

The Pennsylvania Rivers Conservation Program

Redbank Creek Watershed Conservation Plan

May 2007

Prepared for:

Redbank Creek Watershed Community

Prepared by:



Western Pennsylvania Conservancy
Freshwater Conservation Program
246 South Walnut Street
Blairsville, PA 15717



This project was financed in part by a grant from the Community Conservation Partnership Program under the administration of the Department of Conservation and Natural Resources, Bureau of Recreation and Conservation.

Page intentionally left blank

TABLE OF CONTENTS

	Page
Title Page	i
Table of Contents	iii
List of Tables	vii
List of Figures	ix
Acknowledgements	x
Acronyms	xi
Watershed Definition	xiii
Executive Summary	ES-1
Project Background	ES-1
Report Summary	ES-2
Project Area Characteristics	ES-2
Land Resources	ES-4
Water Resources	ES-5
Biological Resources	ES-7
Cultural Resources	ES-9
Issues and Concerns	ES-11
Management Recommendations	ES-13
Chapter 1. Project Area Characteristics	1-1
Project Area	1-1
Location and Size	1-1
Climate	1-2
Topography	1-3
Major Tributaries	1-3
Air Quality	1-4
Atmospheric Deposition	1-4
Critical Pollutants	1-5
Mercury	1-6
Impacts of Air Pollution	1-7
Socioeconomic Profile	1-7
Land-Use Planning and Regulation	1-7
Demographics and Population Patterns	1-9
Infrastructure	1-11
Transportation	1-12
Economy	1-13
Employment	1-13
Education	1-16
Management Recommendations	1-18
Chapter 2. Land Resources	2-1
Geology	2-1
Soils	2-1
Soil Associations	2-1
Prime Agricultural Soils	2-5
Farmland of Statewide Importance	2-6

	Page
Land Use	2-6
Forestry	2-6
Agriculture	2-8
Oil and Gas Exploration	2-8
Active Mines	2-9
Industrial/Commercial	2-10
Waste Disposal	2-10
Agricultural Land Preservation	2-11
Agricultural Security Areas	2-11
Land Ownership	2-12
Critical Areas	2-12
Landslides	2-12
Erosion and Sedimentation	2-13
Fish and Wildlife Habitat	2-14
Hazardous Areas	2-14
Illegal Dumpsites	2-14
Industrial Waste Sites	2-15
Abandoned Mines	2-16
Earthquakes	2-17
Management Recommendations	2-17
Chapter 3. Water Resources	3-1
Location	3-1
Drainage	3-1
Watershed Address	3-1
Major Tributaries	3-2
Sandy Lick Creek	3-2
North Fork Redbank Creek	3-3
Redbank Creek	3-4
Little Sandy Creek	3-4
Important Components of Water Quality	3-4
Surface Water	3-4
Floodplains	3-6
Riparian Zones	3-7
Groundwater	3-8
Stormwater	3-9
Wetlands	3-10
Wetland Loss	3-10
Local Wetlands	3-10
Watershed Protection Laws	3-11
Clean Water Act	3-11
Sedimentation and Erosion Control	3-14
Nutrient Management Program	3-15
Pennsylvania Sewage Facilities Act	3-15
Abandoned Mine Drainage Legislation	3-16
Intermittent, Ephemeral, and Perennial Streams	3-17

	Page
Water Quality	3-17
Major Sources of Impairment	3-17
Sandy Lick Creek	3-21
North Fork Redbank Creek	3-21
Redbank Creek	3-22
Little Sandy Creek	3-24
Pennsylvania's State Water Plan	3-25
Water Quality Trading	3-26
Management Recommendations	3-27
Chapter 4. Biological Resources	4-1
Ecoregion Characteristics	4-1
Natural Habitats	4-2
Forests	4-2
Wetlands	4-4
Early-successional/Edge Habitats	4-5
Grasslands/Open Habitats	4-6
Rivers and Streams	4-6
Wildlife	4-7
Birds	4-7
Amphibians and Reptiles	4-9
Fish	4-9
Mammals	4-10
Conservation Areas	4-11
Natural Heritage Areas	4-11
Important Bird and Mammal Areas	4-17
Species of Concern	4-17
Invasive Species	4-18
Plants	4-18
Animals	4-20
Management Recommendations	4-21
Chapter 5. Cultural Resources	5-1
Recreation	5-1
Recreation Facilities	5-1
Other Recreational Opportunities	5-4
Environmental Education	5-7
Archaeological Resources	5-9
Historical Resources	5-10
Historical Overview	5-10
Historical Sites, Structures, and Districts	5-18
Management Recommendations	5-21
Chapter 6. Issues and Concerns	6-1
Meeting Summaries	6-1
Initial Meetings	6-1
Draft Presentations	6-1
Issues and Concerns	6-1
Water Quality	6-1
Erosion and Sedimentation	6-3

	Page
Public Awareness and Education	6-4
Agriculture	6-5
Recreation	6-5
Historic Preservation	6-6
Smart Growth and Planning	6-6
Protecting Biodiversity	6-6
Survey Results	6-7
Land Use	6-7
Watershed Attributes	6-7
Recreational Opportunities	6-8
Watershed Aspects	6-8
Critical Needs	6-9
Future Projects	6-10
Meeting Results	6-11
Protection	6-11
Improvements	6-11
Future Visions	6-12
Other Things to Include in the Plan	6-13
Interview Results	6-14
How has the watershed changed in the past 10 years?	6-14
Do the following meet the needs of the watershed community?	6-14
Do the recreational opportunities currently meet the needs of the watershed community?	6-16
What are some of the impacts currently affecting the resources of the watershed?	6-17
Do you have any specific projects that you would like to have identified in the plan?	6-19
What must the watershed plan say to be successful?	6-19
What must the watershed plan not say to be successful?	6-20
Chapter 7. Management Recommendations	7-1
Project Area Characteristics	7-2
Land Resources	7-6
Water Resources	7-10
Biological Resources	7-15
Cultural Resources	7-19
Chapter 8. References	8-1
Appendices	
Appendix A. Glossary	
Appendix B. Planning Committees	
Appendix C. Population by Census Block Groups	
Appendix D. Agricultural Soils	
Appendix E. Resource Conservation and Recovery Act	
Appendix F. National Pollutant Discharge Elimination System	
Appendix G. Species of Concern	
Appendix H. Floral and Fauna	
Appendix I. Public Comments	
Appendix J. Surveys and Interviews	
Appendix K. Funding Sources	

LIST OF TABLES

Chapter 1	Project Area Characteristics	Page
Table 1-1	Municipalities	1-2
Table 1-2	Land-Use Controls	1-8
Table 1-3	Populations	1-10
Table 1-4	Unemployment Rate	1-13
Table 1-5	Breakdown of Employment in Armstrong, Clarion, Clearfield, Elk, and Jefferson Counties	1-14
Table 1-6	Major Employers	1-16
Table 1-7	Educational Opportunities	1-16
Chapter 2	Land Resources	Page
Table 2-1	Geologic Formations	2-1
Table 2-2	Brief Soil Association Descriptions	2-4
Table 2-3	Current Land Use	2-7
Table 2-4	Oil and Gas Wells Permitted by Decade	2-9
Table 2-5	Public Lands	2-12
Table 2-6	DEP Recognized Brownfields	2-15
Chapter 3	Water Resources	Page
Table 3-1	Major Tributaries of Sandy Lick Creek	3-2
Table 3-2	Major Tributaries of North Fork Redbank Creek	3-3
Table 3-3	Major Tributaries of Redbank Creek	3-3
Table 3-4	Major Tributaries of Little Sandy Creek	3-4
Table 3-5	Reservoirs of the Redbank Creek Watershed	3-6
Table 3-6	Municipalities Utilizing Public Water Supplies	3-8
Table 3-7	High Quality Watershed Stream Qualifications	3-12
Table 3-8	DEP Exceptional Value Watershed Stream Qualifications	3-13
Table 3-9	Redbank Creek Watershed Stream Designations	3-13
Table 3-10	Categories of the "Integrated Waterbody List"	3-14
Chapter 4	Biological Resources	Page
Table 4-1	Priority Bird Species	4-8
Table 4-2	Significant Rankings for Biological Diversity Areas	4-12
Table 4-3	Common Invasive Plants in Northwestern Pennsylvania	4-19
Chapter 5	Cultural Resources	Page
Table 5-1	Golf Courses	5-3
Table 5-2	Water Education Programs Offered by Department of Conservation and Natural Resources	5-8
Table 5-3	Historical Sites	5-20
Chapter 6	Issues and Concerns	Page
Table 6-1	Value of Importance	6-7
Table 6-2	Recreational Opportunities of Importance	6-8

Table 6-3	Community Vision and Prioritization for Protection	6-11
Table 6-4	Community Vision and Prioritization for Improvements	6-11
Table 6-5	Community Vision and Prioritization for Future Visions	6-12
Table 6-6	Other Things to Include in the Plan	6-13
Chapter 7	Management Recommendations	Page
Table 7-1	Acronyms Used in Management Recommendation Matrix	7-1

LIST OF FIGURES

Executive Summary		Page
Figure ES-1	Employment Industry Breakdown	ES-3
Figure ES-2	Percent Land Area	ES-4
Chapter 1	Project Area Characteristics	Page
Figure 1-1	Redbank Creek Watershed	1-2/1-3
Figure 1-2	Municipalities	1-2/1-3
Figure 1-3	Topography	1-4/1-5
Figure 1-4	Land-use Controls	1-8/1-9
Figure 1-5	2000 Population	1-10/1-11
Figure 1-6	Percent Population Change from 1990-2000 by Census Block Group	1-10/1-11
Figure 1-7.	Transportation	1-12/1-13
Figure 1-8	Time Traveled to Work	1-15
Figure 1-9	Work Location	1-15
Chapter 2	Land Resources	Page
Figure 2-1	Surface Geology	2-2/2-3
Figure 2-2	Agricultural Security Areas and Prime Agricultural Soils	2-6/2-7
Figure 2-3	Current Land Use	2-6/2-7
Figure 2-4	Coal Mined Areas and Major Discharges	2-10/2-11
Figure 2-5	Public Lands	2-12/2-13
Figure 2-6	Environmentally Sensitive Areas	2-14/2-15
Chapter 3	Water Resources	Page
Figure 3-1	Major Tributaries of Sandy Lick Creek	3-2/3-3
Figure 3-2	Major Tributaries of North Fork Redbank Creek	3-4/3-5
Figure 3-3	Major Tributaries of Little Sandy and Redbank Creeks	3-4/3-5
Figure 3-4	Recommended Riparian Buffer Widths	3-7
Figure 3-5	Impaired Waterways	3-14/3-15
Chapter 4	Biological Resources	Page
Figure 4-1	Biological Diversity Areas	4-10/4-11
Figure 4-2	Percent Occurrence at Sample Locations	4-10
Chapter 5	Cultural Resources	Page
Figure 5-1	Recreational Facilities	5-2/5-3
Chapter 6	Issues and Concerns	Page
Figure 6-1	Common Land Uses as Viewed by Watershed Stakeholders and Municipal Officials	6-7

ACKNOWLEDGEMENTS

A sincere acknowledgement and thank you goes out to all the organizations, agencies, and individuals who dedicated their time and resources to make this project a success. Our apologies to anyone inadvertently omitted.

- Armstrong County Conservation District
- Armstrong County Tourist Bureau
- Armstrong Rails to Trails
- Clearfield County Planning Department
- DuBois VFW
- Jefferson County Conservation District
- Jefferson County Planning Department
- Municipalities
- New Bethlehem Chamber of Commerce
- New Bethlehem Library
- New Bethlehem Moose Club
- North Central Regional Planning and Development Commission
- North Fork Creek Watershed Association
- PA Cleanways – Jefferson, Clearfield, and Clarion counties chapter
- Pennsylvania Department of Conservation and Natural Resources
- Pennsylvania Department of Environmental Protection
- Pennsylvania Fish and Boat Commission
- Redbank Valley Municipal Authority
- Sandy Lick Conservation Initiative

- Redbank Creek Watershed Conservation Plan Steering Committee

Dave Beale	Craig Coon	Barry Mayes	Amber Siar
Jim Berry	Kristin Friend	Tim Murray	Mike Tharan
Jessica Coil	Linda Makufka	Erika Riker	

- Redbank Creek Watershed Conservation Plan Advisory Committees

Cheryl Burkett	Gary Gilmore	Robin Orris
Ken Burkett	John Kaskan	Deb Simko
Patrick Connors	Harry Kehr	Jack Theisen
Don Crytzer	Mike Makufka	

- Redbank Creek Watershed Conservation Plan Key Individual Interviewees

Dr. Colson Blakeslee	Jim Fogg	Paul Neal	Steven Siple
Carole Briggs	Gary Gilmore	Robin Orris	Dallas Smith
Cheryl Burkett	David Gordon	Claire Orner	Jack Theisen
Ken Burkett	George Kutskel	Jere Sharpe	Scott Young
Don Crytzer	Mike Makufka	Deb Simko	

Cover illustration designed by John Blumen.

Photographs provided by Western Pennsylvania Conservancy unless otherwise noted.

ACRONYMS

AMD	Abandoned Mine Drainage
ASA	Agricultural Security Areas
ATV	All Terrain Vehicles
BDA	Biological Diversity Area
BMP	Best Management Practices
BWP	Brookville Wood Products Hardwoods, Inc.
CAFO	Concentrated Animal Feeding Operation
CNHI	County Natural Heritage Inventory
CREP	Conservation Reserve Enhancement Program
CSO	Combined Sewage Overflow
CWF	Cold Water Fishery
DA	Dedicated Area
DCNR	Pennsylvania Department of Conservation and Natural Resources
DEP	Pennsylvania Department of Environmental Protection
DMAP	Deer Management Assistance Program
EAC	Environmental Advisory Committee
EPA	United States Environmental Protection Agency
EV	Exceptional Value
GFCCP	Government Financed Construction Contract Program
HQ	High Quality
HRS	Hazard Ranking System
HUC	Hydrologic Unit Code
IPM	Integrated Pest Management
LCA	Landscape Conservation Area
LHR	Lumber Heritage Region
NABBS	North American Breeding Bird Survey
NFIP	National Flood Insurance Program
NHI	Natural Heritage Inventories
NOMA	Nutrient and Odor Management Act
NO _x	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRCS	Natural Resource Conservation Service
OSM	Office of Surface Mining
PACE	Purchase Agricultural Conservation Easements
PASS	Pennsylvania Archaeological Site Survey
PDA	Pennsylvania Department of Agriculture
PDE	Pennsylvania Department of Education
PENNVEST	Pennsylvania Infrastructure Investment Authority
PFBC	Pennsylvania Fish and Boat Commission
PGC	Pennsylvania Game Commission
PHMC	Pennsylvania Historic Museum Commission
PIF	Partners in Flight
PNNMP	Pennsylvania Nutrient Management Program

SFHA	Special Flood Hazard Areas
SMCRA	Surface Mining Control and Reclamation Act
SSO	Sanitary Sewage Overflow
TMDL	Total Maximum Daily Load
TSF	Trout Stocked Fishery
USDA	United States Department of Agriculture
USGS	United States Geological Survey
WPC	Western Pennsylvania Conservancy
WWF	Warm Water Fishery

WATERSHED DEFINITION

A watershed can be defined as the area of land that drains to a particular point along a stream. Each stream has its own watershed. Land use is the key element affecting this area of land. The highest elevation surrounding the stream defines the boundary of its watershed. A drop of water falling outside of the boundary will drain to another watershed.

