30	1.47	19
175	2	NA	NA	10	0.70	6
225	1	NA	NA	5	0.75	3
250	2	NA	NA	10	1.97	6
275	2	NA	NA	10	2.84	6
300	1	NA	NA	5	1.54	3
TOTALS	66			330	10.39	215

Table 6. Number of hatchery stocked trout sampled at Pine Creek, North Fork (217E) Site RM 0.72 Lat/Lon 405234/792725 Survey Date: July 13, 2000.

LENGTH GROUP	NUMBER SAMPLED	
	BT	ST
250	1	2
275	3	
325		1
TOTALS	4	3

PA FISH AND BOAT COMMISSION
COMMENTS AND RECOMMENDATIONS
January 12, 2000

WATER: Pine Creek, North Fork (217E)

EXAMINED: July 13 & 14, 2000

BY: Allen Woomer and Ron Lee

Bureau Director Action:_____ Date:

Division Chief Action:_____ Date:

WW Unit Leader Action:_____ Date:

CW Unit Leader Action:_____ Date:

AREA COMMENTS:
A routine survey was conducted to assess current management and monitor trends in wild trout abundance. An improved wild brown trout population was sampled at Site RM 0.72 in Section 03. Biomass of wild brown trout was estimated at 10.39 kg/ha. Given the history of strip mining in the watershed this was an encouraging sign of stable and improving water quality. Average wild trout biomass for Section 03 was 5.20 kg/ha.

AREA RECOMMENDATIONS:

1. No changes in management are recommended for Section 02.

2. Continue to manage Section 03 as an Approved Trout Water under the classification DGR3.

3. Continue to stock preseason only due to landowner concerns.

STREAM/RIVER GENERAL DATA INPUT FORM A 01/27/87

A89060

STREAM LOCATION

MOUTH LATITUDE: DEG 40 MIN 52 SEC 31 LONGITUDE: DEG 79 MIN 28 SEC 22

WATER NAME CINE-SK-S-FK------- SUBBASIN 17 SUB-SUBBASIN E

RECEIVING WATER CINE-SK-----------

096

RIVER MILE OF ENTRY --0.72

COUNTY OF THE MOUTH ARMSTRONG-----

TOTAL LENGTH (KM) -16 DRAINAGE AREA (SQ KM) ---99

AREA FISHERIES MANAGER LEE-----------------

AREA FISHERIES MANAGER COMMENTS:

POPULATION DENSITY UPDATED 6/23/93

UNIT COMMENTS:

4450/247.1) / 10,442/251) TWWSP = 18 persons/km²

MNCPL + TWWSP = 40 persons/km²

EOF

STREAM/RIVER SECTION LOCATION DATA INPUT FORM

MOUTH LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SECTION # 01 YEAR OF SECTIONING 1978 098

WATER NAME PINE CK S FK SUBBASIN 17 SUB-SUBBASIN E

COUNTY LOCATION: 098

FIRST ARMSTRONG SECOND _ _ _ _

THIRD _ _ _ _ FOURTH _ _ _ _

FIFTH _ _ _ _

SECTION LENGTH (KM) 16.0 MEAN WIDTH 8.3

UPPER LIMIT: LAT = DEG 40 MIN 50 SEC 57 LON = DEG 79 MIN 19 SEC 43

RM 10.56

LOWER LIMIT: LAT = DEG 40 MIN 52 SEC 32 LON = DEG 79 MIN 28 SEC 10

RM 0.00

UPPER SECTION LIMIT CONFL OF SB PINE NB PINE CRK

LOWER SECTION LIMIT MOUTH

MANAGEMENT CODE: UPDATE N MGMT DES CW 2 WW _ PROGRAM OP B STK STRAT L IN-FREQ

SECTION GRADIENT 10.0 GRADIENT METHOD / D.E.R. CLASS 1) 2 2) _ _

*USGS QUADRANGLE:

FIRST 662 SECOND 611 THIRD _ _ _

FOURTH _ _ _ FIFTH _ _ _ SIXTH _ _ _

:OF

MOUTH LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _

SITE RIVER MILE _ _ 9.9 0   C101   099

WATER NAME P I N E _ C K _ S _ F K _ _ _ _ _ SUBBASIN 1 7 SUB-SUBBASIN 4

SITE LATITUDE: DEG 4 0 MIN 5 0 SEC 5 8 LONGITUDE: DEG 7 9 MIN 2 0 SEC 0 5

SITE LOCATION C L P E L L N E _ B T _ I N T _ S R 4 0 2 3 _ S R L 0 3 9 _

SAMPLING DATE: YEAR 1 9 8 8 MO 0 6 DAY 2 8   100

SURVEY LEADER (LAST NAME) L E E _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

USGS QUADS: FIRST L 1 0 SECOND L 1 1

PHYSICAL DATA

SITE LENGTH (M) _ _ _ 2 2   SITE WIDTH (M) _ _ _ 7.5

DISCHARGE (CU M/SEC) _ _ _ _ _ _ METHOD _

SUBSTRATE : 1 _ _ _ BEDROCK 2 _ _ _ BOULDER 3 _ X _ RUBBLE 4 _ _ _ GRAVE
(MAX 3)
5 _ _ _ SAND 6 _ X _ SILT 7 _ _ _ CLAY METHOD 1

RELATIVE HABITAT EVALUATIONS

BANK VEGETATION : 1 _ AGRI 2 _ GRASS 3 _ SHRUB 4 X TREE

SHADE : 1 _ DENSE 2 X PARTIAL 3 _ OPEN

BANK EROSION : 1 _ HEAVY 2 _ MODERATE 3 X LITE 4 _ NONE

FLOW : 1 _ HIGH 2 _ NORMAL 3 X LOW

HABITAT QUALITY INDEX _ _ _

2OF

STREAM/RIVER GENERAL SITE CHEMICAL DATA INPUT FORMAT FOR [illegible]

0101

MOUTH LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE RIVER MILE _ _ _._ _

WATER NAME P L N E _ S K _ S _ F K _ _ _ _ _ SUBBASIN 1 2 SUB-SUBBASIN 2

SITE LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE LOCATION _

SAMPLING DATE: YEAR 8 0 8 2 MO 0 6 DAY 2 9

101

SURVEY LEADER (LAST NAME) L E E _

CHEMICAL DATA:

TIME 1 0 0 8 AIR TEMPERATURE (C) 2 0 WATER TEMPERATURE (C) [illegible]

SPECIFIC CONDUCTANCE (UMHOS) _ _ 4 3 8

PH _ 7.6 PH METHOD : 1 X COLORIMETRIC 2 _ ELECTROMETRIC

ALKALINITY (MG/L) _ 8 0 METHOD : 1 X MIX IND 2 _ METH/ORANGE 3 _ ENDPOINT

4 _ LOW ALKALINITY

HARDNESS (MG/L) _ _ _ METHOD : 1 _ EDTA FIELD 2 _ EDTA LAB

Interference

ADDITIONAL CHEMISTRIES: UNITS

SUBSTANCE _ _ (_____) CONCENTRATION _ _ _ _ (_ _ _ _)

SUBSTANCE _ _ (_____) CONCENTRATION _ _ _ _ (_ _ _ _)

SUBSTANCE _ _ (_____) CONCENTRATION _ _ _ _ (_ _ _ _)

SUBSTANCE _ _ (_____) CONCENTRATION _ _ _ _ (_ _ _ _)

SUBSTANCE _ _ (_____) CONCENTRATION _ _ _ _ (_ _ _ _)

INVERTEBRATE SAMPLING (Y OR N) N

EOF

STREAM/RIVER SITE FISH OCCURRENCE DATA INPUT FORM 4 H 01/27/87

0/01

MOUTH LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE RIVER MILE _ _ _._ _

WATER NAME CINE_CKUS_FK _ _ _ _ _ _ SUBBASIN 17 SUB-SUBBASIN E

SITE LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE LOCATION _

SAMPLING DATE: YEAR 2 0 8 8 MO 0 6 DAY 2 8

SURVEY LEADER(LAST NAME) LEE_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

GEAR TYPE 0 5 (ELECTROPACK_ _ _ _ _) ET(HR:MIN) _ _ _ : 5 4 MESH SIZE _ _ _

CURRENT TYPE : 1 X AC 2 _ DC 3 _ PULSED DC VOLTAGE _ 1 0 0 WATTS _ 1 2 5

SPECIES OCCURRENCE (COMMON NAME)

1	MOTTLED SCULPIN	6	BLUEGILL
2	JOHNNY DARTER	7	
3	BLACKNOSE DACE	8	
4	BLACKSIDE DARTER	9	
5	REDSIDE DACE	10	

102

SPECIES OCCURRENCE (CONTINUED)

11		16	
12		17	
13		18	
14		19	
15		20	

SPECIES OCCURRENCE (CONTINUED)

21		26	
22		27	
23		28	
24		29	
25		30	

F

STREAM/RIVER ...

0/07

MOUTH LATITUDE: DEG - - MIN - - SEC - - LONGITUDE: DEG - - MIN - - SEC - -

SITE RIVER MILE - - - - -

WATER NAME P I N E - C K - S - F K - - - - - - SUBBASIN 1 7 SUB-SUBBASIN 5

SITE LATITUDE: DEG - - MIN - - SEC - - LONGITUDE: DEG - - MIN - - SEC - -

SITE LOCATION -

SAMPLING DATE: YEAR 0 0 9 1 MO 0 6 DAY 2 2

SURVEY LEADER(LAST NAME) L E E - - - - - - - - - - - - - - - - -

GEAR TYPE 0 5 (ELECTROFACK--------) E1(HR:MIN) - - - : 0 6 MESH SIZE - - -
E2(HR:MN) - - - : - - E3(HR:MN) - - - : - - E4(HR:MN) - - - : - - E5(HR:MN) - - - : - -
CURRENT TYPE : 1 X AC 2 - DC 3 - PULSED DC VOLTAGE - 1 0 0 WATTS - 1 2 5

ABUNDANCE METHOD 1 (CATCH/UNIT EFFT) SURVEY PURPOSE 0 1 (POP ABUND ESTIMATE)
NETTERS 2 # ELECTRODES 2
NET LENGTH (M) - - - POT VOLUME - --- DEPTH - - . - BAIT -

103

SPECIES ABUNDANCE:
FISH SPECIES COMMON NAME N O - F I S H - - - - - - - - - - - - - - -

	M		C		R					
LENGTH GROUP	0000	C1	---0	C2	----	C3	----	C4	----	C5	----	MEAN WEIGHT	-----
LENGTH GROUP	----	C1	----	C2	----	C3	----	C4	----	C5	----	MEAN WEIGHT	-----
LENGTH GROUP	----	C1	----	C2	----	C3	----	C4	----	C5	----	MEAN WEIGHT	-----
LENGTH GROUP	----	C1	----	C2	----	C3	----	C4	----	C5	----	MEAN WEIGHT	-----
LENGTH GROUP	----	C1	----	C2	----	C3	----	C4	----	C5	----	MEAN WEIGHT	-----
LENGTH GROUP	----	C1	----	C2	----	C3	----	C4	----	C5	----	MEAN WEIGHT	-----
LENGTH GROUP	----	C1	----	C2	----	C3	----	C4	----	C5	----	MEAN WEIGHT	-----
LENGTH GROUP	----	C1	----	C2	----	C3	----	C4	----	C5	----	MEAN WEIGHT	-----
LENGTH GROUP	----	C1	----	C2	----	C3	----	C4	----	C5	----	MEAN WEIGHT	-----
LENGTH GROUP	----	C1	----	C2	----	C3	----	C4	----	C5	----	MEAN WEIGHT	-----
LENGTH GROUP	----	C1	----	C2	----	C3	----	C4	----	C5	----	MEAN WEIGHT	-----
LENGTH GROUP	----	C1	----	C2	----	C3	----	C4	----				

FISH SPECIES COMMON NAME -

	M		C		R							
LENGTH GROUP	----	C1	----	C2	----	C3	----	C4	----	C5	----	MEAN WEIGHT	-----
LENGTH GROUP	----	C1	----	C2	----	C3	----	C4	----	C5	----	MEAN WEIGHT	-----
LENGTH GROUP	----	C1	----	C2	----	C3	----	C4	----	C5	----	MEAN WEIGHT	-----
LENGTH GROUP	----	C1	----	C2	----	C3	----	C4	----	C5	----	MEAN WEIGHT	-----
LENGTH GROUP	----	C1	----	C2	----	C3	----	C4	----	C5	----	MEAN WEIGHT	-----
LENGTH GROUP	----	C1	----	C2	----	C3	----	C4	----	C5	----	MEAN WEIGHT	-----
LENGTH GROUP	----	C1	----	C2	----	C3	----	C4	----	C5	----	MEAN WEIGHT	-----
LENGTH GROUP	----	C1	----	C2	----	C3	----	C4	----	C5	----	MEAN WEIGHT	-----
LENGTH GROUP	----	C1	----	C2	----	C3	----	C4	----	C5	----	MEAN WEIGHT	-----
LENGTH GROUP	----	C1	----	C2	----	C3	----	C4	----	C5	----	MEAN WEIGHT	-----
LENGTH GROUP	----	C1	----	C2	----	C3	----	C4	----	C5	----	MEAN WEIGHT	-----
LENGTH GROUP	----	C1	----	C2	----	C3	----	C4	----	C5	----	MEAN WEIGHT	-----
LENGTH GROUP	----	C1	----	C2	----	C3	----	C4	----	C5	----	MEAN WEIGHT	-----

STREAM/RIVER GENERAL SITE ...

0102

MOUTH LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _

SITE RIVER MILE _ _ 6.96 104

WATER NAME PINE CK S EK _ _ _ _ _ _ SUBBASIN L 7 SUB-SUBBASIN

SITE LATITUDE: DEG 4 0 MIN 5 0 SEC 3 2 LONGITUDE: DEG 7 7 MIN 2 2 SEC 5 2

SITE LOCATION 200m DNST FIRST TRIB AT OBS PK

SAMPLING DATE: YEAR 1988 MO 06 DAY 28 105

SURVEY LEADER (LAST NAME) LEE _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

USGS QUADS: FIRST L 1 0 SECOND L 1 1

PHYSICAL DATA

SITE LENGTH (M) _ _ _ 5 2 SITE WIDTH (M) _ _ _ 8.0

DISCHARGE (CU M/SEC) _ _ _ _ _ _ METHOD _

SUBSTRATE : 1 _ _ _ BEDROCK 2 _ _ _ BOULDER 3 _ X _ RUBBLE 4 _ X _ GRAVE
(MAX 3)
5 _ _ _ SAND 6 _ _ _ SILT 7 _ _ _ CLAY METHOD 1

RELATIVE HABITAT EVALUATIONS

BANK VEGETATION : 1 _ AGRI 2 _ GRASS 3 _ SHRUB 4 X TREE

SHADE : 1 _ DENSE 2 X PARTIAL 3 _ OPEN

BANK EROSION : 1 _ HEAVY 2 X MODERATE 3 _ LITE 4 _ NONE

FLOW : 1 _ HIGH 2 _ NORMAL 3 X LOW

HABITAT QUALITY INDEX _ _ _

EOF

STREAM/RIVER GENERAL SITE CHEMICAL DATA INPUT FORM E.P.A. 0102

MOUTH LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE RIVER MILE _ _ _ _ _

WATER NAME PINE CREEK SUBBASIN 17 SUB-SUBBASIN 2

SITE LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE LOCATION _

SAMPLING DATE: YEAR 1988 MO 06 DAY 29 106

SURVEY LEADER (LAST NAME) LEE

CHEMICAL DATA:

TIME 0953 AIR TEMPERATURE (C) 18 WATER TEMPERATURE (C) 17.0

SPECIFIC CONDUCTANCE (UMHOS) _ _ 402

PH 7.6 PH METHOD : 1 X COLORIMETRIC 2 _ ELECTROMETRIC

ALKALINITY (MG/L) _ 64 METHOD : 1 X MIX IND 2 _ METH/ORANGE 3 _ ENDPOINT
4 _ LOW ALKALINITY

HARDNESS (MG/L) _ _ _ METHOD : 1 _ EDTA FIELD 2 _ EDTA LAB

ADDITIONAL CHEMISTRIES: UNITS

SUBSTANCE _ _ (_____) CONCENTRATION _ _ _ _ (_ _ _ _)

SUBSTANCE _ _ (_____) CONCENTRATION _ _ _ _ (_ _ _ _)

SUBSTANCE _ _ (_____) CONCENTRATION _ _ _ _ (_ _ _ _)

SUBSTANCE _ _ (_____) CONCENTRATION _ _ _ _ (_ _ _ _)

SUBSTANCE _ _ (_____) CONCENTRATION _ _ _ _ (_ _ _ _)

INVERTEBRATE SAMPLING (Y OR N) N

EOF

STREAM/RIVER SITE FISH OCCURRENCE DATA INPUT FORM E. H. SECT OF 11 01/27/87

0102

MOUTH LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE RIVER MILE _ _ _._ _

WATER NAME C L N E _ S K _ S _ E K _ _ _ _ _ SUBBASIN 1 2 SUB-SUBBASIN E

SITE LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE LOCATION _

SAMPLING DATE: YEAR 1 9 8 5 MO 0 6 DAY 2 5

SURVEY LEADER (LAST NAME) L E E _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

GEAR TYPE 0 5 (ELECTROPACK _ _ _ _ _ _ _) E1 (HR:MIN) _ _ _ : 0 5 MESH SIZE _ _ _

CURRENT TYPE : 1 X AC 2 _ DC 3 _ PULSED DC VOLTAGE _ 1 2 5 WATTS _ 1 _ 6 0

SPECIES OCCURRENCE (COMMON NAME)

1	CENTRAL DARTER	6	DRILLED SCULPIN
2	JOHNNY DARTER	7	NORTHERN HOGSUCKER
3	COMMON SHINER	8	BLACKNOSE DACE
4	CREEK CHUB	9	CENTRAL STONEROLLER
5	LONGNOSE DACE	10	

107

SPECIES OCCURRENCE (CONTINUED)

11		16	
12		17	
13		18	
14		19	
15		20	

SPECIES OCCURRENCE (CONTINUED)

21		26	
22		27	
23		28	
24		29	
25		30	

F

STREAM/RIVER ...

0102

MOUTH LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE RIVER MILE _ _ _._ _

WATER NAME CLNE_CKLS_EK _ _ _ _ _ _ SUBBASIN L 7 SUB-SUBBASIN 5

SITE LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE LOCATION _

SAMPLING DATE: YEAR 1988 MO 06 DAY 28

SURVEY LEADER(LAST NAME) LEE_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

GEAR TYPE 05 (ELECTROPACK_ _ _ _ _ _ _ _) E1(HR:MIN) _ _ _ : 05 MESH SIZE _ _ _
E2(HR:MN) _ _ _:_ _ E3(HR:MN) _ _ _:_ _ E4(HR:MN) _ _ _:_ _ E5(HR:MN) _ _ _:_ _
CURRENT TYPE : 1 X AC 2 _ DC 3 _ PULSED DC VOLTAGE _ 125 WATTS _ 200

ABUNDANCE METHOD 1 (CATCH/UNIT_EFRT) SURVEY PURPOSE 01 (POP_ABUND_ESTIMATE)
NETTERS 2 # ELECTRODES 2
NET LENGTH (M) _ _ _ POT VOLUME _ _._ DEPTH _ _._ _ BAIT _

SPECIES ABUNDANCE:
FISH SPECIES COMMON NAME NO_FISH_ _ _ _ _ _ _ _ _ _ _ _ _ _ 108

	M		C		R			
LENGTH GROUP 0000	C1 ___0	C2 ____	C3 ____	C4 ____	C5 ____	MEAN WEIGHT _____		
LENGTH GROUP ____	C1 ____	C2 ____	C3 ____	C4 ____	C5 ____	MEAN WEIGHT _____		
LENGTH GROUP ____	C1 ____	C2 ____	C3 ____	C4 ____	C5 ____	MEAN WEIGHT _____		
LENGTH GROUP ____	C1 ____	C2 ____	C3 ____	C4 ____	C5 ____	MEAN WEIGHT _____		
LENGTH GROUP ____	C1 ____	C2 ____	C3 ____	C4 ____	C5 ____	MEAN WEIGHT _____		
LENGTH GROUP ____	C1 ____	C2 ____	C3 ____	C4 ____	C5 ____	MEAN WEIGHT _____		
LENGTH GROUP ____	C1 ____	C2 ____	C3 ____	C4 ____	C5 ____	MEAN WEIGHT _____		
LENGTH GROUP ____	C1 ____	C2 ____	C3 ____	C4 ____	C5 ____	MEAN WEIGHT _____		
LENGTH GROUP ____	C1 ____	C2 ____	C3 ____	C4 ____	C5 ____	MEAN WEIGHT _____		
LENGTH GROUP ____	C1 ____	C2 ____	C3 ____	C4 ____	C5 ____	MEAN WEIGHT _____		
LENGTH GROUP ____	C1 ____	C2 ____	C3 ____	C4 ____	C5 ____	MEAN WEIGHT _____		
LENGTH GROUP ____	C1 ____	C2 ____	C3 ____	C4 ____	C5 ____	MEAN WEIGHT _____		

FISH SPECIES COMMON NAME _

	M		C		R			
LENGTH GROUP ____	C1 ____	C2 ____	C3 ____	C4 ____	C5 ____	MEAN WEIGHT _____		
LENGTH GROUP ____	C1 ____	C2 ____	C3 ____	C4 ____	C5 ____	MEAN WEIGHT _____		
LENGTH GROUP ____	C1 ____	C2 ____	C3 ____	C4 ____	C5 ____	MEAN WEIGHT _____		
LENGTH GROUP ____	C1 ____	C2 ____	C3 ____	C4 ____	C5 ____	MEAN WEIGHT _____		
LENGTH GROUP ____	C1 ____	C2 ____	C3 ____	C4 ____	C5 ____	MEAN WEIGHT _____		
LENGTH GROUP ____	C1 ____	C2 ____	C3 ____	C4 ____	C5 ____	MEAN WEIGHT _____		
LENGTH GROUP ____	C1 ____	C2 ____	C3 ____	C4 ____	C5 ____	MEAN WEIGHT _____		
LENGTH GROUP ____	C1 ____	C2 ____	C3 ____	C4 ____	C5 ____	MEAN WEIGHT _____		
LENGTH GROUP ____	C1 ____	C2 ____	C3 ____	C4 ____	C5 ____	MEAN WEIGHT _____		
LENGTH GROUP ____	C1 ____	C2 ____	C3 ____	C4 ____	C5 ____	MEAN WEIGHT _____		
LENGTH GROUP ____	C1 ____	C2 ____	C3 ____	C4 ____	C5 ____	MEAN WEIGHT _____		
LENGTH GROUP ____	C1 ____	C2 ____	C3 ____	C4 ____	C5 ____	MEAN WEIGHT _____		

STREAM/RIVER

6103

MOUTH LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _

SITE RIVER MILE _ _ 3.9 0 109

WATER NAME P I N E _ C K _ S _ F K _ _ _ _ _ SUBBASIN 0 3 SUB-SUBBASIN 1

SITE LATITUDE: DEG 4 0 MIN 5 1 SEC 1 2 LONGITUDE: DEG 7 9 MIN 2 5 SEC 4 6

(3) SITE LOCATION B R I D _ A T _ J C T _ A T _ J S 9 0 = S B 0 5 2 7 _ _ _

SAMPLING DATE: YEAR 1 9 8 8 MO 0 6 DAY 2 8 110

SURVEY LEADER (LAST NAME) L E E _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

USGS QUADS: FIRST L I 0 SECOND L I I

PHYSICAL DATA

SITE LENGTH (M) _ _ _ 46 SITE WIDTH (M) _ _ _ 2.8

DISCHARGE (CU M/SEC) _ _ _ _ _ METHOD _

SUBSTRATE (MAX 3): 1 _ _ _ BEDROCK 2 _ _ _ BOULDER 3 _ X _ RUBBLE 4 _ X _ GRAVE

5 _ _ _ SAND 6 _ X _ SILT 7 _ _ _ CLAY METHOD 1

RELATIVE HABITAT EVALUATIONS

BANK VEGETATION : 1 _ AGRI 2 _ GRASS 3 _ SHRUB 4 X TREE

SHADE : 1 _ DENSE 2 X PARTIAL 3 _ OPEN

BANK EROSION : 1 _ HEAVY 2 X MODERATE 3 _ LITE 4 _ NONE

FLOW : 1 _ HIGH 2 _ NORMAL 3 X LOW

HABITAT QUALITY INDEX _ _ _

EOF

STREAM/RIVER GENERAL SITE CHEMICAL DATA INPUT FORM E & G

0103

MOUTH LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE RIVER MILE _ _ _._ _

WATER NAME CLNE_CKLS_EK_ _ _ _ _ _ SUBBASIN 1 7 SUB-SUBBASIN 4

SITE LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE LOCATION _

SAMPLING DATE: YEAR 1988 MO 06 DAY 29

SURVEY LEADER (LAST NAME) LEE_ _

CHEMICAL DATA:

TIME 0933 AIR TEMPERATURE (C) 18 WATER TEMPERATURE (C) 15.9

SPECIFIC CONDUCTANCE (UMHOS) _ _ 500

PH _ 7.6 PH METHOD : 1 X COLORIMETRIC 2 _ ELECTROMETRIC

ALKALINITY (MG/L) _ 72 METHOD : 1 X MIX IND 2 _ METH/ORANGE 3 _ ENDPOINT

4 _ LOW ALKALINITY

HARDNESS (MG/L) _ _ _ METHOD : 1 _ EDTA FIELD 2 _ EDTA LAB

ADDITIONAL CHEMISTRIES: UNITS

SUBSTANCE _ _ (____________________) CONCENTRATION _ _ _ _ (_ _ _ _)

SUBSTANCE _ _ (____________________) CONCENTRATION _ _ _ _ (_ _ _ _)

SUBSTANCE _ _ (____________________) CONCENTRATION _ _ _ _ (_ _ _ _)

SUBSTANCE _ _ (____________________) CONCENTRATION _ _ _ _ (_ _ _ _)

SUBSTANCE _ _ (____________________) CONCENTRATION _ _ _ _ (_ _ _ _)

INVERTEBRATE SAMPLING (Y OR N) N

EOF

STREAM/RIVER SITE FISH OCCURRENCE DATA INPUT FORM E + H #_91_ OF _15 01/27/87

0103,

MOUTH LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE RIVER MILE _ _ _._ _

WATER NAME P I N E _ C K _ S _ E K _ _ _ _ _ _ SUBBASIN 1 7 SUB-SUBBASIN 5

SITE LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE LOCATION _

SAMPLING DATE: YEAR 1 9 8 8 MO 0 6 DAY 2 8

SURVEY LEADER(LAST NAME) L E E _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

GEAR TYPE 0 5 (ELECTROPACK_______) E1(HR:MIN) _ _ : 0 4 MESH SIZE _ _ _

CURRENT TYPE : 1 X AC 2 _ DC 3 _ PULSED DC VOLTAGE _ 1 2 5 WATTS _ 2 0 0

SPECIES OCCURRENCE (COMMON NAME)

1 FANTAIL DARTER
2 BLACKNOSE DACE
3 CREEK CHUB
4 JOHNNY DARTER
5 NORTHERN HOG SUCKER
6 MOTTLED SCULPIN
7 COMMON SHINER
8 ____
9 ____
10 ____

112

SPECIES OCCURRENCE (CONTINUED)

11 ____
12 ____
13 ____
14 ____
15 ____
16 ____
17 ____
18 ____
19 ____
20 ____

SPECIES OCCURRENCE (CONTINUED)

21 ____
22 ____
23 ____
24 ____
25 ____
26 ____
27 ____
28 ____
29 ____
30 ____

STREAM/WATER ...
0103
MOUTH LATITUDE: DEG - - MIN - - SEC - - LONGITUDE: DEG - - MIN - - SEC - -

SITE RIVER MILE - - - - -

WATER NAME E L N E - S K L S - F K - - - - - - SUBBASIN L 7 SUB-SUBBASIN E

SITE LATITUDE: DEG - - MIN - - SEC - - LONGITUDE: DEG - - MIN - - SEC - -

SITE LOCATION -

SAMPLING DATE: YEAR 1 9 8 8 MO 0 6 DAY 2 8

SURVEY LEADER(LAST NAME) L E E - - - - - - - - - - - - - - - - -

GEAR TYPE 0 5 (ELECTROPLSK________) E1(HR:MIN) - - - : 0 4 MESH SIZE - - -
E2(HR:MN) - - - : - - E3(HR:MN) - - - : - - E4(HR:MN) - - - : - - E5(HR:MN) - - - : - -
CURRENT TYPE : 1 X AC 2 - DC 3 - PULSED DC VOLTAGE - 1 2 5 WATTS - 7 0 0

ABUNDANCE METHOD 1 (CATCH/UNIT EFRT) SURVEY PURPOSE 0 1 (POP ABUND ESTIMATE)
NETTERS 2 # ELECTRODES 2
NET LENGTH (M) - - - POT VOLUME - - - - DEPTH - - . - - BAIT -

113

SPECIES ABUNDANCE:
FISH SPECIES COMMON NAME N O - F I S H - - - - - - - - - - - - - - - - - - -

		M C R					
LENGTH GROUP	0000	C1 0	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP	----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP	----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP	----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP	----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP	----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP	----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP	----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP	----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP	----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP	----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP	----	C1 ----	C2 ----	C3 ----			

FISH SPECIES COMMON NAME -

		M C R					
LENGTH GROUP	----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP	----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP	----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP	----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP	----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP	----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP	----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP	----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP	----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP	----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP	----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP	----	C1 ----	C2 ----	C3 ----			

0104

MOUTH LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE RIVER MILE _ _ 0.70 114

WATER NAME PINE CREEK _ _ _ _ _ SUBBASIN 17 SUB-SUBBASIN E

SITE LATITUDE: DEG 40 MIN 52 SEC 10 LONGITUDE: DEG 79 MIN 27 SEC 51

SITE LOCATION 50 M UPST FROM BRDG ON T529 _ _ _ _ _

SAMPLING DATE: YEAR 1982 MO 06 DAY 28

SURVEY LEADER (LAST NAME) LEE _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ 115

USGS QUADS: FIRST 110 SECOND 111

PHYSICAL DATA

SITE LENGTH (M) _ _ _ 57 SITE WIDTH (M) _ _ _ 9.8

DISCHARGE (CU M/SEC) _ _ _ _ _ _ METHOD _

SUBSTRATE : 1 _ _ X BEDROCK 2 _ _ X BOULDER 3 _ _ _ RUBBLE 4 _ _ _ GRAVEL
(MAX 3)
5 _ _ _ SAND 6 _ _ X SILT 7 _ _ _ CLAY METHOD 1

RELATIVE HABITAT EVALUATIONS

BANK VEGETATION : 1 _ AGRI 2 _ GRASS 3 _ SHRUB 4 X TREE

SHADE : 1 _ DENSE 2 X PARTIAL 3 _ OPEN

BANK EROSION : 1 _ HEAVY 2 _ MODERATE 3 X LITE 4 _ NONE

FLOW : 1 _ HIGH 2 _ NORMAL 3 X LOW

HABITAT QUALITY INDEX _ _ _

2OF

STREAM/RIVER GENERAL SITE CHEMICAL DATA INPUT FORM E + G

0104

MOUTH LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE RIVER MILE _ _ _._ _

WATER NAME PINE CK - S - EK _ _ _ _ _ _ SUBBASIN 17 SUB-SUBBASIN E

SITE LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE LOCATION _

SAMPLING DATE: YEAR 1988 MO 06 DAY 29

SURVEY LEADER (LAST NAME) LEE _

116

CHEMICAL DATA:

TIME 0900 AIR TEMPERATURE (C) 17 WATER TEMPERATURE (C) 12.0

SPECIFIC CONDUCTANCE (UMHOS) _ _ 510

PH _ 8.0 PH METHOD : 1 X COLORIMETRIC 2 _ ELECTROMETRIC

ALKALINITY (MG/L) _ 72 METHOD : 1 X MIX IND 2 _ METH/ORANGE 3 _ ENDPOINT

4 _ LOW ALKALINITY

HARDNESS (MG/L) _ _ _ METHOD : 1 _ EDTA FIELD 2 _ EDTA LAB

ADDITIONAL CHEMISTRIES:

		UNITS
SUBSTANCE _ _ (_____)	CONCENTRATION _ _ _ _	(_ _ _ _)
SUBSTANCE _ _ (_____)	CONCENTRATION _ _ _ _	(_ _ _ _)
SUBSTANCE _ _ (_____)	CONCENTRATION _ _ _ _	(_ _ _ _)
SUBSTANCE _ _ (_____)	CONCENTRATION _ _ _ _	(_ _ _ _)
SUBSTANCE _ _ (_____)	CONCENTRATION _ _ _ _	(_ _ _ _)

INVERTEBRATE SAMPLING (Y OR N) N

EOF

STREAM/RIVER SITE FISH OCCURRENCE DATA INPUT FORM E + H #_1/OF _6 01/27/87

0104,

MOUTH LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE RIVER MILE _ _ _ _ _

WATER NAME CLNE-SKYS-FK _ _ _ _ _ _ _ SUBBASIN L 7 SUB-SUBBASIN E

SITE LATITUDE: DEG _ _ MIN _ _ SEC _ _ LONGITUDE: DEG _ _ MIN _ _ SEC _ _

SITE LOCATION _

SAMPLING DATE: YEAR 0088 MO 06 DAY 28

SURVEY LEADER (LAST NAME) LEE _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

GEAR TYPE 025 (ELECTROPACK________) E1 (HR:MIN) _ _ _ : 05 MESH SIZE _ _ _

CURRENT TYPE : 1 X AC 2 _ DC 3 _ PULSED DC VOLTAGE _ 125 WATTS _ 400

SPECIES OCCURRENCE (COMMON NAME)

1 SMALLMOUTH BASS
2 NORTHERN HOG SUCKER
3 WHITE SUCKER
4 BROOK TROUT
5 CREEK CHUB
6 BROWN TROUT
7 COMMON SHINER
8 RAINBOW DARTER
9 SILVER SHINER
10 ____

11

SPECIES OCCURRENCE (CONTINUED)

11 ____
12 ____
13 ____
14 ____
15 ____
16 ____
17 ____
18 ____
19 ____
20 ____

SPECIES OCCURRENCE (CONTINUED)

21 ____
22 ____
23 ____
24 ____
25 ____
26 ____
27 ____
28 ____
29 ____
30 ____

0104

MOUTH LATITUDE: DEG - - MIN - - SEC - - LONGITUDE: DEG - - MIN - - SEC - -

SITE RIVER MILE - - - - -

WATER NAME P I N E - C K - S - F K - - - - - - SUBBASIN 1 7 SUB-SUBBASIN 5

SITE LATITUDE: DEG - - MIN - - SEC - - LONGITUDE: DEG - - MIN - - SEC - -

SITE LOCATION -

SAMPLING DATE: YEAR 1 9 8 8 MO 0 6 DAY 2 8

SURVEY LEADER(LAST NAME) L E E - - - - - - - - - - - - - - - - -

GEAR TYPE 0 5 (ELECTROFACK--------) E1(HR:MIN) - - - : 0 5 MESH SIZE - - -
E2(HR:MN) - - - : - - E3(HR:MN) - - - : - - E4(HR:MN) - - - : - - E5(HR:MN) - - - : - -
CURRENT TYPE : 1 X AC 2 - DC 3 - PULSED DC VOLTAGE - 1 2 5 WATTS - 1 0 0

ABUNDANCE METHOD 1 (CATCH/UNIT EFFT) SURVEY PURPOSE 0 1 (POP ABUND ESTIMATE)
NETTERS 2 # ELECTRODES 2
NET LENGTH (M) - - - POT VOLUME - - - DEPTH - - . - BAIT -

SPECIES ABUNDANCE:
FISH SPECIES COMMON NAME B R O W N - T R O U T - - - - - - - - - - - - 118

	M	C	R			
LENGTH GROUP 250	C1 1	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----

FISH SPECIES COMMON NAME B R O O K - T R O U T - - - - - - - - - - - - 119

	M	C	R			
LENGTH GROUP 250	C1 1	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----
LENGTH GROUP ----	C1 ----	C2 ----	C3 ----	C4 ----	C5 ----	MEAN WEIGHT -----

Appendix B

Instruction for Installation of Mine Belt Roadway Diversions

Controlling runoff from unimproved roads can be a challenge. Road traffic during wet conditions can destroy waterbars and the road crown. Open top culverts can clog with sediments and require regular maintenance. Soon the road surface is rutted and impassable as the uncontrolled runoff is carrying road material downhill.

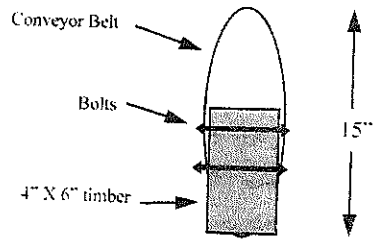
The conveyor belt diversion can control this runoff by diverting water from the road surface while still permitting vehicles to easily pass. The belt diversion gives under tire pressure then springs back to its original position. Unlike waterbars the belt diversion will remain stable during wet road conditions and will still function when the road crown is lost provided that the belt diversions are properly spaced.

Recommended Spacing

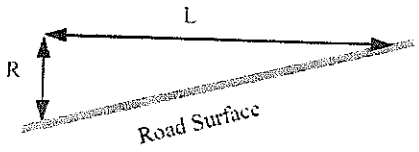
Road Grade	Distance
2%	250 ft.
5%	135 ft.
10%	80 ft.
15%	60 ft.

Alternative Assembly Method

Conveyor belts thicker than 1/2" are used so that the diversion will return to an upright position after being compressed. If thinner belts are used the following assembly method should be considered.



Determining Road Grade



Grade = R/L times 100

Acknowledgements

PC Exploration Inc. Warrendale. PA. For providing equipment and labor to install the diversions.

Financial and other support for this project is provided by the Pennsylvania Association of Conservation Districts Inc. through a grant with the U.S. Environmental Protection Agency's Section 319 Program.

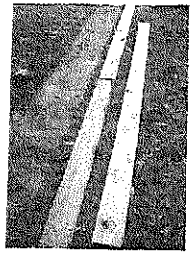
Prepared by Indiana County Conservation District

Conveyor Belt Diversions

An easy to install solution to your road stability problems.

A drivable solution that controls runoff.

Assembling the Diversion



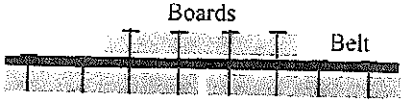
Materials

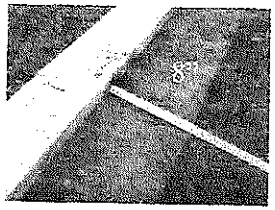
Conveyor Belt
1/2"X15"X20'
Rot resistant boards
(3) 2"X6"X10'
Stove bolts, washers and nuts
(12) 5/16" dia. 4" long

Tools

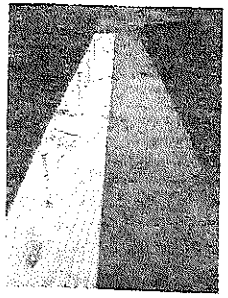
Utility Knife (sharp)
Drill
Hammer
Wrench

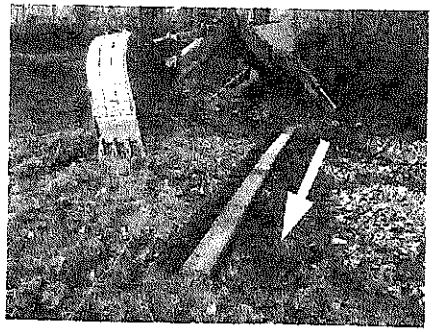
A Closer Look



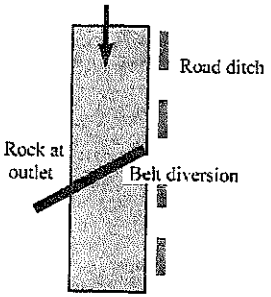


Bolts

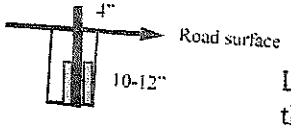




Make sure the diversion slopes downhill, minimum of 3%. Discharge the diversion to a stable area that will carry runoff away from the road.



Use as narrow a bucket as possible. Depth of the channel should be 10 –12". Stop short of the road ditch.



Place the diversion at the down slope side of the trench and tilt the diversion uphill. Leave 4" of the belt exposed.

Large stones placed at the end of the diversion will control erosion at the road's edge.

Installing the Diversion

Compact the trench fill