WESTMORELAND COUNTY
NATURAL HERITAGE INVENTORY

Prepared for:

The Westmoreland County
Department of Planning and Development
601 Courthouse Square
Greensburg, PA 15601

Prepared by:

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September 1998

This project was funded by the Keystone Recreation Park and Conservation Fund Grant Program administered by the Department of Conservation and Natural Resources, Bureau of Recreation and Conservation and the Katherine Mabis McKenna Foundation.

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PREFACE

The Westmoreland County Natural Heritage Inventory identifies and maps Westmoreland County's most significant natural places. The study investigated plant and animal species and natural communities that are unique or uncommon in the county; it also explored areas important for general wildlife habitat and scientific study.

The inventory does not confer protection on any of the areas listed here. It is, however, a tool for informed and responsible decision-making. Public and private organizations may use the inventory to guide land acquisition and conservation decisions. Local municipalities and the County may use it to help with comprehensive planning, zoning and the review of development proposals. Developers, utility companies and government agencies alike may benefit from access to this environmental information prior to the creation of detailed development plans.

Although the inventory was conducted using a tested and proven methodology, it is best viewed as a preliminary report rather than the final word on the subject of Westmoreland County's natural heritage. Further investigations could potentially uncover previously unidentified Natural Heritage Areas. Likewise, in-depth investigations of sites listed in this report could reveal features of further or greater significance than have been documented here. Some of the areas described here are privately owned. In such cases, anyone wishing to visit these areas should obtain permission from the property owner(s) prior to visitation.

The Western Pennsylvania Conservancy served as the principal investigator for the study and prepared the report and maps that are the products of the study. The Western Pennsylvania Conservancy is a private, non-profit, land conservation organization which protects natural lands, promotes healthy and attractive communities, and preserves Fallingwater. Any questions concerning sites or updates to the inventory may be addressed to the Western Pennsylvania Conservancy, 209 Fourth Avenue, Pittsburgh, PA 15222; phone: (412)288-2777.

The study was managed by the Westmoreland County Department of Planning and Development. Requests for copies of the inventory can be addressed to the Westmoreland County Department of Planning and Development, 601 Courthouse Square, Greensburg, PA 15601, phone: (724) 830-3768.

ACKNOWLEDGMENTS

We would like to acknowledge the many citizens and landowners of the county and surrounding areas who volunteered information, time, and effort to the inventory and granted permission to access land. We especially thank Lynn Showalter of the Westmoreland County Department of Planning and Development, Greg Phillips and Ron Rohall of the Westmoreland County Conservation District, Jack Paulik of the Westmoreland County Bureau of Parks and Recreation, Linda Boxx of the McKenna Foundation, Dave Williams of the DCNR – Bureau of Forestry, the staff of the Carnegie Museum of Natural History's Herbarium and the Powdermill Nature Reserve, Carol Loeffler of Dickinson College and Peggy Wisner. It would be impossible to name and thank all individuals that contributed, but without their help, much of the inventory would not have been completed.

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This section presents the results of the Natural Heritage Inventory for Westmoreland County summarized in tabular form. Table 1 lists Natural Heritage Areas in order of their significance to the protection of biological diversity and ecological integrity of the region and provides a summary of the important features of the study area. Table 2 organizes the Natural Heritage Areas by the municipality(ies) in which they are located. As an aid to those wishing to find an area contained within a particular municipality, the U.S.G.S. quadrangle in which the areas are discussed in the report accompany the Natural Heritage Area names. Fig. 1 precedes this table and identifies the municipalities in Westmoreland County. A table of Dedicated Areas (Table 3) supplies a list and description of those areas that are dedicated to the protection of ecological resources in the study area.

Table 1: Natural Heritage Areas in order of relative significance.

The Natural Heritage Areas that have qualified for inclusion in this report are ranked according to their significance as areas of importance to the biological diversity and ecological integrity of Westmoreland County. Areas that are state significant due to the presence of a plant or animal of special concern or a state significant natural community are given priority. Those of county significance follow. The four significance ranks are **Exceptional**, **High**, **Notable**, and **County** significance. The four significance ranks have been used to prioritize all identified sites and suggest the relative attention that sites should receive for the amount, degree and rate of protection (for a full explanation of these items, see Appendix I). Additionally, a number precedes each area indicating a suggested order or priority for the protection of these areas. For example, an opportunity may come available to the county to create or advise in the creation of a conservation area or park. To assure that the most important sites and resources receive priority, the county would want to focus on the areas listed as "Exceptional". If after evaluating various possibilities, Natural Heritage Areas number 2 and 12 appeared possibilities, number 2 would stand as the best option in protecting biodiversity given its numerical priority. See page 21 for definitions for BDA, LCA and DA.

SITE	**QUADRANGLE**	**DESCRIPTION**
EXCEPTIONAL		
1. Laurel Ridge LCA	Bakersville Boswell Johnstown Ligonier New Florence Rachelwood Seven Springs Stahlstown Vintondale Wilpen	Area which includes all of the Laurel Ridge in Westmoreland County. Conservation area focused on a number of Exceptional Value watersheds, as well as the contiguous forest covering the Ridge. Contains a number of BDA's, two DA's, three state parks, State Game Lands and state forest.
2. Sewickley Creek Slopes BDA	Smithton	Calcareous cliff community and associated forest supporting three plant species of special concern.
3. Chestnut Ridge BDA	Blairsville Bolivar Derry Wilpen	Forested ridgetop and upper watersheds whose caves and outcrop communities provide habitat for a number of plant and animal species of special concern.

Table 1 (cont.)

SITE	QUADRANGLE	DESCRIPTION
EXCEPTIONAL		
4. Roaring Run BDA	Seven Springs	Large watershed that encompasses the Roaring Run Natural Area and supports high quality seep communities, as well as populations of three plants and one animal of special concern.
5. Powdermill Run South BDA	Bakersville Ligonier Seven Springs Stahlstown	Large watershed that supports populations of three plants and two animals of special concern and encompasses the Powdermill Nature Reserve.
6. Youghiogheny River Slopes BDA	Donora	River slopes and tributary valley supporting populations of four plant species of special concern.
7. Jacobs Creek BDA	Dawson Smithton	Forested slopes along Jacobs Creek that provide habitat for a plant species of special concern.
8. Loyalhanna Gorge BDA	Derry	Mesic Central Forest on steep slopes along Loyalhanna Creek that supports two plant and one animal species of special concern.
9. Roaring Run Natural Area DA	Seven Springs	Bureau of Forestry Natural Area containing a natural community and plant and animals species of special concern.
10. Powdermill Nature Reserve DA	Stahlstown Ligonier	Carnegie Museum of Natural History owned Nature Reserve containing habitat for several plant and animal species of special concern.

Table 1 (cont.)

SITE	QUADRANGLE	DESCRIPTION
HIGH		
11. Camp Run BDA	Seven Springs	Exceptional Value stream and watershed that contains spring run communities and four plant species of special concern.
12. Allegheny River BDA	Freeport New Kensington E. New Kensington W.	Recovering river system that provides habitat for a number of state listed animal species.
13. Indian Creek/ Little Run BDA	Bakersville Seven Springs Stahlstown	Large forested watershed that supports a complex of spring run communities and two plant species of special concern.
14. Guffy Hollow BDA	Irwin McKeesport	Rich forested slopes along Guffy Hollow and Crawford Run that support habitat for two plants of special concern.
15. Welty Run BDA	Mammoth	Upper watershed forest containing a large population of a plant species of special concern.
16. Hoods Mill Road BDA	Mammoth Stahlstown	Partially forested landscape that includes the Buffalo Nut Sanctuary and scattered habitat for a plant species of special concern.
17. Buffalo Nut Sanctuary DA	Stahlstown	Carnegie Museum of Natural History owned natural area that protects habitat for a state rare plant species.
18. Sewickley Creek Oxbow BDA	Smithton	Remnant stream channel and associated forest habitat that supports populations of three plant species of special concern.

Table 1 (cont.)

SITE	QUADRANGLE	DESCRIPTION
HIGH		
19. Linn Run State Park BDA	Bakersville Ligonier	Watershed that encompasses a state park, remnants of mature Mesic Central Forest and populations of a plant and animal species of special concern.
20. Spruce Flats Bog BDA	Bakersville Ligonier	High elevation non-glacial bog supporting a plant species of special concern.
21. Squirrel Hill BDA	New Florence Rachelwood	Slopes, floodplain and wetlands along the Conemaugh River with habitat for a plant species of special concern.
22. Haymaker Run BDA	Murrysville	North-facing slope forest supporting a plant species of special concern.
23. Powdermill Run North BDA	Rachelwood	Exceptional Value stream watershed largely within State Game Lands #42.
24. Baldwin Creek BDA	Rachelwood	Exceptional Value stream watershed within State Game Lands #42.
25. South Fork Mill Creek BDA	Boswell Ligonier Wilpen	Exceptional Value stream watershed partly within State Game Lands #42.
26. Furnace Run BDA	Boswell Ligonier	Exceptional Value stream watershed under PA Game Commission and private ownership.
27. Upper Tubmill Creek BDA	Rachelwood	Exceptional Value stream watershed under private ownership.
28. Little Sewickley Creek Slopes BDA	Irwin Smithton	Rich forested slopes that support a plant species of special concern.

Table 1 (cont.)

SITE	QUADRANGLE	DESCRIPTION
NOTABLE		
29. Pollock Run Slopes BDA	Donora	North-facing slope forest supporting a plant species of special concern.
30. Harbridge Run BDA	Blairsville	Young forest that supports a plant species of special concern.
31. Jacob Creek Slope at Rodney BDA	Mammoth	Rock outcrops that serve as habitat for an animal species of special concern.
32. Lowber Slopes BDA	Donora McKeesport	Location of a plant species of special concern.
33. Avonmore Floodplain BDA	Avonmore	Large forested floodplain along the Kiskiminetas River containing a Robust Emergent Marsh community.
34. Hauger Hood Road Slope BDA	Stahlstown	Forested slope that provides habitat for a plant species of special concern.
34. Ridge Road BDA	Mammoth	Roadside locations for a plant species of special concern.
35. Jacob Creek - Laurel Run Confluence BDA	Mammoth	Forested slopes and floodplain that serve as habitat for a plant species of special concern.
36. Clark Hollow BDA	Derry	Forested roadside locations for a plant species of special concern.
37. Cambelle Run BDA	Stahlstown	Forested roadside location for a plant species of special concern.
38. Fourmile Run Tributary BDA	Stahlstown	Forested roadside location for a plant species of special concern.
39. Baggaley Roadside BDA	Stahlstown	Roadside locations for a plant species of special concern.

Table 1 (cont.)

SITE	QUADRANGLE	DESCRIPTION
NOTABLE		
40. Alice Roadside BDA	Mammoth	Forested roadside location for a plant species of special concern.
41. Bethel Church Road BDA	Stahlstown	Roadside locations for a plant species of special concern.
43. Beckets Run BDA	Donora	Disturbed forested valley supporting a declining population of a plant species of special concern.
COUNTY		
44. Jacks Island BDA	Freeport New Kensington E.	Remnant of a large river island.
45. Loyalhanna Bend BDA	Saltsburg	Forested floodplain and floodplain swamp community along Loyalhanna Creek.
46. Silver Mine Hollow BDA	Ligonier	Contiguously forested watershed with high quality stream and patches of maturing forest.
47. Lower Conemaugh River Slopes BDA	Saltsburg	Forested north-facing slope and riparian area along the Conemaugh River; rich in species diversity.
48. Youngwood Swamp BDA	Mt. Pleasant	Small, wetland in the Jacks Run valley.

Figure 1: Municipalities of Westmoreland County

Table 2: Summary of Natural Heritage Areas and Managed Lands by municipality.

Municipality	Natural Heritage Areas & *Managed Lands*.	U.S.G.S. Quadrangle	Page
Adamsburg Borough	None		
Allegheny Township	Allegheny River BDA	Freeport	44
		New Kensington E.	62
	Jacks Island BDA	Freeport	44
		New Kensington E.	62
	Northmoreland Park	Vandergrift	58
City of Arnold	Allegheny River BDA	New Kensington W.	66
Arona Borough	None		
Avonmore Borough	Avonmore Floodplain BDA	Avonmore	54
Bell Township	Avonmore Floodplain BDA	Avonmore	54
	Beaver Run Reservoir	Slickville	78
		Vandergrift	58
Bolivar Borough	None		
Cook Township	Baggaley Roadside BDA	Stahlstown	179
	Hoods Mill Road BDA	Mammoth	171
		Stahlstown	179
	Buffalo Nut Sanctuary DA	Stahlstown	179
	Campbelle Run BDA	Stahlstown	179
	Bethel Church Road BDA	Stahlstown	179
	Fourmile Run Tributary BDA	Stahlstown	179
	Hauger Hood Road Slope BDA	Stahlstown	179
	Laurel Ridge LCA	Bakersville	201
		Ligonier	189
		Stahlstown	179
	Linn Run State Park BDA	Bakersville	201
		Ligonier	189
	Powdermill Run South BDA	Bakersville	201
		Ligonier	189
		Seven Springs	207

Table 2 (cont.) : Summary of Natural Heritage Areas and Managed Lands by municipality.

Municipality	Natural Heritage Areas & *Managed Lands*	U.S.G.S. Quadrangle	Page
		Stahlstown	179
	Powdermill Nature Reserve DA	Stahlstown	179
	Silver Mine Hollow BDA	Ligonier	189
	Spruce Flats Bog BDA	Bakersville	201
		Ligonier	189
	Welty Run BDA	Mammoth	171
	Forbes State Forest	Bakersville	201
		Ligonier	189
		Seven Springs	207
		Stahlstown	179
	Linn Run State Park	Ligonier	189
Delmont Borough	None		
Derry Borough	None		
Derry Township	Harbridge Run BDA	Blairsville	87
	Loyalhanna Gorge BDA	Derry	125
	Conemaugh River Lake	Blairsville	87
	Forbes State Forest	Bolivar	93
		Wilpen	121
	Keystone State Park	Blairsville	87
		Derry	125
		Latrobe	132
		Saltsburg	82
	Loyalhanna Gorge	Derry	125
	Loyalhanna Lake	Saltsburg	82
Donegal Borough	None		
Donegal Township	Hoods Mill Road BDA	Mammoth	171
		Stahlstown	179
	Camp Run BDA	Seven Springs	207
	Indian Creek/Little Run BDA	Bakersville	201
		Seven Springs	207
	Laurel Ridge LCA	Bakersville	201

Table 2 (cont.) : Summary of Natural Heritage Areas and Managed Lands by municipality.

Municipality	Natural Heritage Areas & *Managed Lands*	U.S.G.S. Quadrangle	Page
		Ligonier	189
		Stahlstown	179
	Powdermill Run South BDA	Seven Springs	207
		Stahlstown	179
	Ridge Road BDA	Mammoth	171
	Roaring Run BDA	Seven Springs	207
	Roaring Run Natural Area DA	Seven Springs	207
	Forbes State Forest	Bakersville	201
		Ligonier	189
		Stahlstown	179
	Fourmile Run Dam	Stahlstown	179
East Huntingdon Twp.	None		
East Vandergrift Borough	None		
Export Borough	None		
Fairfield Township	Laurel Ridge LCA	Boswell	198
		Rachelwood	114
		Wilpen	121
	Upper Tubmill Creek BDA	Rachelwood	114
	Forbes State Forest	Wilpen	121
	Laurel Ridge State Park	Boswell	198
		Rachelwood	114
	State Game Lands #42	Rachelwood	114
	State Game Lands #153	Bolivar	93
City of Greensburg	None		
Hempfield Township	Youngwood Swamp BDA	Mount Pleasant	166
	Twin Lakes Park	Latrobe	132
	Ann Rudd Saxman Nature Park	Greensburg	136
		Irwin	132
Hunker Borough	None		

Table 2 (cont.) : Summary of Natural Heritage Areas and Managed Lands by municipality.

Municipality	Natural Heritage Areas & *Managed Lands*	U.S.G.S. Quadrangle	Page
Hyde Park Borough	None		
Irwin Borough	None		
City of Jeannette	None		
Latrobe Borough	None		
Laurel Mountain Borough	Furnace Run BDA	Ligonier	189
Ligonier Borough	None		
Ligonier Township	Baggaley Roadside BDA	Stahlstown	179
	Clark Hollow BDA	Derry	125
	Furnace Run BDA	Boswell	198
		Ligonier	189
	Laurel Ridge LCA	Ligonier	189
		Rachelwood	114
	Linn Run State Park BDA	Ligonier	189
	Loyalhanna Gorge BDA	Derry	125
	Silver Mine Hollow BDA	Ligonier	189
	South Fork Mill Creek BDA	Boswell	198
		Ligonier	189
		Wilpen	121
	Spruce Flats Bog BDA	Ligonier	189
	Forbes State Forest	Boswell	198
		Ligonier	189
	Laurel Mountain State Park	Ligonier	189
	Laurel Ridge State Park	Boswell	198
		Ligonier	189
		Rachelwood	114
	Linn Run State Park	Ligonier	189
	Loyalhanna Gorge	Derry	125
	State Game Lands #42	Boswell	198
		Ligonier	189
		Rachelwood	114

Table 2 (cont.) : Summary of Natural Heritage Areas and Managed Lands by municipality.

Municipality	Natural Heritage Areas & *Managed Lands*	U.S.G.S. Quadrangle	Page
City of Lower Burrell	Allegheny River BDA	Freeport	4
		New Kensington E.	62
		New Kensington W.	66
	Jacks Island BDA	Freeport	44
		New Kensington E.	62
Loyalhanna Township	Lower Conemaugh River Slopes BDA	Blairsville	87
		Saltsburg	82
	Loyalhanna Bend BDA	Saltsburg	82
	Beaver Run Reservoir	Slickville	78
	Loyalhanna Lake	Saltsburg	82
Madison Borough	None		
Manor Borough	None		
City of Monessen	None		
Mt. Pleasant Borough	None		
Mt. Pleasant Township	Jacob Cr./Laurel Cr. Confluence BDA	Mammoth	171
	Jacob Creek Slope at Rodney BDA	Mammoth	171
	Ridge Road BDA	Mammoth	171
	Welty Run BDA	Mammoth	171
	Bridgeport Dam	Connellsville	220
		Mount Pleasant	166
Mun. of Murrysville	Haymaker Run BDA	Murrysville	74
New Alexandria Borough	*Loyalhanna Lake*	Saltsburg	82
New Florence Borough	Squirrel Hill BDA	New Florence	100

Table 2 (cont.) : Summary of Natural Heritage Areas and Managed Lands by municipality.

Municipality	Natural Heritage Areas & *Managed Lands*	U.S.G.S. Quadrangle	Page
City of New Kensington	Allegheny River BDA	New Kensington E.	62
		New Kensington W.	66
New Stanton Borough	None		
N. Belle Vernon Borough	None		
North Huntingdon Twp.	Guffy Hollow BDA	Irwin	140
		McKeesport	144
North Irwin Borough	None		
Oklahoma Borough	None		
Penn Borough	None		
Penn Township	None		
Rostraver Township	Beckets Run BDA	Donora	152
	Pollock Run Slopes BDA	Donora	152
	Youghiogheny River Slopes BDA	Donora	152
	Cedar Creek County Park	Donora	152
St. Clair Township	Baldwin Creek BDA	Rachelwood	114
	Laurel Ridge LCA	Johnstown	110
		New Florence	100
		Rachelwood	114
		Vintondale	106
	Powdermill Run North BDA	Rachelwood	114
	Squirrel Hill BDA	New Florence	100
		Rachelwood	114
	Upper Tubmill Creek BDA	Rachelwood	114
	Laurel Ridge State Park	Johnstown	110
		New Florence	100
		Rachelwood	114
		Vintondale	106

Table 2 (cont.) : Summary of Natural Heritage Areas and Managed Lands by municipality.

Municipality	Natural Heritage Areas & *Managed Lands*	U.S.G.S. Quadrangle	Page
	State Game Lands #42	New Florence	100
		Rachelwood	114
		Vintondale	106
Salem Township	*Beaver Run Reservoir*	Slickville	78
	Loyalhanna Lake	Saltsburg	82
Scottdale Borough	None	Connellsville	220
Seward Borough	Laurel Ridge LCA	New Florence	100
Sewickley Township	Guffy Hollow BDA	Irwin	140
		McKeesport	144
	Little Sewickley Creek Slopes BDA	Irwin	140
		Smithton	160
	Lowber Slopes BDA	Donora	152
		McKeesport	144
	Sewickley Creek Oxbow BDA	Smithton	160
	Sewickley Creek Slopes BDA	Smithton	160
Smithton Borough	None		
South Greensburg Bor.	None		
South Huntingdon Twp.	Jacobs Creek BDA	Dawson	224
		Smithton	160
	Youghiogheny River Slopes BDA	Donora	152
	State Game Lands #296	Dawson	224
		Smithton	160
SW Greensburg Borough	None		
Sutersville Borough	None		
Trafford Borough	None		

Table 2 (cont.) : Summary of Natural Heritage Areas and Managed Lands by municipality.

Municipality	Natural Heritage Areas & *Managed Lands*	U.S.G.S. Quadrangle	Page
Unity Township	Baggaley Roadside BDA	Stahlstown	179
	Loyalhanna Gorge BDA	Derry	125
	Loyalhanna Gorge	Derry	125
	Twin Lakes Park	Latrobe	132
Upper Burrell Township	None		
Vandergrift Borough	None		
Washington Township	*Beaver Run Reservoir*	Slickville	78
		Vandergrift	58
West Leechburg Borough	None		
West Newton Borough	None		
Youngstown Borough	None		
Youngwood Borough	Youngwood Swamp BDA	Mount Pleasant	166

Table 3: Dedicated Areas protecting biotic resources in Westmoreland County.

The objective of the Westmoreland County Natural Heritage Inventory is to provide information that can be utilized in planning for the protection of the biological diversity and ecological integrity of the region. The preservation of such resources will depend, in part, upon the establishment of specific areas and management plans dedicated to the protection of these resources. A definition and description of Dedicated Areas, as used in this study, can be found in the "Natural Heritage Areas Classification" section of the report.

Westmoreland County contains three areas that qualify as Dedicated Areas:

1) Roaring Run Natural Area DA
2) Powdermill Nature Reserve DA
3) Buffalo Nut Sanctuary DA

Roaring Run Natural Area is a Bureau of Forestry Natural Area and part of Forbes State Forest. This area focuses on several natural communities and species of special concern within the Roaring Run watershed; a tributary to Indian Creek. Found on the Seven Springs quadrangle, the details of this site are included in the Results section of the report.

Powdermill Nature Reserve is owned by the Carnegie Museum of Natural History. Although a research facility, the management of this area has been dedicated to the protection on the natural communities and plant and animal species of special concern that reside on the property. The Western Pennsylvania Conservancy holds a conservation easement on the Nature Reserve to assure protection for the natural features. Details of this area are found on the Stahlstown quadrangle.

Buffalo Nut Sanctuary is another property owned by the Carnegie Museum of Natural History. This small property along Fourmile Run has been set aside for the protection of a large population of a plant species of special concern. Details of this area are found on the Stahlstown quadrangle.

Several other places in the county may one day meet the definition that we have provided for Dedicated Areas. Of note is the Indian Creek/Little Run BDA contained within the Forbes State Forest. This area has a number of natural features that may make it worthy of further protection as a Public Plant Sanctuary under the Bureau's guidelines for this special protection area. Such a designation would assure permanent protection for the site

Numerous other areas recognized in this inventory, including both public and private lands, could be forged into Dedicated Areas through a variety of landowner agreements, easements, special programs, or a combination of methods. Ultimately, areas set aside now will be the exemplary natural areas of the future, and if planned well and of sufficient size, will become the premier areas for biodiversity protection in the region.

COUNTY NATURAL HERITAGE INVENTORIES

INTRODUCTION

The first steps in ensuring protection of environmentally sensitive/ecologically important areas are identifying them and determining their importance. This information can help county, state, and municipal government, the public, and business interests plan development with the preservation of these environmentally important sites in mind. The Westmoreland County Natural Heritage Inventory is designed to identify and map important biotic (living) and ecological resources that make up the natural heritage of Westmoreland County. The biotic resources inherited by the citizens of this region include: areas that have been left relatively undisturbed by human activity, potential habitats for species of special concern [species facing imperilment at a state and/or global level (i.e., endangered, threatened, etc.)], significant natural communities (assemblages of plants and animals), and areas important for general wildlife habitat, open space, education, scientific study, and recreation.

There are many important resources in Westmoreland County that are not addressed in this inventory. Historic, cultural, geological, educational, water supply, agricultural, recreational and scenic resources are among the many that the county will want to address through other projects and programs. This Natural Heritage Inventory focuses on areas that are the best examples of living *ecological resources* in Westmoreland County. Although agricultural lands, open space and some of those resources just mentioned may be included as part of inventory areas, the emphasis of the designation and delineation of the areas is based on the ecological values present. The existence of habitat for specific plants and animals and the rarity of natural communities are important selection criteria for Natural Heritage Areas but equally important is the size and contiguousness of an area containing good quality natural features. Large areas provide the backbone that links habitats and allows plants and animals to shift and move across sizable portions of the landscape.

NATURAL HERITAGE AREAS CLASSIFICATION

The Natural Heritage Areas identified in this report have been recognized according to the classification below. Sites chosen are those which are believed to be of sufficient size and quality (i.e., the natural systems are relatively intact) to continue as viable communities into the foreseeable future.

The approach of the inventory is to identify ecologically important sites that are of significance in Westmoreland County. These are sites that are unique or uncommon in this county, but are not necessarily uncommon in the region or state. State significant sites are also included in the inventory since by definition they would be locally significant. For example, a 50-acre mature hemlock-swamp is common in many places in Pennsylvania, however, a forest community of this type and size is uncommon in Westmoreland County and would, therefore, be included in the inventory.

The following classification provides definitions and examples of the three types of Natural Heritage Areas and a management designation included in this report.

- BIOLOGICAL DIVERSITY AREA (BDA)
- DEDICATED AREA (DA)
- LANDSCAPE CONSERVATION AREA (LCA)
- Managed Lands

Definitions and examples of each of these Natural Heritage Areas follow:

BIOLOGICAL DIVERSITY AREA (BDA)

An area that contains one or both of the following:

- one or more occurrences of plants, animals or natural communities recognized as a state or federal species of special concern.
- high quality examples of natural communities or areas supporting exceptional native diversity.

DEDICATED AREA (DA)

A property, possibly disturbed in the past, where the owner's stated objectives are to protect and maintain the ecological integrity and biological diversity of the property largely through a hands-off management approach, with intervention only when there are demonstrable threats to the ecology of the area.

LANDSCAPE CONSERVATION AREAS (LCA)

A large contiguous area that is important because of its size, open space, habitats, and/or inclusion of one or more Biological Diversity Areas, and although including a variety of land uses, has not been heavily disturbed and thus retains much of its natural character.

Managed Lands

"Managed Lands" as defined in this Natural Heritage Inventory are owned or leased properties that are included in the report because of their importance, or potential importance, to the overall maintenance and protection of ecological resources of Westmoreland County. Managed Lands are of two types:

- Public properties established and managed to a large extent for natural resources, and/or those that have the potential to manage such resources in order to maintain or enhance important ecological assets in the county, and by this evaluation are deemed by the inventory to be among the most ecologically "valuable" of public properties. Examples include: state game lands, state forests, state parks, national historic sites, county or municipal park lands.

- Private properties that are held by private organizations concerned with the management and protection of natural resources, and which upon evaluation have been deemed by this inventory to be among the most ecologically "valuable" of such properties. Examples include: private nature preserves, private environmental education centers.

Managed Lands do not necessarily include, nor are they necessarily included within, identified Biological Diversity Areas however, these properties are often large in size (e.g., essentially all state game lands) and, for this and potentially for other reasons, are ecologically important in a general sense. The ecological importance and value of some Managed Lands is due to their association with an area identified for natural heritage significance, e.g., a Managed Land within the boundaries of a Biological Diversity Area. However, Managed Lands are legally bounded properties, and are not to be confused with areas of natural heritage importance, which are identified by their ecological significance. An important consideration is that many Managed Lands have the potential to become even more ecologically valuable if their management becomes more sensitive to biological diversity issues and protection.

In the case of county parks or other smaller managed lands, those that are included in this inventory contain a natural community or remnants of a natural community that is being managed for the natural ecological qualities that are present.

Managed Lands dedicated to the protection of natural ecological systems and biological diversity are referred to as **Dedicated Areas**. These properties are distinct from other Managed Lands because of the ecological emphasis of the owner's management practices and goals. Dedicated Areas are among the most important Natural Heritage Areas since plans to protect the ecological resources therein already exist. An evaluation of Dedicated Areas in the inventory was based upon the stated management criteria and existing practices of the owner/manager.

NATURAL HERITAGE INVENTORY METHODS

Presently, nine County Natural Heritage Inventories have been completed for western Pennsylvania. These include the Bedford County Natural Heritage Inventory (Wagner &

Smith et al, 1998), Butler County Natural Heritage Inventory (Smith et al., 1991), Centre County Natural Heritage Inventory (Stack et al., 1991), Beaver County Natural Heritage Inventory (Smith et al., 1993), Clinton County Natural Heritage Inventory (Wagner et al., 1993), Erie County Natural Heritage Inventory (Kline et al., 1993), Allegheny County Natural Heritage Inventory (Smith et al., 1994), and the Washington County Natural Heritage Inventory (Wagner et al., 1994). Methods used in this inventory are based on the previous reports, as well as those used by Anonymous (1985); Reese, G.A., et al. (1988); and Davis A.F., et al. (1990). The Westmoreland County Natural Heritage Inventory has been conducted using the same methodologies which proceeded in the following stages:

- gathering existing information
- aerial photo and map interpretation
- ground survey
- data analysis

Gathering Existing Information

A review of the Pennsylvania Natural Diversity Inventory (PNDI) data base (see Appendix II) was performed in order to determine what, if any, sites for special concern species and important natural communities are known to exist in Westmoreland County. Members of local land trusts and conservancies, environmental advisory councils, and other conservation oriented citizens groups were sought out and contacted, as well as other individuals that were able to contribute information to the inventory. Individuals from the PA Department of Conservation and Natural Resources – Bureau of Forestry were contacted for existing site information.

General information from other sources such as soil maps, geology maps, earlier field studies, and published materials on the natural history of the area was collected to gain a better understanding of the area's natural environment.

Aerial Photo and Map Interpretation

The Southwestern Pennsylvania Regional Planning Commission made available the most recent aerial photos of Westmoreland County (1990-1991; 1:12,000 scale). Initial study of these photos revealed large – scale natural features (e.g., contiguous forest, wetlands, shale barrens), disturbances (e.g., utility line right-of-ways, strip mines, timbered areas) and a variety of easily interpretable features. Investigation of areas on the ground and review of the same areas on the photos helped to establish a set of "signatures" that allowed a more detailed review of areas not visited on the ground. Some sites could be eliminated if they proved to be highly disturbed or fragmented or purely attributable to human – made features (e.g., impoundments, clearings, farm fields).

Ground Survey

Areas that were identified on maps, aerial photographs and from the air as potential sites were scheduled for ground surveys. Landowners were contacted and the sites examined to evaluate the condition and quality of the habitat and to classify the communities present. Field survey forms (Appendix III) were completed for each site. Boundaries for each site were drawn on the USGS topographic maps. Site boundaries include both the key features of the site and the additional buffer areas critical to the protection of the site.

The flora, fauna, level of disturbance, appropriate age of community and local threats were among the most important data recorded for each site. In some instances when permission was not obtained to visit a site, when enough information was available from other sources, or when time did not permit, sites were not ground surveyed.

Data Analysis

A dedicated file exists for each visited site and contains the site survey form for that site and any additional information about or pertinent to the site. Characteristics such as size, condition, recoverability and rarity are contained in these files. The quality of the site was determined by examining how well it fulfilled the definition as one of the Natural Heritage Area types described in the introduction. Each site was ranked by inventory methods according to its relative significance (Appendix I). The PNDI ranks are included here to indicate how rare or unique a species of special concern or natural community is in the state and in the world. Such a ranking gives information about the range of a species or community and provides some means of comparing resources at a broad scale, especially where official ranks are lacking (see Appendix V for details of ranking systems). In the cases when sites could not be compared through the detailed information that ground surveys provide, aerial photographs and existing data provided the necessary information that allowed decisions to be made concerning the site and its inclusion in the inventory.

Field data for natural communities and for all plant and animal species of special concern found were synthesized with existing data, summarized and locations transcribed on to clear polyester sheets which serve as overlays for each of the 7 ½ minute U.S.G.S. quadrangle maps found in Figure 3.

GENERAL RECOMMENDATIONS FOR THE PROTECTION OF NATURAL HERITAGE AREAS

The inventory identifies significant Natural Heritage Areas in order to promote their protection. Specific site recommendations for the maintenance of these important biotic and ecological resources are made based upon (1) the type of Natural Heritage Area (i.e., Biological Diversity Area, Dedicated Area or Landscape Conservation Area) that the site is classified as; (2) the ecological characteristics of each site; (3) evidence of past or present disturbance within the site; and (4) the potential effects of the land-use activities that surround the site. Thus, these recommendations and site mapping recognize the interaction between the site's biotic resources and the natural ecosystems and/or land-use activities in proximity to the site. The general recommendations furnished below are meant to further clarify the differences between the various sites and to provide a general framework into which specific management recommendations can be made.

Natural Heritage Areas

Biological Diversity Areas

Biological Diversity Areas include those sites that are recognized as supporting populations of state, national or globally significant species or natural communities, high quality examples of natural communities or ecosystems, or exceptional native diversity. Occasionally these areas require some form of management in order to maintain suitable conditions for the species, group of species, or natural communities (e.g. removal of exotic plant species that are threatening the integrity of the natural community may be an acceptable practice, whereas, spraying for gypsy moth probably would not be considering the broad scale effects of the pesticide). Actions and projects impacting BDA's should take into consideration the ecological requirements of the species/community that is the feature of the area. When activities threaten to impact ecological features, the responsible agency should be contacted. If no agency exists, private groups such as conservancies, land trusts, and watershed associations should be sought for ecological consultation and specific protection recommendations.

Dedicated Areas

Dedicated Areas are recognized because of the owner's specific intention to protect their present and potential future ecological resources. Under such protection, those sites that are not presently examples of special habitat or exemplary communities will be permitted to mature and attain qualities recognized for Biological Diversity Areas. Sites that are already significant as BDA's will be allowed to continue, undisturbed, as the best examples of natural communities in the area. The management of DA's may therefore follow the recommendations furnished for BDA's and may involve some level of carefully planned intervention to maintain

their significant ecological resources. Usually, management involves simply leaving the area alone to mature and recover from previous disturbance. Generally, many land-uses such as mineral extraction, residential or industrial development, agriculture, utility right-of-way construction, and certain forestry practices (diameter limit cuts, non-management silvicultural practices, etc.) are not compatible with DA's and should be avoided.

Landscape Conservation Areas

Landscape Conservation Areas recognize large pieces of the landscape that are of higher ecological quality than other areas of similar size. Contiguous natural communities, minimal human disturbance and often the presence of Biological Diversity Areas within the LCA allow ecological processes to function across an entire landscape. Management requirements for LCA's are less stringent than those for either BDA's or DA's because they encompass a variety of land uses, some which are not directly involved in the protection of specific species or communities. Whereas with BDA's and DA's, disturbances should be evaluated in terms of direct impacts to areas; with LCA's disturbances should be considered on a broad scale in terms of fragmentation and general habitat integrity. Sustainable land-uses that are sensitive to the natural features within the LCA are essential for the long-term preservation of the natural qualities recognized by the LCA. Construction of new roads and utility corridors, clearing or disruption of large pieces of land, and other activities that divide and alter the character of the landscape decrease the integrity and value of LCA's. People and human created features are part of LCA's but do not dominate the landscape. By limiting the amount of land in intensive use (agricultural zones, residential zones, etc.) and by compressing development into already disturbed areas (villages, roads, existing ROW's, etc.), large pieces of the landscape can be maintained intact. Some LCA's are designed with aquatic resources in mind, and in those cases, a watershed boundary may be used to identify the LCA.

Other Recommendations

Riverine Ecosystems

Of all ecosystems, perhaps none is so intertwined and dependent upon all parts of the landscape for its health and existence as the river ecosystem. Rivers play a key role in the continuous water cycle, the transport of minerals and nutrients from higher to lower land, as well as provide drinking water, food, transportation/commerce routes, waste removal, and energy. In addition, rivers are pivotal in shaping the physical and biological landscape of regions. Linking terrestrial and aquatic habitats, the rivers of western Pennsylvania once supported an incredible diversity of species and natural communities. However, the intensive industrialization that began in the mid to late 1800's resulted in severe degradation of water quality and habitats and continued to do so until the enactment of the clean Water Act amendments of 1977. Further degradation of water quality as a result of growth in the watersheds has led to the present day imperilment of many of these aquatic systems. There are two ways in which river systems receive pollution; these are "point" and "non-point"

source pollution. Point source pollution is that pollution whose source can be identified at one point along the river or within the river's watershed; for example, a pipe discharging chlorine into a stream. Management of this type of pollution is fairly straightforward since it is easy to track. However, point-source pollution is acceptable, to a degree, by state and federal governments as a method of removing numerous types of wastes in urban an industrial areas. Rivers are thereby directly and deliberately polluted to some extent.

Non-point source pollution results from runoff from land-based human activities. Such pollution can not be easily detected at any single point and generally results from urban and infrastructural development, as well as farming, mining, etc.. Examples of non-point source pollution include runoff of agricultural or horticultural nutrients, suspended sediments, septic effluent, organic compounds, petroleum hydrocarbons, heavy metals, pesticides, road deicing salts, toxic chemicals, fertilizers, and eroded soil (Guildin, 1989; Newton, 1989). Such pollution is the most difficult to track and remediate and can take place in subtle modes across large areas of a given watershed.

Disturbances that have been and still are the most threatening to river ecosystems in western Pennsylvania include industrial and municipal discharge, acid mine drainage, dredging operations, exotic species navigational locks and dams, and development on and along the river. Industrial discharges into rivers have largely resulted from steel mills, salt works, chemical production, paper factories, oil refineries and other manufacturing operations. Thermal pollution resulting from cooling water discharges at nuclear power plants and other industrial facilities can also be included in this list. Municipal discharges the pollute rivers include unprocessed sewage that leaks from dilapidated or inadequate sewage systems, as well as treated effluent that usually contains chemical sterilizers (e.g. chlorine). Storm water runoff from roads and parking lots containing pollutants such as gasoline, oil, and road deicing chemicals also enters rivers. Fuel and oil spills due to accidents on the river and adjacent roads can also be a significant source of pollution.

Mine acid pollution results from both strip mining and deep mining and generally drains into tributary streams prior to entering a river. In western Pennsylvania, the bulk of acid mine drainage results from coal mining. Streams that are impacted by acid mine drainage characteristically have stream bottoms that take on an orange or white color which results from sulfur compounds and aluminum hydroxide that precipitate out of the polluted water. Acid mine drainage was and continues to be a major impact to water quality in western Pennsylvania including from mines long out of production.

Dredging river bottoms for commercial purposes, as well as maintaining navigational channels, creates common ecological problems. As riverbeds are dredged and sand, gravel, and cobble are removed, turbidity of the water and siltation of the river bottom result. Turbidity and siltation interferes with the physiological functions of aquatic organisms such as fish, mussels, and insects. Dredging activity has also resulted in the transformation of many river habitats. Shallow river bottoms of cobble, sand, and gravel which serve as critical habitat for many aquatic species, are often removed. Deep, cool holes typically form as a result of dredging activity and produce silty, mucky areas of low oxygen content, which are unsuitable habitat for the aquatic organisms that depend on rapidly flowing, well oxygenated

water.

Habitat degradation is thought to be responsible for the continued existence and proliferation of many exotic species in riverine systems (Allan and Flecker, 1993). The presence of exotic species in riverine ecosystems is largely the result of accidental and/or intentional introduction by human. Since these species are often able to withstand degraded habitat, they may outcompete native flora and fauna and also impact native habitats. Carp (*Cyprinus carpio*) is one example of an exotic fish species in the rivers of western Pennsylvania. This fish has taken over habitat that is typically used by native species and has made conditions unsuitable for many fish and invertebrates by stirring bottom sediments during feeding, and thus increasing the turbidity of the water and altering habitat. Another exotic species that poses a threat to native river species is the Asian clam (*Corbicula fluminea*), a small filter feeding mollusk that is believed to outcompete native mussel species for habitat in some places.

Among the most permanent impacts to river systems is the presence of navigational dams. Dredging of sediment from the river bottom to form deeper navigational channels accompanies dam construction and operation. The construction of locks and dams and the associated dredging activity, has transformed many rivers from free flowing streams providing numerous habitats, to a series of deep, slow moving pools. Dams on rivers cause water levels to rise and the current to slow. As a result, the natural features of the river such as floodplains, riffles, and islands, which many organisms depend on as habitat, are to a large extent damaged or destroyed. These drastic changes in the character of the river ecosystems result, ultimately, in a reduction in biological diversity.

Development activities impact river habitats such as shorelines and floodplains. Clearing floodplains for development has been a common occurrence along the rivers of western Pennsylvania, since these areas are flat and easy to access with machinery. Associated with this development is the construction of roads, asphalt parking lots, and other infrastructural components, as well as rip-rapping and bulkheads along the river's edge, both of which serve to control erosion. This artificial bank stabilization eliminates natural shallow water and gradually sloping shoreline habitat, and interferes with the flooding cycles that floodplain forests and wetlands depend upon. River edge habitat is also eliminated when boat docks and marinas are constructed. Since these structures accommodate boats, these are also places where gasoline and oil spillage are concentrated.

To aid in the protection of river systems particularly those in densely populated western Pennsylvania, consideration must be given to the impacts of land-use activities within the river's watershed. Increasing water quality is one key to protecting and restoring river systems and the native animals and plants that occur within their boundaries, which will also further encourage the repopulation of native species that were previously lost. This will require maintaining high water quality standards and placing more stringent restrictions on industrial, residential, and commercial discharges along the rivers and their tributary streams. Local municipalities need to incorporate protection measures into the municipal comprehensive plans. Careful monitoring and enforcement of regulations for all activities on rivers and their tributary streams is recommended. Protection of the high quality tributary

streams is important to the recovery of rivers as is clean-up of those tributaries where the water quality is poor.

Navigational dams and dredging activities are one of the most important limiting factors in the recovery of rivers in western Pennsylvania. Since locks and dams permanently alter the river, construction of new structures should be reviewed and evaluated for impacts to the river and be avoided if at all possible. In cases where the section of river where a dam is situated is no longer important for navigational activities or flood control, the dam should be removed. The sand, gravel and cobble deposits that are important components of riverine habitats are essentially finite, non-renewable resources. In light of this, commercial dredging of these materials should be suspended in many areas. In every case when an activity that could have a potentially adverse effect on the quality of a river is proposed, ecological professionals should be involved with local governments in evaluating these activities.

Within Westmoreland County there are four large rivers; the Allegheny, Monongahela, Kiskimenetas, and Youghiogheny Rivers. These rivers, at one time, supported a diverse assemblage of aquatic life, including fishes, freshwater mussels (bivalve mollusks that are filter feeders with a very low tolerance for water pollutants or sediments) and plants, etc.. Since the onset of industrialization and growth in the region in the late 1800's and early 1900's, these rivers have been subject to many of the impacts mentioned in the previous paragraphs. The present day condition of the rivers has improved since the mid 1900's as a result of stricter regulations on industrial and municipal discharges and a general decrease in industrial activity along the river's shores. Activities still exist however, that prevent these aquatic systems from recovering a significant portion of their original biological diversity. Improvement of water quality and riverine habitats is necessary if native species are to return and the river is to more closely function as an intact ecological resource. Recommendations for protecting these rivers, especially the Allegheny which is presently improved to the point where native species are reestablishing, should follow those given above. For a more detailed description of the Allegheny River see the Freeport quadrangle description.

Buffers

Buffers or buffer zones are the areas surrounding the core areas of a site and provide insulation between significant ecological qualities and the existing, or potential, negative disturbances nearby. The size of the buffer depends upon physical factors (slope, topography, and hydrology) and ecological factors (species present, disturbance regime, etc.) as well as characteristics of the buffer itself, such as uniformity, species composition, and age. Although similar sites may have similar kinds of buffers, no two buffers will be exactly alike in size or extent. Two wetlands, for instance, of exactly the same size, and in the same region, may require very different buffers, if one receives mostly ground water and the other mostly surface water, or if one supports migratory waterfowl and the other does not.

The buffer and the area being "buffered" constantly interact and affect one another. As an example, protecting a section of old growth forest surrounded by second growth forest would involve creating a buffer that would allow plant species unique to the old growth section to spread outward and at the same time, discourage inward colonization by weedy, opportunistic species. The buffer would also protect the site from heavy winds and storms. Buffers must always be considered in the context of what they are protecting and how these zones will evolve when functioning as buffers. In the case of the old growth forest, a hiking trail through the buffer would probably not significantly change the buffer or impact the old growth forest. However, the expansion of camping facilities into the buffer could slow or prevent the build-up of humus and the reproduction of trees, introduce invasive species and pollutants, and eventually alter the character of the buffer and ultimately decrease its effectiveness in protecting the old growth site.

The decision as to how large a buffer should be for an individual site took into account the requirements of the natural community or species habitat that were the focus of the site. Buffers were not regarded as fixed distance areas around sites and the often irregular site boundaries demonstrate that point. A fixed buffer may serve to reduce direct impacts on a site, but may not account for the connections a site has with other parts of the landscape. By either failing to protect the natural system of which the site is a part (e.g. ground water recharge zone for a spring) or by allowing other land-uses nearby (e.g. ore extraction within a rock formation supporting a bat cave), a buffer can fail to provide adequate protection to a site. In addition to considering the above referenced factors when determining buffers for Natural Heritage Area boundaries, consideration was also given to recommendations by Brown and Schaefer et al. (1987) and recommendations by the D.C.N.R. Bureau of Topographic and Geologic Survey to the Western Pennsylvania Conservancy on the use of buffers to protect water quality and quantity, as well as to maintain the ecological integrity of the natural community(ies) that comprise a Natural Heritage Area.

Each Biological Diversity Area is mapped to include both the feature and a buffer area that is intended to protect the feature. The line delineating the feature, often referred to as the primary boundary, is not designated on the maps. The line that does appear for Biological Diversity Areas, referred to as the secondary boundary, includes the feature and a buffer.

OVERVIEW OF WESTMORELAND COUNTY NATURAL FEATURES

Westmoreland County covers 1,040 square miles of two sections of the Appalachian Plateaus Physiographic Province; the Allegheny Mountain Section and the Pittsburgh Low Plateau Section. The base of the western slope of Chestnut Ridge forms the boundary between these two Sections (Figure 2). The eastern half of the county is part of the Allegheny Mountain Section where erosional remnants of upward folds of the earth's crust or "anticlines" remain as the linear Laurel Ridge and Chestnut Ridge. The low hills and broad valley situated between these two ridges are on the downward parts of the folded crust or "syncline". The western half of the county is part of the Pittsburgh Low Plateau Section, a mature plateau where uplands are dissected by many steep-sided stream valleys that cut down to the large rivers that flow through this Section. This section occupies all of southwestern Pennsylvania west of Chestnut Ridge.

Elevations in the county range from a high of above 2980 feet along the Laurel Ridge to a low of 727 feet on the Monongahela River. Variations in aspect, slope and elevation combine to create a number of different microenvironments throughout the county. Add to this the numerous soil types influenced by the weathering of underlying bedrock, slope, organic material and climate, and in some cases the bedrock itself, and the result is the ecological foundation for Westmoreland County.

The bedrock of the ridges is varies from the Shenango, Burgoon, Mauch Chunk, Pottsville and Allegheny strata which are composed largely of gray sandstones and shales (Berg, 1980). Sections of sandy crossbedded limestone, referred to as Loyalhanna limestone, outcrop in places along the ridgeline. These bedrock strata formed between the Devonian, Mississipian and Pennsylvanian periods ranging from 280 to 400 million years ago. Between these ridges and within the intermontane valley, the strata is of the younger Glenshaw, Casselman and Monongahela Formations of the Conemaugh Group. Formed during the latter part of the Pennsylvanian period nearly 280 million years ago, this bedrock is composed of cyclic sequences of shale, sandstone, siltstone and limestone. The Conemaugh Group is also part of the bedrock that forms the western half of the county or Pittsburgh Low Plateau Section. Western Westmoreland County is also underlain by the younger Waynesburg and Washington Formations of the Pennsylvanian and Permian periods, respectively. These formations are comprised of cyclic sequences of sandstone, shale, limestone and coal.

Soils on both Laurel Ridge and Chestnut Ridge are comprised of the Calvin association and the Gilpin-Dekalb-Cavode association. These soils are generally deep to moderately deep, well drained to somewhat poorly drained soils that are characterized as red soils on the ridgetops. In places where watercourses such as the Conemaugh River, Loyalhanna Gorge or Jacobs Creek cut into the ridges, soils are of Weikert association, shallow, well-drained, rocky soils. These soils also show up along the sections of the Allegheny River, Monongahela River, Kiskiminetas River and Beaver Run in the

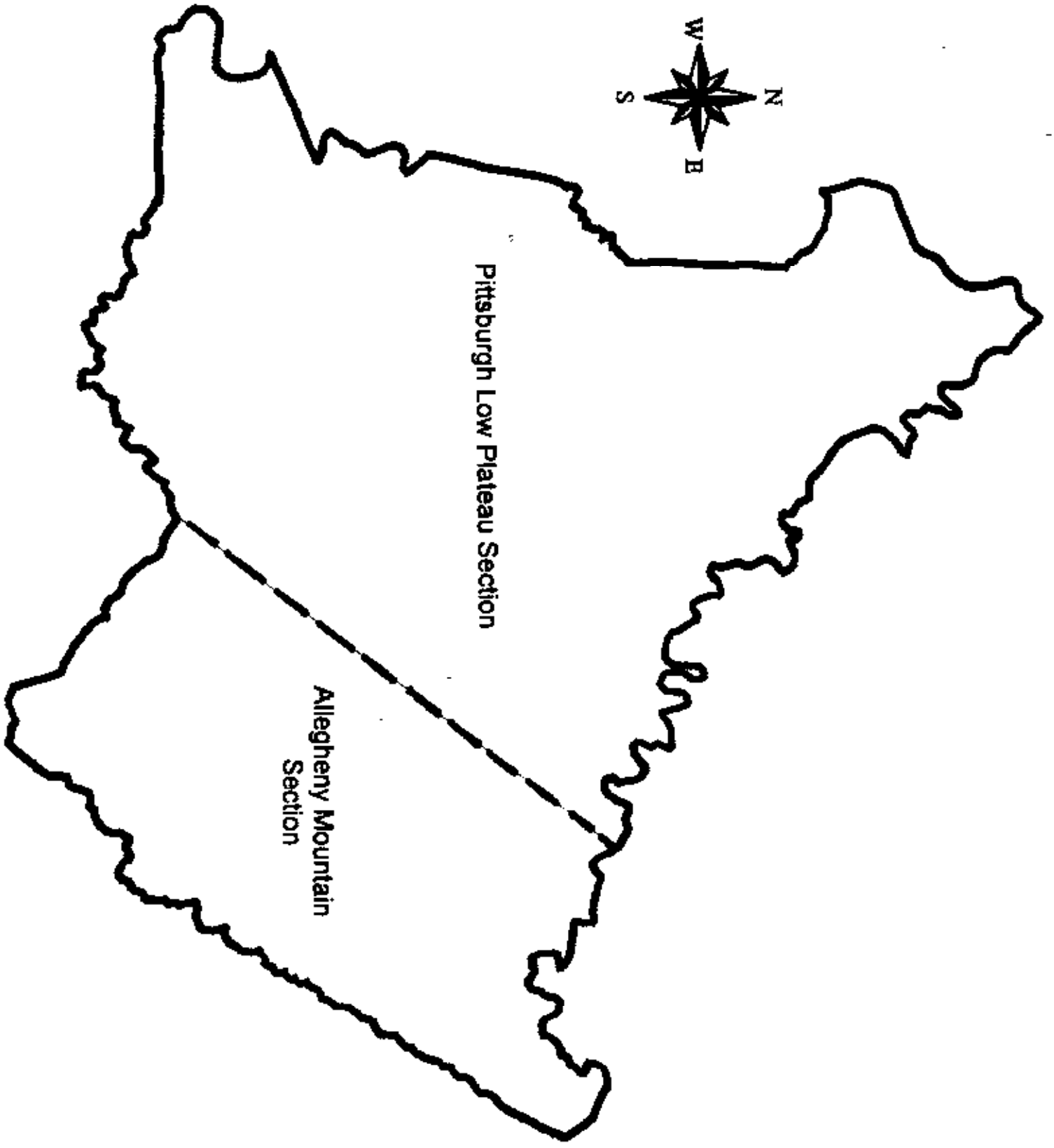


Figure 2: Physiographic Provinces of Westmoreland County

western part of the county. The valley between Laurel Ridge and Chestnut Ridge is largely characterized by soils of the Gilpin-Wharton-Cavode association which is a deep and moderately deep, well-drained to poorly drained soils over acid, gray shale and siltstone. This association is interrupted by the Philo-Monongahela-Atkins association which is found on terraces and flooplains of the stream corridors that traverse this valley. These soils are deep, moderately well drained to poorly drained soils. The pattern formed by these two associations is common on the low plateau of the western half of the county. In a limited number of places in the intermontane valley the Westmoreland-Guernsey-Clarksburg association soils which overlay limestone are present. This soil association which is characterized as deep and moderately deep, well-drained to poorly drained soils over interbedded sandstone, shale, and limestone, is prominent in large patches on the plateau in the western part of the county. A final soil association, totaling seven for the county, is the Upshur-Gilpin-Clarksburg association. These soils are found along the northern half of the western border of the county and are largely deep and moderately deep, well drained and moderately well drained soils over red and brown clay shale, siltstone, and sandstone.

The landscape of Westmoreland County varies from east to west beginning with relatively contiguous forest on Laurel Ridge and Chestnut Ridge to fragmented forest and open agricultural land in the intermontane valley to open, cleared agricultural and developed land interrupted by forested stream corridors on the plateau. The ridgelines hold the largest, contiguous blocks of forest in the county. These forests are composed largely of second growth forest stands with the exception of steep sided ravines or valleys where older growth timber may exist. After the loss of the American Chestnut (*Castanea dentata*) in the 1930's, oak (*Quercus* spp.) came to dominate the forests on the ridges. Such is still the case in many areas but with the widespread loss of oak due to gypsy moth (*Lymantria dispar*) infestation in the late 1980's – early 1990's and second and third rounds of logging, forest compositions on these ridges are again changing. Dominant trees found in the ridge and high elevation forest communities include chestnut oak (*Q. prinus*), black oak (*Q. velutina*) and red oak (*Q. rubra*); with these occur red maple (*Acer rubrum*), black birch (*Betula lenta*), black cherry (*Prunus serotina*), sassafras (*Sassafras albidum*) and tulip poplar (*Liriodendron tulipifera*). Ericaceous shrubs, as mountain laurel (*Kalmia latifolia*), azalea (*Rhododendron* sp.) and species of blueberry (*Vaccinium* spp.) are abundant in these rocky woods (Braun, 1950; Jennings, 1927). With the opening of the canopy as a result of a combination of logging and extensive gypsy moth mortality, some of these forests are underlain by a dense layer of greenbriar (*Smilax* sp.) and/or hayscented fern (*Dennstaedtia punctilobula*).

Moving downslope from the highest elevations, the diversity of vegetation increases with higher moisture levels and deeper soils. Red, black and white oak, along with hickories (shagbark, pignut, bitternut), black cherry, red maple, striped maple, tulip poplar, witch hazel and spicebush becomes more prominent. The heath layer thins at lower elevations and is replaced by ferns and herbaceous species. Loyalhanna limestone outcrops at this and lower elevations on the slope producing richer and more alkaline soils in places.

On the lower slopes, the dry, more acidic forest communities are replaced by mesic forests communities of red and white oak, sugar maple, beech, black birch, slippery elm, basswood, white ash, tulip poplar and cucumber magnolia. On northern slopes or along the lower sections of the deeply cut stream valleys hemlock, yellow birch and beech along with rhododendron will mix with the deciduous species in response to the cooler, more moist conditions. These communities take on the character of the northern conifer-hardwood forests of the north. Ground cover in these forests is generally more rich and diverse than that at higher elevations.

The lower slope forest communities transition onto the rolling uplands and rounded hills of the plateau and intermountain valley. Here white oak, sugar maple and beech are more common and dominant in the canopy (Jennings, 1927). The extent of forest remaining in this part of the county is limited. Rich, alluvial soils deposited from streams and deep colluvial soils from the erosion of the lower slopes of the ridges have made the valleys and plateau section of the county prime agricultural areas. The largest sections of forest in these areas tend to follow the rivers and streams of the county.

The Allegheny and Monongahela watersheds split Westmoreland County with the northern section draining north and northwest via the Loyalhanna Creek and Conemaugh River to the Allegheny, and the southern section draining south and southwest via Indian Creek and the Youghiogheny River directly to the Monongahela. Where the significant patches of forest remain along streams, a number of natural communities occur: floodplain swamps, floodplain forests, seepage wetlands, and rich mesic forests among them. Typically, rich forests of white oak, basswood, sycamore, red maple, red elm, hickory and, sometimes, swamp white oak underlain by a dense, diverse herbaceous layer comprise these communities. A unique feature of the Sewickley Creek drainage is the limestone outcropping that supports a rich, alkaline forest community that harbors rare flora for the county.

Aquatic communities associated with the county vary a great deal across the landscape. Many of the streams in the western half of the county have been polluted and degraded by activities related to mining and residential and commercial development and industry. Streams running off the flanks of Laurel Ridge and Chestnut Ridge have remained very high in quality. Termed High Gradient Clearwater Creeks, these streams are situated in watersheds that have remained relatively intact. This is certainly true for Laurel Ridge which is largely under public ownership. The high water quality of a number of the streams on this ridge has given justification for the designation of Exceptional Value waters. Low erosion and sedimentation, an intact forest canopy within close proximity to the streams, and unaltered hydrology of the streams allows water quality to remain high. The high water quality of these streams can also be attributed to the numerous springs found adjacent to the stream. These springs not only serve to recharge the stream, but support spring run communities that serve as habitats for rare plants, as well as a diversity of amphibians and invertebrate species.

RESULTS BY U.S.G.S. QUADRANGLE

Introduction

Thirty-five, 7.5-minute U.S.G.S. quadrangle maps cover the study area. These maps are arranged in order according to the index depicted on Fig. 3. The Biological Diversity Areas, Dedicated Areas, Landscape Conservation Areas and Managed Lands in the study area are indicated on these topographic maps and are labeled with bold print upper case letters. Managed Lands are labeled with bold upper and lower case letters. A map labeling and site mapping system has been utilized to indicate the Natural Heritage Areas on each topographic map

The mapping uses the following conventions:

- Biological Diversity Areas are mapped using **solid lines** (▬▬▬▬) which include both the site core (natural community or species of special concern habitat) and critical buffer lands surrounding the core.

- Landscape Conservation Areas are mapped using **dotted lines** (• • • • •).

- Dedicated Areas and Managed Lands are a **dashed line** (▬ ▬ ▬).

A summary table of sites precedes each map and lists the identified Biological Diversity Areas, Dedicated Areas and Landscape Conservation Areas. Managed lands are listed after the Natural Heritage Areas. Following each site name is the site's relative significance. Table 1 summarizes the sites by significance rank and Appendix I provides definitions for the four ranks. Listed under each site name are any state significant natural communities and species of special concern, specified by an alphanumeric code, that have been identified within the area (see Appendix IV for a list of Natural Communities recognized in Pennsylvania). Often times multiple occurrences or groupings of the same species are listed, thus falsely suggesting numerous species or natural communities at a site. Also included for each community and species is a P.N.D.I. rank, and the current legal status (detailed in Appendix Va and Vb). The text that follows each table discusses the natural qualities of the site and includes descriptions, potential threats, and recommendations for protection.

The summary tables do not specify the names of the elements (natural communities or species of special concern); the specific communities are identified in the text, but the species of special concern are not to avoid the possible consequences that heavy visitation, collection or intentional disturbance might have to the plant or animal populations. This report does not intend to encourage visitation, however, if visitation is necessary, it must be only by

permission from the landowners. Also, the report is not burdened with detailed information required to manage the species of special concern. If more information is needed, ecological professionals at the Western Pennsylvania Conservancy or at the state natural resource agencies should be contacted. Hopefully, this report will encourage communication between ecological professionals at the Conservancy and within state natural resource agencies with municipalities, organizations, and individuals.

Figure 4 precedes the quadrangle maps and description. This figure shows the approximate location and extent of the LCA contained within Westmoreland County. Because LCA's stretch across a number of quadrangles, it can be difficult to envision how the sections relate to one another and to the county as a whole. Hopefully, this figure will clarify the shape, size and location of the LCA within the county.

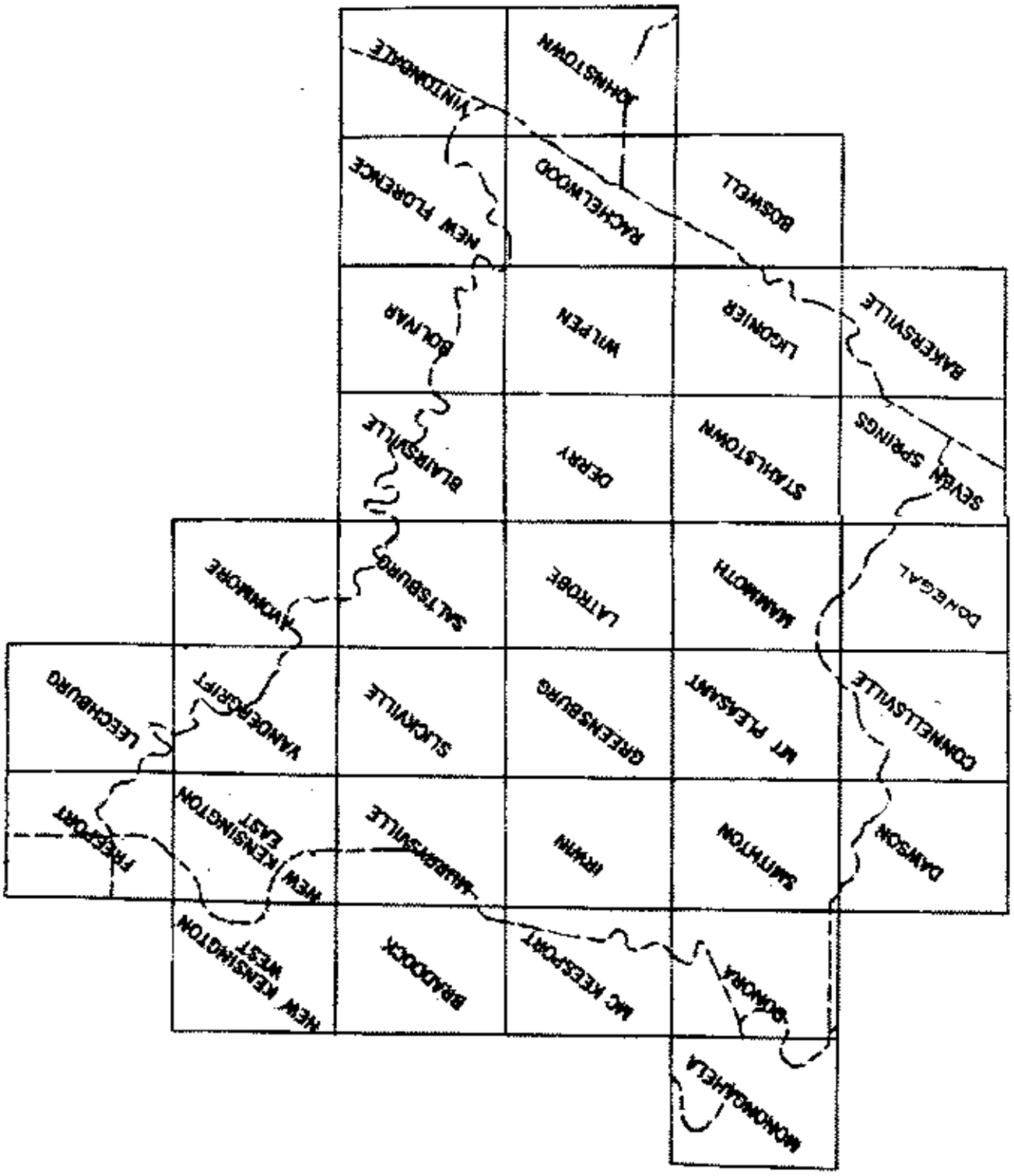


Figure 3: U.S.G.S. Quadrangle Map Index of Westmoreland County

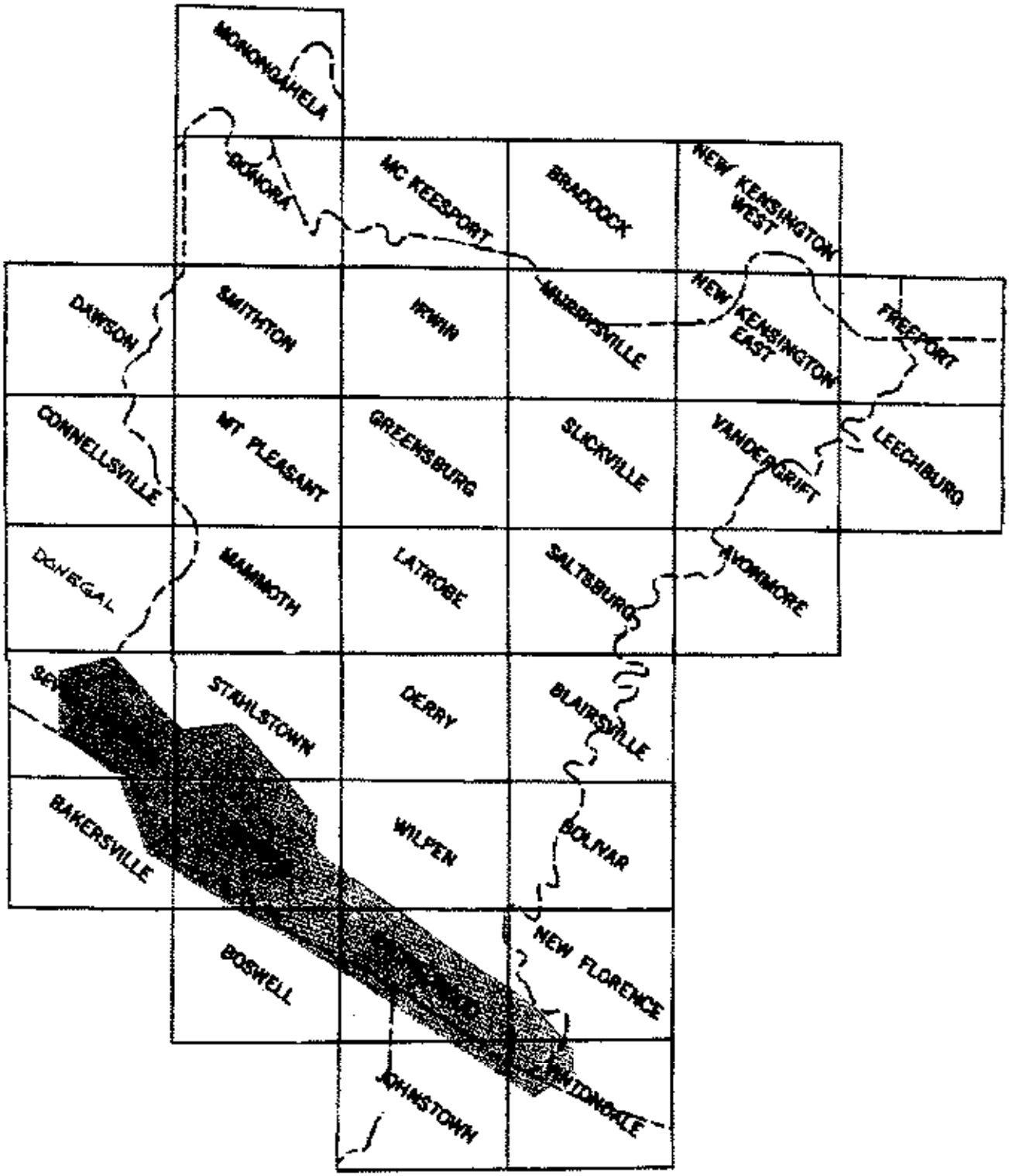
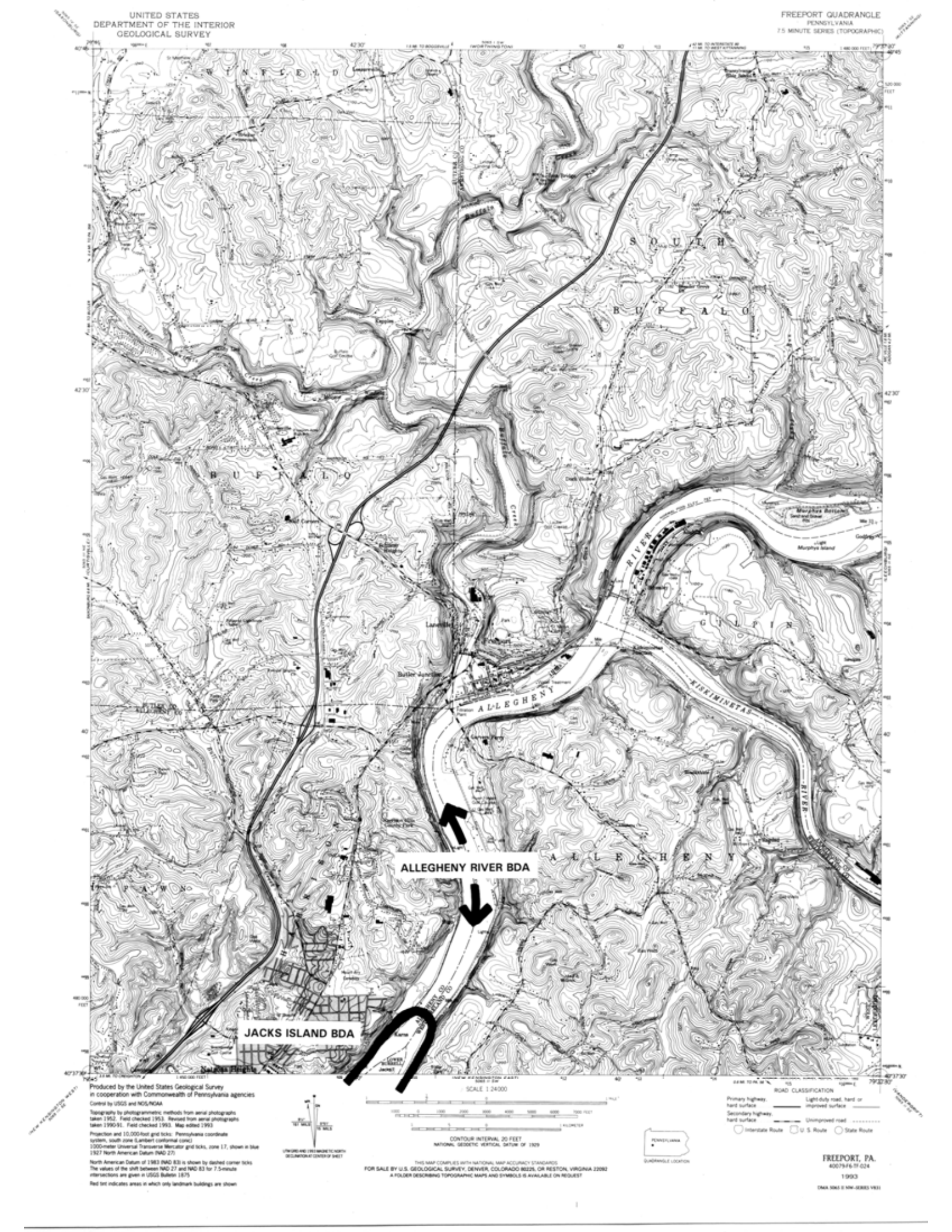


Figure 4: Landscape Conservation Areas in Westmoreland County

FREEPORT QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
ALLEGHENY RIVER BDA	*High Significance*				
SPECIAL ANIMAL:	SA019a	G5	S2S3	N	PC
SPECIAL ANIMAL:	SA019b	G4	S1	N	PC
SPECIAL ANIMAL:	SA014	G5	S2	N	PC
JACKS ISLAND BDA	*County Significance*				
MANAGED LANDS:	None				


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
FREEPORT QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
BUFFALO
BUFFALO
SOUTH BUFFALO
GILPIN
ALLEGHENY
ALLEGHENY RIVER BDA
JACKS ISLAND BDA
Freeport
Produced by the United States Geological Survey
in cooperation with Commonwealth of Pennsylvania agencies
SCALE 1:24000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
ROAD CLASSIFICATION
FREEPORT, PA.
40079-F6-TF-024
1993

FREEPORT QUADRANGLE

The northern tip of Westmoreland County including the escarpment above the Allegheny and Kiskiminetas Rivers is depicted on this quadrangle. This land at the confluence of these rivers is largely recovering forest with patches of cleared land that is in agriculture and residential use. Both the Allegheny and Kiskiminetas represent the largest, most significant natural features associated with this part of the county. There are two Natural Heritage Areas recognized for this quadrangle.

Allegheny River BDA

This section of the Allegheny River takes a southwest route into the county just downstream of Freeport and the river's confluence with the Kiskiminetas River and then flows to its end where it meets the Monongahela River to form the Ohio River at the City of Pittsburgh in Allegheny County. The Allegheny once supported the greatest biological diversity of any river in the state of Pennsylvania. This species richness, as indicated by fish and freshwater mussels (bivalve mollusks that are filter feeders with a very low tolerance for water pollutants or sediments), is presently more intact in the middle and upper Allegheny River above the navigational lock and dam system, than it is in this lower part of the river. This was not the case at one time, when the lower stretch of the river was documented to support a vast array of aquatic animals. Presently, the river in the lower stretch from the southwest corner of Armstrong County appears to support only about *four species of freshwater mussels*.

In addition to the pollution caused by oil refineries, steel mills, salt works and surface and deep mining, the river has been severely altered by the construction of navigational locks and dams, as well as commercial dredging of the river bed, shoals and islands for gravel, sand and cobblestone.

The present day Allegheny River has improved on some of its ecological qualities since the mid 1900's. It is presently classified as a low to medium quality warm water fishery and serves as a special species habitat for **SA019A**, **SA019B**, and **SA014.** The presence of these fish suggests an improvement in the water quality of the river. It is unknown at this point in time how far ranging these species are, as well as what portions of the river are especially important to their survival. Collections made by the PA Fish and Boat Commission suggest that some of these species are using the entire length of the river in Allegheny County to some degree which would also represent those sections of the river covered by Westmoreland County, thus the designation of the Allegheny River BDA for Westmoreland County (this stems from a previous designation for the river in the Allegheny County Natural Heritage Inventory; Smith, et al., 1994 Other indications of the improving water quality within the Allegheny exist). Places in the river that may well be important to the survival of the fish species of special concern, as well as the other sensitive species that are mentioned, include those areas representing more natural habitat (pre-lock and dam, dredging and pollution) such as the islands and shoals in the river and those rocky, freer-flowing sections immediately downstream of the navigational dams. The dams aerate not only these areas of the river,

which is important for fish survival, but they mimic pre-dam currents of the natural free river. Little if any of this habitat exists in Westmoreland County below Lock and Dam #4. Jacks Island sits above the dam and where the original character of the free flowing river has been drastically altered.

Threats and Stresses

For a general overview of the threats associated with this river system see page 27.

Recommendations

Although the presence of these fish species of special concern may represent some recovery of the river, not enough information is available to determine their success. More research on these species and others is needed for the river. Protection of the Allegheny River BDA to encourage the continuance of existing attributes, improved water quality and the reintroduction of other native plants and animals is needed. Careful monitoring and enforcement of regulations concerning all activities on and along the river is recommended. The entire river within the county is included as part of the BDA. It should be noted, however, that the majority of the collection sites for the species of special concern are located in the vicinity of Lock and Dam #2 and #3, the river islands and the mouths of some major tributaries. All are areas where the river most resembles its historic condition of a free-flowing river. For additional information regarding recommendations for the protection of the Allegheny River system see page 27.

Jacks Island BDA

The Allegheny River is noted in this inventory not only for the habitat it provides to a number of animal species of special concern, but also for the island habitat and natural communities which are directly associated with this riverine system. As was mentioned in the description of the Allegheny River above, many of the natural islands and habitats that once existed in the river have been destroyed or severely altered by both dredging activity and the establishment of the navigational lock and dam system. One area on the river that was altered and disturbed by human use, but still remains the county's only example of the large river island is the Jacks Island BDA. Once one contiguous island, Jacks Island is now a series of smaller islands separated by shallow channels. The largest of the islands is situated south of the other sections just above Lock and Dam #4 (New Kensington West quadrangle). Much of the topsoil and some of the lower strata gravel and sand was removed in the 1960's leaving the island treeless and with a large, open water lagoon on its northwest side. Currently, a large percentage of the island can be considered forested although sparsely in sections. Black willow (*Salix nigra*), sycamore (*Platanus occidentalis*) and silver maple (*Acer saccharinum*) dominate the canopy and thickets of Japanese knotweed (*Polyogonum cuspidatum* and/or *sachalinense*) blanket large sections both on the interior and shoreline, especially the shoreline. Muddy channels run into the interior of the island, several connecting the lagoon area to the opposite shore.

Generally open, dense growth of marsh-purslane (*Ludwigia palustris*) and smartweed (*Polygonum* spp.) cover sections of these "mud flats" and various shrubs surround and to some extent, grow within the flats, especially black willow and silver maple colonies. Two state listed plant species of special have been documented for the island. These plants were collected at the turn of the century and have not been found since. Overall, Jacks Island is highly disturbed with small remnants and recovered patches of vegetation and structure.

Threats and Stresses

The alteration of shoreline and water flow characteristics, invasion of exotic species such as Japanese knotweed, Tartarian honeysuckle and multiflora rose (*Rosa multiflora*) and alteration of flooding regime are just a few of the more significant threats to the health of floodplain forest, river gravel and aquatic bed communities that are presently on the fringes of existence on this island.

Recommendations

Although disturbed and altered by human activity, this island, as well as other Allegheny River islands, retains some potential for recovering habitat for native bivalves and fish. Continued improvement of the river's water quality and maintenance of the present physical structure of the are important aspects of recovery. Monitoring of the exotic species on the island would provide a record and initiate removal action if those, or any new alien species spread. Opportunities to work with the land owner and learn more about the site would be important in beginning conservation efforts for this BDA. Other, more general recommendations for riverine islands are given on page 27.

LEECHBURG QUADRANGLE

	PNDI Rank		Legal Status	
	Global	State	Fed.	State

NATURAL HERITAGE AREAS: None

MANAGED LANDS: None

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LEECHBURG QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
NE/4 FREEPORT 15' QUADRANGLE

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography from aerial photographs by multiplex methods
Aerial photographs taken 1952. Field check 1954

Polyconic projection. 1927 North American datum
10,000-foot grid based on Pennsylvania coordinate system, south zone
1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue

Red tint indicates area in which only landmark buildings are shown

Area covered by dashed light-blue pattern is subject to controlled inundation

Revisions shown in purple compiled in cooperation with State of Pennsylvania agencies from aerial photographs taken 1969. This information not field checked

UTM GRID AND 1969 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24000

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

Map photoinspected 1977
No major culture or drainage changes observed

ROAD CLASSIFICATION

Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
State Route

LEECHBURG, PA.
NE/4 FREEPORT 15' QUADRANGLE
N4037.5—W7930/7.5
PHOTOINSPECTED 1977
1954
PHOTOREVISED 1969
AMS 5065 II NE—SERIES V831

LEECHBURG QUADRANGLE

This quadrangle covers a small area of northcentral Westmoreland County which is bounded by the Kiskiminetas River to the north where the county shares a boundary with Armstrong County. Small sections of steep river slope provide some of the more natural landscape once found in this part of the county. There are no Natural Heritage Areas or managed lands identified on this quadrangle.

AVONMORE QUADRANGLE

	PNDI Rank		Legal Status	
	Global	State	Fed.	State

NATURAL HERITAGE AREAS:

AVONMORE FLOODPLAIN BDA *Notable Significance*

NATURAL COMMUNITY:	NC003	G?	S3	N	N

MANAGED LANDS: None

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY

AVONMORE QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)

Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Topography from aerial photographs by photogrammetric methods. Aerial photographs taken 1962 and 1963. Field checked 1964

Polyconic projection. 10,000-foot grid ticks based on Pennsylvania coordinate system, south zone
1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue
1927 North American Datum (NAD 27)

North American Datum of 1983 (NAD 83) is shown by dashed corner ticks. The values of the shift between NAD 27 and NAD 83 for 7.5-minute intersections are given in USGS Bulletin 1875

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

Revisions compiled in cooperation with Commonwealth of Pennsylvania agencies from aerial photographs taken 1988 and other sources. Contours not revised. This information not field checked
Map edited 1993

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

UTM GRID AND 1993 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225 OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

ROAD CLASSIFICATION

Primary highway, hard surface — Light-duty road, hard or improved surface
Secondary highway, hard surface — Unimproved road
Interstate Route — U. S. Route — State Route
County Route

AVONMORE, PA.
40079-E4-TF-024

1964
REVISED 1993
DMA 5145 III SW - SERIES V851

AVONMORE QUADRANGLE

The corners of three counties come together in this quadrangle map. The southeastern and southwestern corners of both Armstrong and Indiana Counties, respectively, occupy the majority of this quadrangle. The northeastern corner of Westmoreland County is represented, as well. The most prominent natural feature represented on the map is the Kiskiminetas River which forms a political boundary between the three counties. The Avonmore quadrangle includes one Natural Heritage Area and no managed lands.

Avonmore Floodplain BDA

Situated just upstream and around a large bend in the Kiskiminetas River from the town of Avonmore lies a large, relatively intact floodplain. This extensive forested area forms part of the western shoreline of the river and contains a series of wetland complexes, one of which is situated on a bench above the alluvial plain adjacent to the river. Many of the wetlands have formed along channels that run parallel before draining into the river. The complex of small wetlands range from Circumneutral Shrub Swamps to Graminoid Marshes (**NC003**) create openings in the forest canopy. Ground water, to some large degree, supports wetland and seepage communities. Shrubs that dominate the swampy areas include silky dogwood (*Cornus amomum*), buttonbush (*Cephalanthus occidentalis*), willow (*Salix* sp.) and arrow-wood (*Viburnum recognitum*). The graminoid (grass or grass-like) dominated wetlands are generally large patches of reed canary-grass (*Phalaris arundinacea*) although some are more diverse with sedges (*Carex* spp.), rushes (*Juncus* spp.) and other graminoid species dominating. A large powerline R.O.W. crosses the river and forms the southern boundary of the site. Aside from the wetlands, the site is largely forested with a recovering Mesic Central forest community dominated by a mix of maturing sugar maple (*Acer saccharum*), black cherry (*Prunus serotina*), red maple (*Acer rubrum*) and tulip poplar (*Liriodendron tulipifera)*. Alkaline soils on the east facing slope above the floodplain support a rich understory of bladdernut (*Staphylea trifolia*), pawpaw (*Asimina triloba*), and redbud (*Celtis occidentalis*). This BDA represents one of the largest bottomland forests and relatively intact riparian areas in Westmoreland County.

Threats and Stresses

As for the threats identified for the Avonmore Floodplain BDA and other forested floodplain areas in the county, these communities require an unaltered source of high quality water, as well as contiguous forested habitat. Changes in surface flow or ground water, direct disturbance to the wetland habitat or soils at the site, changes in light levels and introduction of herbicides or pesticides would negatively impact the communities in this BDA.

Recommendations

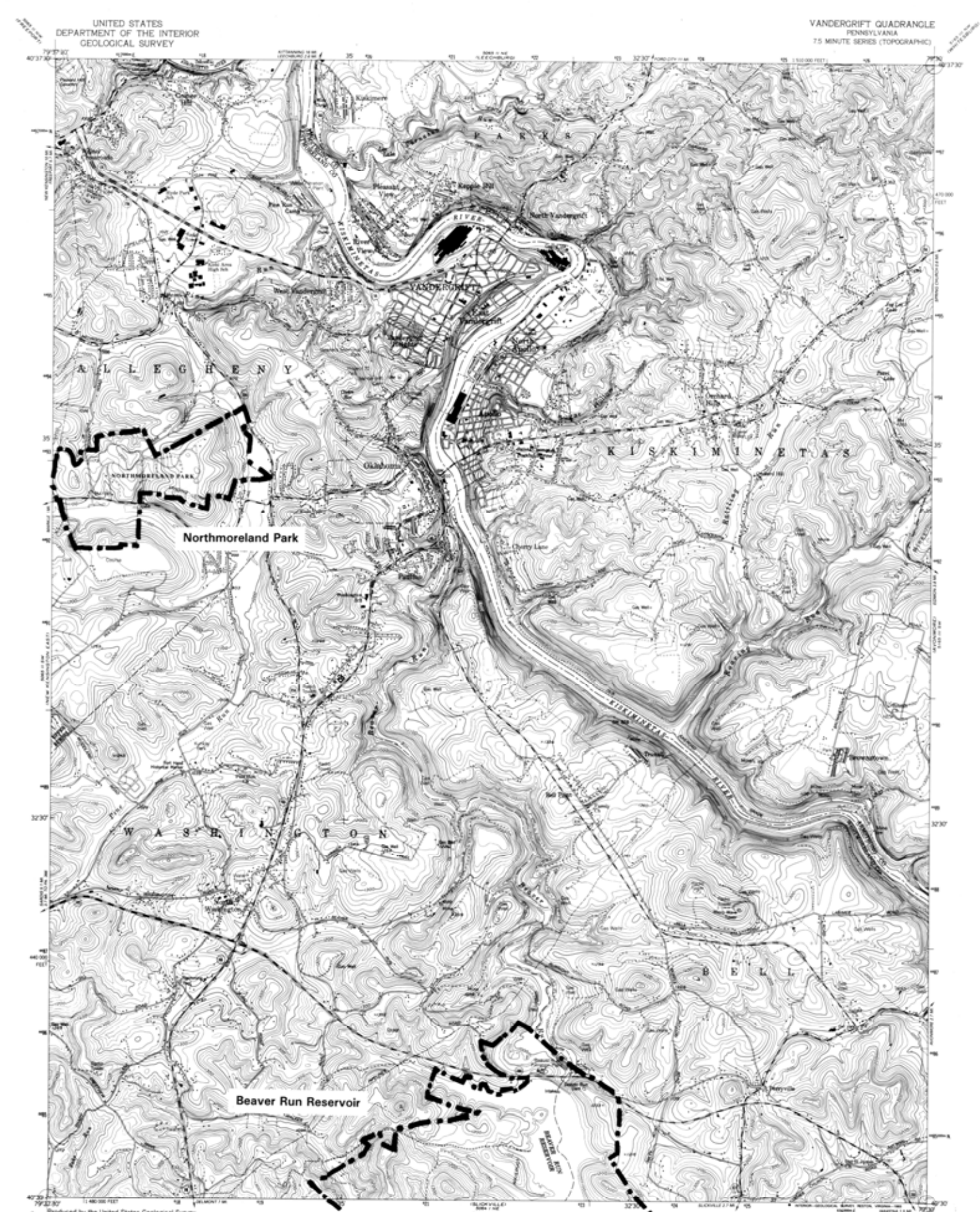
This site represents one of the highest quality sections of river floodplain in the county. Preventing loss of integrity through fragmentation and disruption of hydrology is an important consideration in its care and management. Monitoring of the non-native invasive species present on the site would provide a record and initiate removal action if those, or any new species, spread. Opportunities to work with the land owner and learn more about the site would be important in beginning conservation efforts for this BDA. Additionally, working with the utility company responsible for the management of the R.O.W. on the southern end of the site might help to ensure better protection for the wetlands from herbicides used on the R.O.W.

VANDERGRIFT QUADRANGLE

	PNDI Rank		Legal Status	
	Global	State	Fed.	State

NATURAL HERITAGE AREAS: None

MANAGED LANDS: Beaver Run Reservoir
Northmoreland Park


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
VANDERGRIFT QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
Northmoreland Park
Beaver Run Reservoir
A L L E G H E N Y
K I S K I M I N E T A S
W A S H I N G T O N
B E L L
PARKS
VANDERGRIFT
KISKIMINETAS RIVER
NORTHMORELAND PARK
BEAVER RUN RESERVOIR
Produced by the United States Geological Survey
in cooperation with Commonwealth of Pennsylvania agencies
SCALE 1:24000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
ROAD CLASSIFICATION
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
QUADRANGLE LOCATION
VANDERGRIFT, PA.
40079-E5-TF-024
1993

VANDERGRIFT QUADRANGLE

The Kiskiminetas River is a prominent feature on this quadrangle. It runs northwest to southeast across the center of the quadrangle and forms the boundary between northeastern Westmoreland County and southwestern Armstrong County. Vandergrift, Apollo, North Apollo and other associated residential areas line the river forming large cultural features in an otherwise rural/forested landscape. Large tributary streams to the Kiskiminetas create corridors of forest amongst uplands that are cleared for agriculture and residential development. The most prominent of these tributaries is Beaver Run in Westmoreland County. The Beaver Run Reservoir is one of two managed lands located on this quadrangle. There are no Natural Heritage Areas identified.

Beaver Run Reservoir

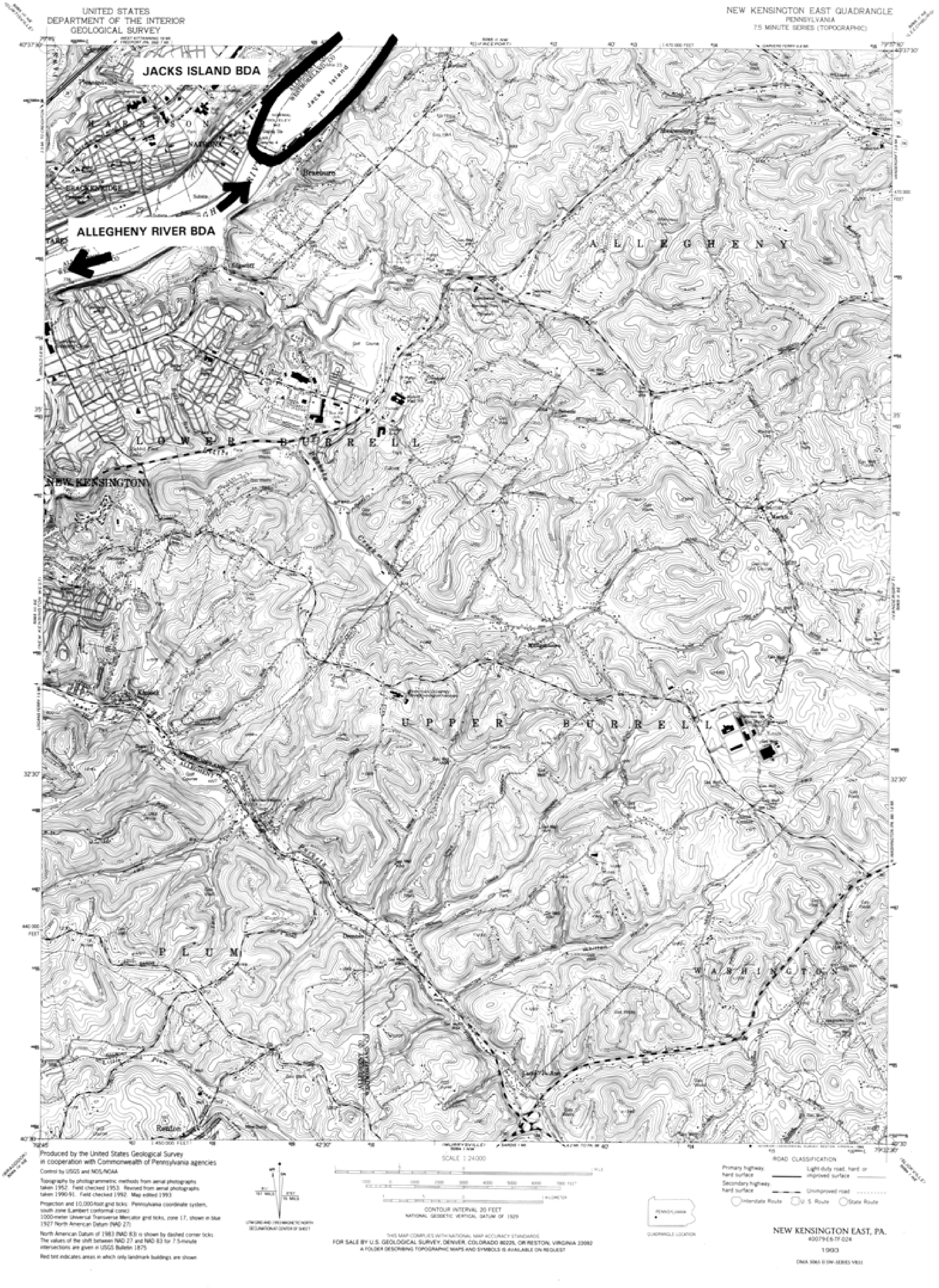
Owned and managed by the Municipal Authority of Westmoreland County, the Beaver Run Reservoir is a 1250-acre public drinking supply lake formed by the damming of Beaver Run. These managed lands total approximately 4,000-acres that extend from the Route 286 west of Perryville to just north of Delmont. Forested slopes and reverting fields characterize the undeveloped land surrounding the reservoir and serve to protect some biodiversity in a part of the county that is experiencing growth and development pressure. Unconfirmed reports of an animal species of special concern suggest that these managed lands may have significance as a future Natural Heritage Area if further study reveals actual habitation. Public access is restricted as a means of protecting the drinking water supply.

Northmoreland Park

Northmoreland Park is one of Westmoreland County's parks owned and managed by the Westmoreland County Bureau of Parks and Recreation. This 540-acre park has been developed for the recreational enjoyment of the county's citizens. Aside from open areas that are available for picnicking, the north facing and east facing slopes in both the southern and eastern sections of the park, respectively are forested and largely managed as hiking areas and places for nature study. No development is planned for these parts of the park and the intention of the management is to leave these areas in a natural state and maintain hiking and equestrian trails for easy access.

NEW KENSINGTON EAST QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
ALLEGHENY RIVER BDA	*High Significance*				
SPECIAL ANIMAL:	SA019a	G5	S2S3	N	PC
SPECIAL ANIMAL:	SA019b	G4	S1	N	PC
SPECIAL ANIMAL:	SA014	G5	S2	N	PC
JACKS ISLAND BDA	*County Significance*				
MANAGED LANDS:	None				


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
NEW KENSINGTON EAST QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
JACKS ISLAND BDA
ALLEGHENY RIVER BDA
Jacks Island
Braeburn
ALLEGHENY
LOWER BURRELL
NEW KENSINGTON
UPPER BURRELL
PLUM
WASHINGTON
Golf Course
35'
32'30"
Produced by the United States Geological Survey
in cooperation with Commonwealth of Pennsylvania agencies
Control by USGS and NOS/NOAA
Topography by photogrammetric methods from aerial photographs taken 1952. Field checked 1953. Revised from aerial photographs taken 1990-91. Field checked 1992. Map edited 1993
Projection and 10,000-foot grid ticks: Pennsylvania coordinate system, south zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue
1927 North American Datum (NAD 27)
North American Datum of 1983 (NAD 83) is shown by dashed corner ticks
The values of the shift between NAD 27 and NAD 83 for 7.5-minute intersections are given in USGS Bulletin 1875
Red tint indicates areas in which only landmark buildings are shown
SCALE 1:24 000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
ROAD CLASSIFICATION
Primary highway, hard surface
Light-duty road, hard or improved surface
Secondary highway, hard surface
Unimproved road
Interstate Route
U.S. Route
State Route
PENNSYLVANIA
QUADRANGLE LOCATION
NEW KENSINGTON EAST, PA.
40079-E6-TF-024
1993

NEW KENSINGTON EAST

The majority of this quadrangle is occupied by the western portion of Westmoreland County. The most prominent natural feature is the Allegheny River which forms the boundary between Allegheny and Westmoreland county, followed by Pucketa Creek, a tributary to the Allegheny which forms a second border between the counties. This quadrangle is largely forested with high relief as a result of the numerous tributary streams that cut deep into the land as the make their way to the river. These tributary stream valleys have remained largely forested however, nearly all of the small sections of upland found in between have been cleared for agriculture and/or development. New Kensington occupies the westernmost corner of Westmoreland County along the Allegheny River and numerous other river towns line the Allegheny's banks in the neighboring county. Two Natural Heritage Areas extend onto this quadrangle. There are no managed lands identified.

Allegheny River BDA

This Natural Heritage Area is discussed as part of the Freeport quadrangle.

Jacks Island BDA

This Natural Heritage Area is discussed as part of the Freeport quadrangle.

NEW KENSINGTON WEST QUADRANGLE

	PNDI Rank		Legal Status	
	Global	State	Fed.	State

NATURAL HERITAGE AREAS:

ALLEGHENY RIVER BDA *High Significance*

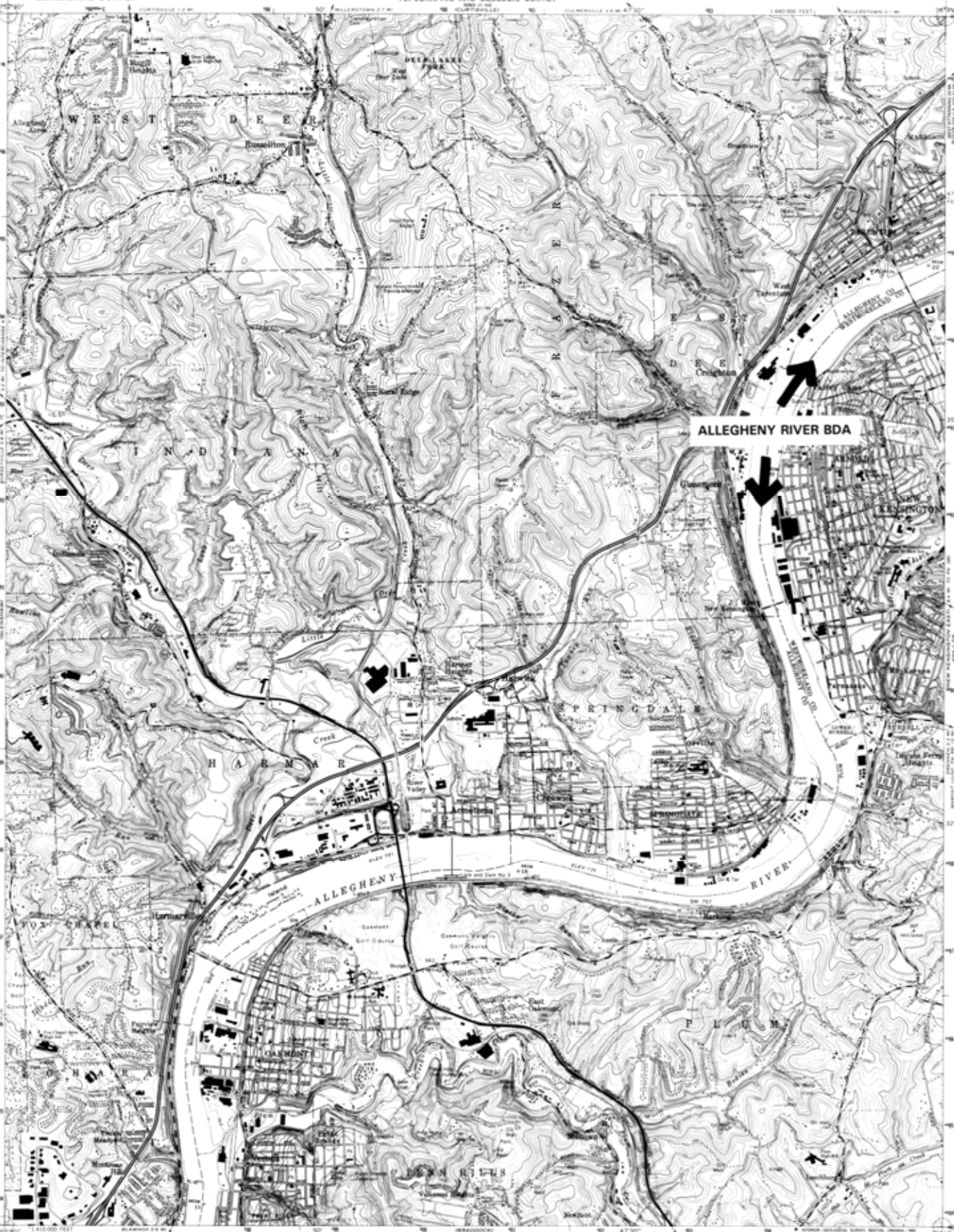
SPECIAL ANIMAL:	SA019a	G5	S2S3	N	PC
SPECIAL ANIMAL:	SA019b	G4	S1	N	PC
SPECIAL ANIMAL:	SA014	G5	S2	N	PC

MANAGED LANDS: None

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY

NEW KENSINGTON WEST QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)



Produced by the United States Geological Survey
Control by USGS, NOS/NOAA and USCE
Topography by photogrammetric methods from aerial photographs taken 1952. Field checked 1953. Revised from aerial photographs taken 1990. Field checked 1992. Map edited 1993
Projection and 10,000-foot grid ticks: Pennsylvania coordinate system, south zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue
1927 North American Datum (NAD 27)
North American Datum of 1983 (NAD 83) is shown by dashed corner ticks. The values of the shift between NAD 27 and NAD 83 for 7.5-minute intersections are given in USGS Bulletin 1875
There may be private inholdings within the boundaries of the National or State reservations shown on this map
Red tint indicates areas in which only landmark buildings are shown
Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ROAD CLASSIFICATION
Primary highway, hard surface — Light-duty road, hard or improved surface
Secondary highway, hard surface — Unimproved road
Interstate Route · U. S. Route · State Route

NEW KENSINGTON WEST, PA.
40079-E7-TF-024
1993
DMA 5063 III SE-SERIES V831

NEW KENSINGTON WEST

That section of the Allegheny River from Tarentum to Verona in Allegheny County is covered by this quadrangle map. Only the very western extension of Westmoreland County bounded to the west by the river is covered. With the exception of the river itself, little in the way of natural landscape remains in the part of the county. One Natural Heritage Area extends onto this quadrangle. No managed lands are identified.

Allegheny River BDA

This Natural Heritage Area is discussed as part of the Freeport quadrangle.

BRADDOCK QUADRANGLE

	PNDI Rank		Legal Status	
	Global	State	Fed.	State

NATURAL HERITAGE AREAS: None

MANAGED LANDS: None

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF PENNSYLVANIA
DEPARTMENT OF INTERNAL AFFAIRS
TOPOGRAPHIC AND GEOLOGIC SURVEY

BRADDOCK QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)

Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and the City of Pittsburgh

Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1952. Revised by photogrammetric methods from aerial photographs taken 1959. Field check 1960

Polyconic projection. 1927 North American datum
10,000-foot grid based on Pennsylvania coordinate system, south zone
1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue

To place on the predicted North American Datum 1983 move the projection lines 6 meters south and 18 meters west as shown by dashed corner ticks

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

Red tint indicates areas in which only landmark buildings are shown

UTM GRID AND 1979 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 MILE
1 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

PENNSYLVANIA
QUADRANGLE LOCATION

Revisions shown in purple compiled in cooperation with State of Pennsylvania agencies from aerial photographs taken 1977 and other source data. This information not field checked. Map edited 1979

Purple tint indicates extension of urban areas

ROAD CLASSIFICATION

Heavy-duty	Light-duty	
Medium-duty	Unimproved dirt	
Interstate Route	U. S. Route	State Route

BRADDOCK, PA.

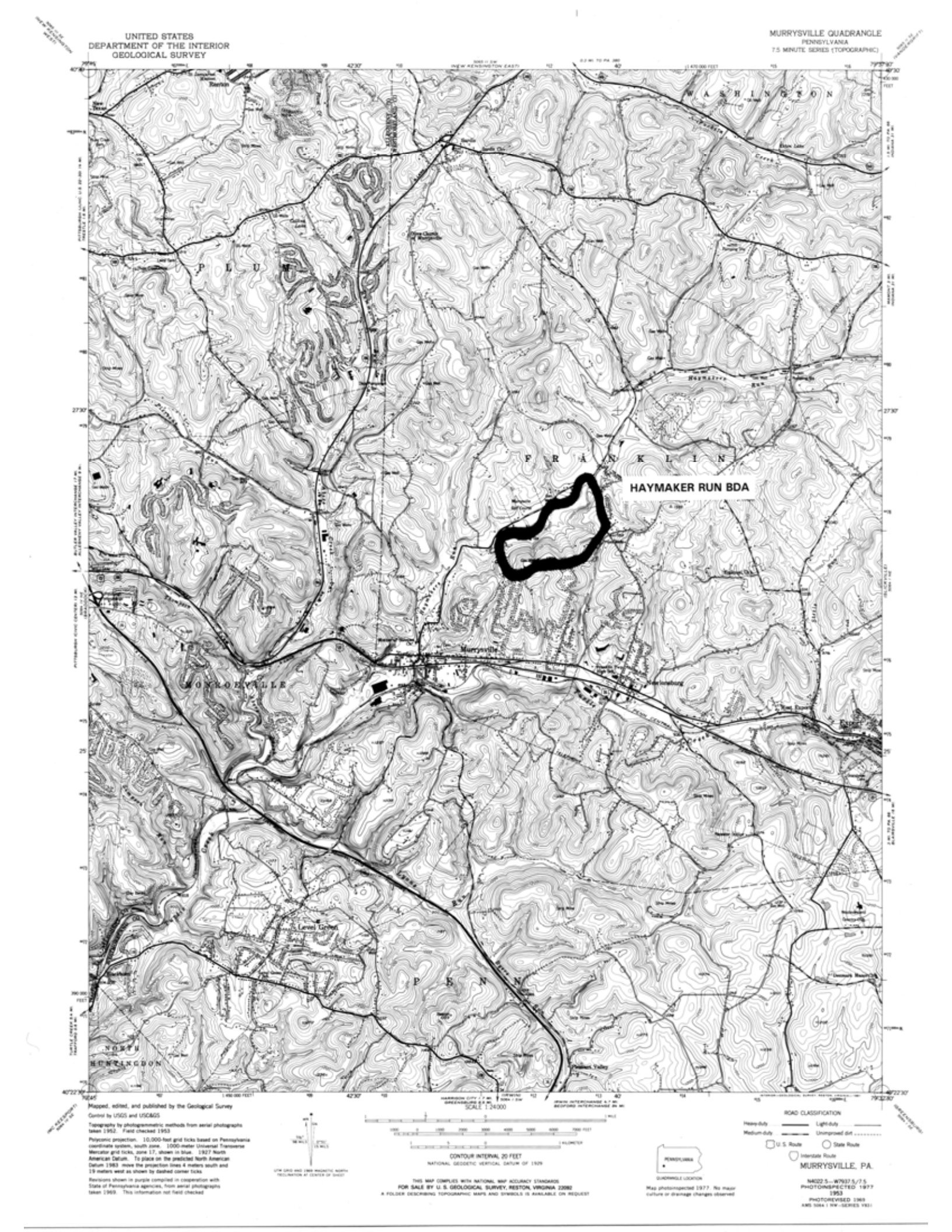
N4022.5—W7945/7.5

1960
PHOTOREVISED 1979
AMS 5064 IV NE–SERIES V851

This quadrangle encompasses the City of Pittsburgh's eastern suburbs. Little in the way of natural forested landscape remains except on some of the steep, undevelopable slopes along tributaries to the Allegheny and Monongahela Rivers. The borough of Trafford in the southeast corner along Brush Creek represents that small portion of Westmoreland County included on this quadrangle. Brush Creek forms a boundary between western Westmoreland and eastern Allegheny Counties. There are no Natural Heritage Areas or managed lands identified in this quadrangle.

MURRYSVILLE QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
HAYMAKER RUN BDA	*High Significance*				
SPECIAL PLANT:	SP005	G4	S3	N	PR
MANAGED LANDS:	None				


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
MURRYSVILLE QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
HAYMAKER RUN BDA
PLUM
WASHINGTON
FRANKLIN
MONROEVILLE
PENN
NORTH HUNTINGDON
Murrysville
Level Green
Pleasant Valley
Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS
Topography by photogrammetric methods from aerial photographs taken 1952. Field checked 1953
Polyconic projection. 10,000-foot grid ticks based on Pennsylvania coordinate system, south zone. 1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue. 1927 North American Datum. To place on the predicted North American Datum 1983 move the projection lines 4 meters south and 19 meters west as shown by dashed corner ticks.
Revisions shown in purple compiled in cooperation with State of Pennsylvania agencies, from aerial photographs taken 1969. This information not field checked
SCALE 1:24000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
ROAD CLASSIFICATION
Heavy-duty
Light-duty
Medium-duty
Unimproved dirt
U.S. Route
State Route
Interstate Route
MURRYSVILLE, PA.
N4022.5—W7937.5/7.5
PHOTOINSPECTED 1977
1953
PHOTOREVISED 1969
AMS 5064 I NW—SERIES V831
Map photoinspected 1977. No major culture or drainage changes observed

MURRYSVILLE QUADRANGLE

Westmoreland County occupies the majority of this quadrangle. A section of eastern Allegheny County falls within the western half of the map and is bounded, in part, by Turtle Creek. The Turtle Creek watershed is a prominent feature with the main stem of the stream creating a green corridor in an otherwise highly fragmented landscape. Forested areas are limited to small patches along steep slopes of streams and their tributaries, some of the more noted of which include Abers Creek, Haymaker Run and Pucketa Creek. A large percentage of the uplands and broad, flat bottomlands have been converted to residential development. This quadrangle contains one Natural Heritage Area and no managed lands.

Haymaker Run BDA

Situated on one of the remaining forested slopes along the south side of Haymaker Run is a maturing Mesic Central Forest community that harbors a healthy population of a plant species of special concern (**SP005**). The Haymaker Run BDA is an excellent example of how much of this part of Westmoreland County would appear today without having experienced another round of timbering in the mid 1900's and the clearing of land. Nestled between a golf course on the north side of Haymaker Run and a housing development on the uplands bordering the slope to the south, large white oaks (*Quercus alba*) interspersed with mature sugar maple (*Acer saccharum*), black cherry (*Prunus serotina*) and red oak (*Quercus rubra*) form a mature forest canopy. Saplings and seedlings of these species, as well as spicebush (*Lindera benzoin*) and several patches of Japanese barberry (*Berberis thunbergii*) form the subcanopy or shrub layer which overlays a diverse herbaceous layer. Prevernal flora present at the site include trout-lily (*Erythronium* sp.), spring-beauty (*Claytonia virginica*), violet (*Viola* sp.) and SP005 which occurs over much of the lower slopes of the site and along the banks of the central tributary of the site.

Threats and Stresses

SP005 requires stabile, undisturbed substrate and regulation of the its microenvironment by the overstory. Dramatic changes in light levels, hydrology, or in competition by other plants species would likely adversely impact the population of SP005. No such changes in the immediate habitat appear imminent however, changes related to logging and clearing in some of the areas within the BDA that provide buffer for the plants may prove substantial to the population.

Recommendations

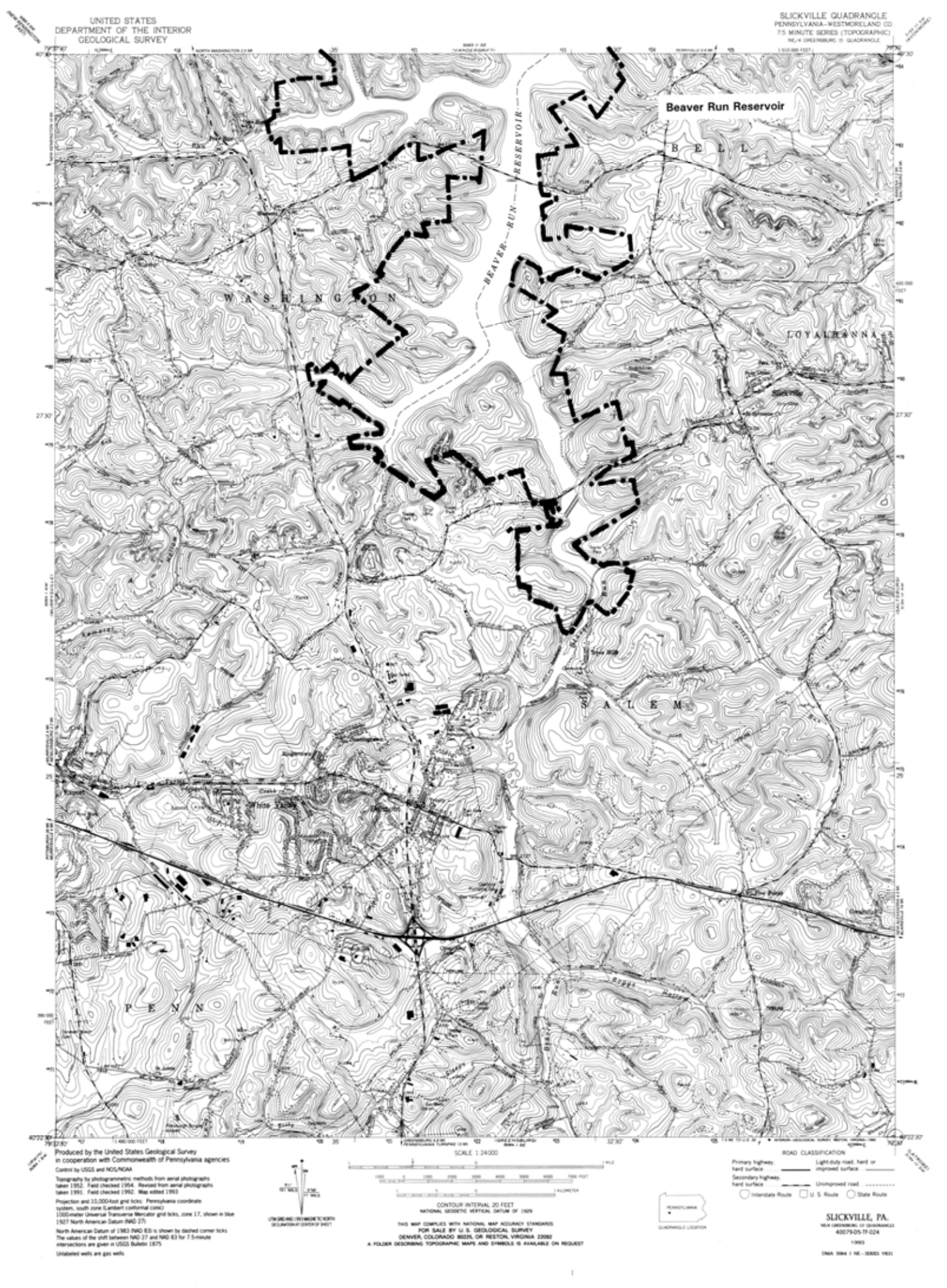
An important first step in protecting SP005 would be to make the owners aware of the importance of the site. If desired, more detailed management recommendations could be provided that would serve to assure better protection for this important site. Establishing secure upland buffers would be an important element in any management plan.

SLICKVILLE QUADRANGLE

	PNDI Rank		Legal Status	
	Global	State	Fed.	State

NATURAL HERITAGE AREAS: None

MANAGED LANDS: Beaver Run Reservoir


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
SLICKVILLE QUADRANGLE
PENNSYLVANIA-WESTMORELAND CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
NE/4 GREENSBURG 15 QUADRANGLE
Beaver Run Reservoir
BEAVER RUN RESERVOIR
B E L L
W A S H I N G T O N
L O Y A L H A N N A
S A L E M
P E N N
Produced by the United States Geological Survey
in cooperation with Commonwealth of Pennsylvania agencies
Control by USGS and NOS/NOAA
Topography by photogrammetric methods from aerial photographs
taken 1952. Field checked 1954. Revised from aerial photographs
taken 1991. Field checked 1992. Map edited 1993
Projection and 10,000-foot grid ticks: Pennsylvania coordinate
system, south zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue
1927 North American Datum (NAD 27)
North American Datum of 1983 (NAD 83) is shown by dashed corner ticks
The values of the shift between NAD 27 and NAD 83 for 7.5-minute
intersections are given in USGS Bulletin 1875
Unlabeled wells are gas wells
SCALE 1:24000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
ROAD CLASSIFICATION
Primary highway, hard surface
Light-duty road, hard or improved surface
Secondary highway, hard surface
Unimproved road
Interstate Route
U. S. Route
State Route
SLICKVILLE, PA.
40079-05-TF-024
1993

SLICKVILLE QUADRANGLE

The landscape of northwestern Westmoreland County covered by this quadrangle can best be described as forested with scattered patches of agricultural land and expanding residential development along major roadways in the Delmont area. Many secondary roads fragment this landscape, as do utility R.O.W's which are concentrated in the vicinity of Delmont in the southern part of the map. The most prominent feature in this part of the county is the Beaver Run Reservoir. This is the only managed lands recognized on this quadrangle. There are no Natural Heritage Areas identified

Beaver Run Reservoir

These managed lands are discussed as part of the Vandergrift quadrangle.

SALTSBURG QUADRANGLE

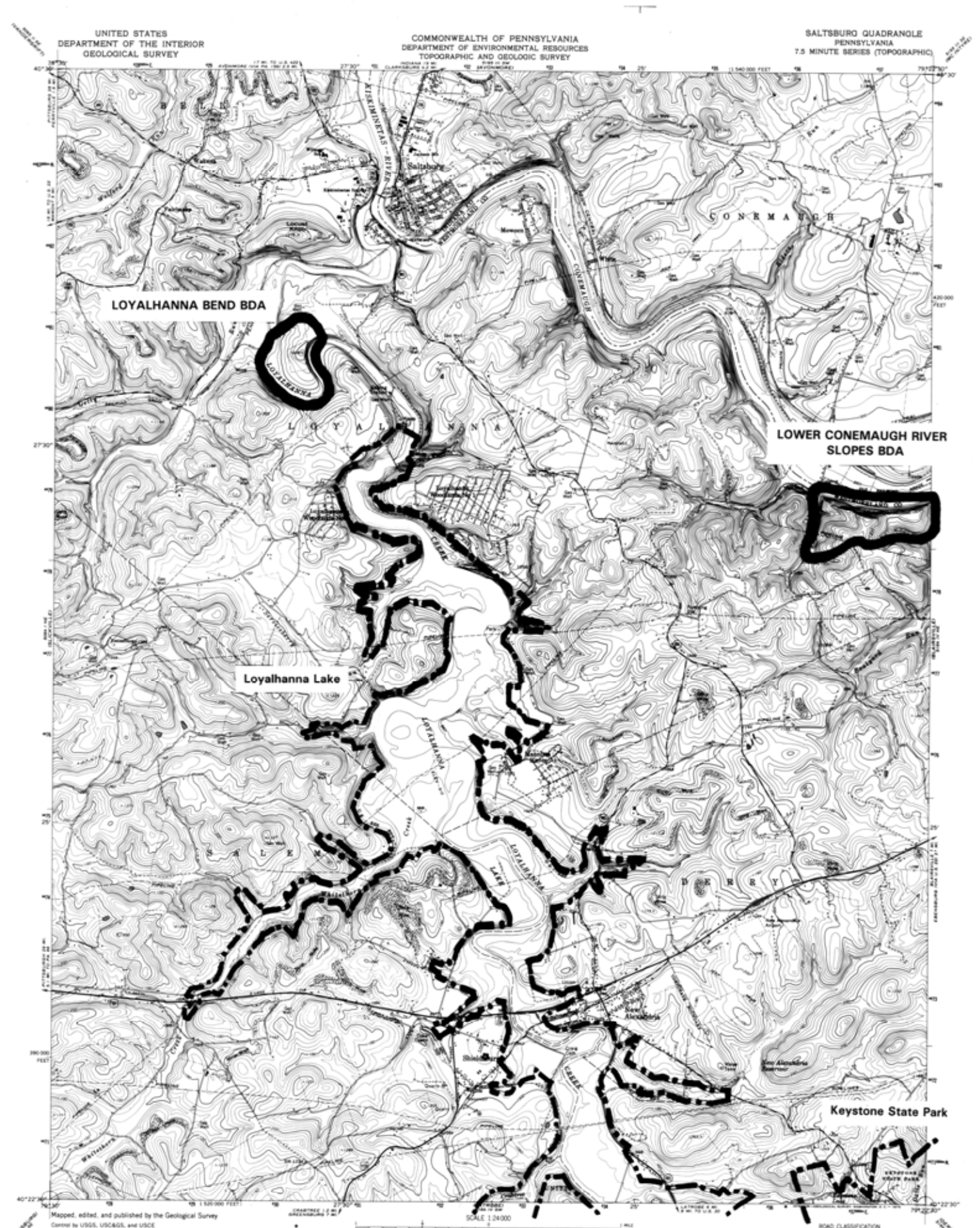
	PNDI Rank		Legal Status	
	Global	State	Fed.	State

NATURAL HERITAGE AREAS:

LOYALHANNA BEND BDA *County Significance*

LOWER CONEMAUGH RIVER SLOPES BDA *County Significance*

MANAGED LANDS: Keystone State Park
Loyalhanna Lake


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY
SALTSBURG QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
LOYALHANNA BEND BDA
LOWER CONEMAUGH RIVER SLOPES BDA
Loyalhanna Lake
Keystone State Park
Saltsburg
Mapped, edited, and published by the Geological Survey
Control by USGS, USC&GS, and USCE
Topography by photogrammetric methods from aerial photographs taken 1962. Field checked 1964
Polyconic projection. 1927 North American datum
10,000-foot grid based on Pennsylvania coordinate system, south zone
1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue
Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked
U. S. Reservation boundary from maps by U. S. Corps of Engineers
Area covered by dashed light-blue pattern is subject to controlled inundation
SCALE 1:24000
CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL
ROAD CLASSIFICATION
Heavy-duty
Medium-duty
Light-duty
Unimproved dirt
U. S. Route
State Route
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
Revisions shown in purple compiled in cooperation with State of Pennsylvania agencies from aerial photographs taken 1973. This information not field checked
SALTSBURG, PA.
N4022.5—W7922.5/7.5
1964
PHOTOREVISED 1973
AMS 5164 IV NW—SERIES V851

SALTSBURG QUADRANGLE

Two prominent features on the landscape covered by this quadrangle are the Conemaugh River and Loyalhanna Creek, the latter of which has been dammed as part of an Army Corp of Engineers project to form the Loyalhanna Lake. Both of these rivers flow in a northerly direction through a largely rural/agricultural landscape and come together at the town of Saltsburg where they form the Kiskiminetas River in the northern part of this quadrangle. Some small scale strip mining activity is evident throughout this area. There are two Natural Heritage Areas and two managed lands identified for the Saltsburg quadrangle.

Loyalhanna Bend BDA

This site is situated on a peninsula formed in a sharp bend on Loyalhanna Creek about one half of a mile upstream of where Getty Run enters the river. This section of the river corridor is characterized by steep, cut slopes on the outside of the river's bend and more gentle slopes and floodplains on the inside of the river's bend. A maturing Mesic Central Forest Community covers these slopes and floodplains adjacent to the river. A notable wetland community is located on the floodplain on the eastern shore of the river in an old channel scar. This Floodplain Swamp Community is relatively small in size and is characterized by scattered black ash (*Fraxinus nigra*) and swamp white oak (*Quercus bicolor*) in the canopy and patches of shrubs which include silky dogwood (*Cornus ammomum*), arrowwood (*Viburnum recognitum*) and spicebush (*Lindera benzoin*). Dense patches of cinnamon fern (*Osmunda cinnamomea*) and scattered grasses and sedges (*Carex* spp.) form on hummocks in the wetland. Very few of these Floodplain Swamp communities were observed in Westmoreland County during this study.

Threats and Stresses

Sections of this floodplain were at one time logged and are now maturing forest where not too wet to support trees and shrubs. A gas well and an access road border the site to the north. Water collecting in the wetland on the BDA comes, in part, from the slopes on this east side. The significance of this area rests within its undeveloped character and recovering natural communities. As a floodplain, natural flood cycles and unaltered hydrology are important requirements for maintaining the health of the natural community. Also, fragmentation of the area by removing the canopy, constructing roads, structures, or utilities would have negative consequences for the site.

Recommendations

Working with the landowner to identify goals for the protection of the area would be a natural first step. Limiting fragmentation as described above and maintaining the natural hydrology on the site by avoiding or correcting channelized drainage would be important in setting the stage

for recovery. Also allowing the forested areas to mature would help to better buffer the wetland community from any activities upslope that may impact the hydrology on the floodplain. A more complete inventory of species at the site could be conducted to further evaluate the quality of the natural forest communities that the area presents.

Lower Conemaugh River Slopes BDA

The section of north facing slope along the southern shore of the Conemaugh River near Tunnelton appears as a series of benches and large rock outcrops below forested uplands. The slope continues down to the river where it turns into a narrow riparian corridor. This site is recognized for the rich and diverse vegetation, as well as the undisturbed nature of the forest. Basswood (*Tilia americana*) and sugar maple (*Acer saccharum*) dominate these forested slopes with a sparse shrub layer of wild hydrangea (*Hydrangea arborescens*), elderberry (*Sambucus* sp.), pawpaw (*Asimina triloba*) and bladdernut (*Staphylea trifolia*). A dense growth of herbaceous species cover the moist, humic soils that overlay thin shale and limestone. These species growing below the outcrops include sharp-lobed hepatica (*Hepatica acutiloba*), black snakeroot (*Cimicifuga racemosa*), mayapple (*Podophyllum peltatum*) and wild ginger (*Asarum canadensis*). Those growing directly on the outcrops include maidenhair spleenwort (Asplenium trichomanes), wild columbine (*Aquilegia canadensis*), purple cliff-brake (*Pellaea atropurpurea*) and walking fern (*Asplenium rhizophyllum*). The general character of the slope suggests little disturbance as is evidenced by maturing trees and erodable soils held together by dense ground cover. This condition persists to just west of Boatyard Run where clearing of the lower slopes and some timbering on the middle and upper slope has created an open, eroding, weedy slope.

Threats and Stresses

Logging has occurred to a great extent in areas surrounding this north facing slope. Removal of the canopy in this way and the related disturbance to the highly erodable soils has threatened to impact this forest community by fragmenting and eliminating forested buffer. Competition from non-native species often results from disturbance related to logging.

Recommendations

Working with the landowners to increase awareness of the site would be a good first step towards protection of the qualities at the site. Maintaining a forest canopy is critical to the survival of the rich herbaceous layer and to the stability of the soils on the slope. Restoration of forested areas in the buffer of the slope would aid in the recovery of these areas. Further survey of species at the site is necessary to gain an even better understanding of the significance of this BDA.

Keystone State Park

These managed lands are discussed as part of the Latrobe quadrangle.

Loyalhanna Lake

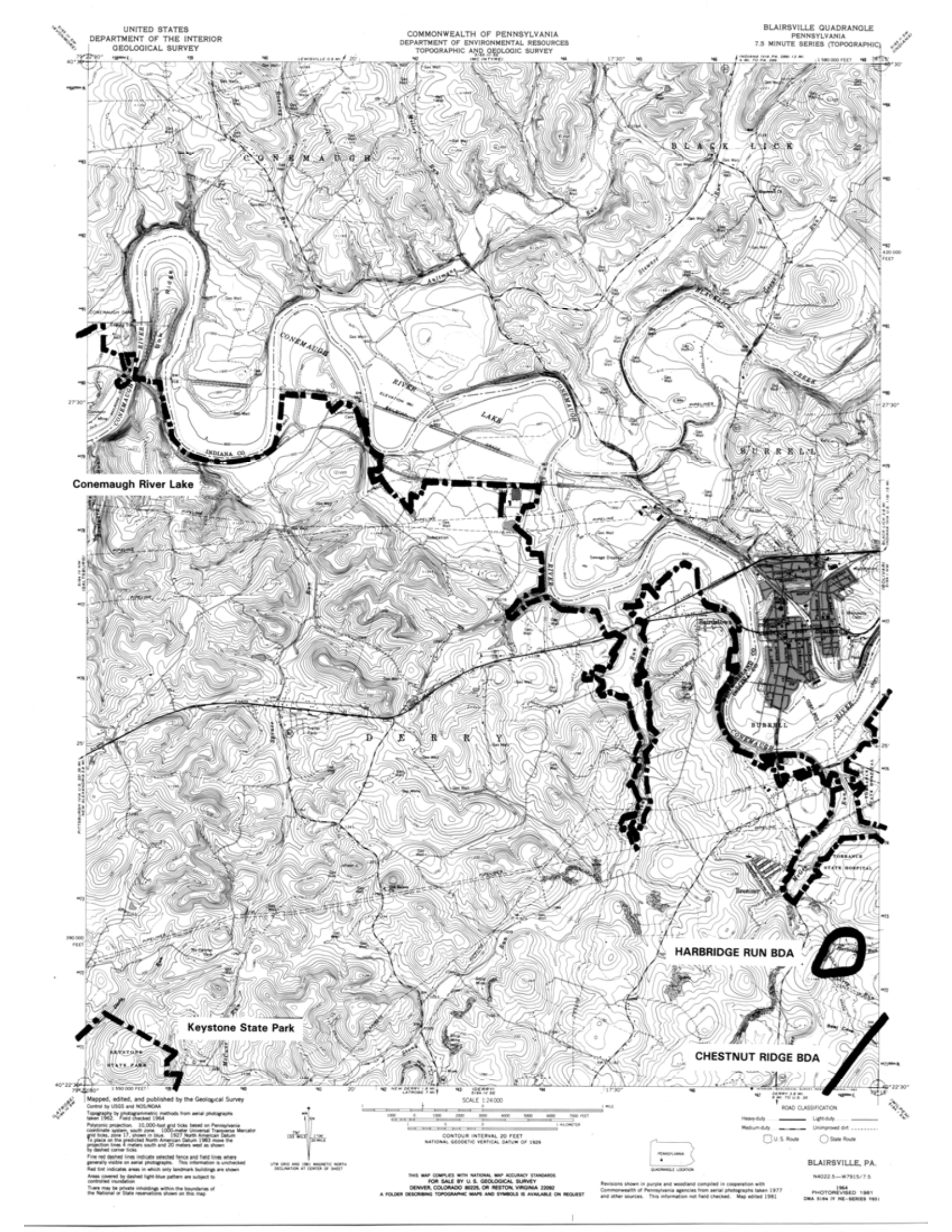
The Loyalhanna Creek flows from its headwaters on Laurel Ridge to Saltsburg where it meets the Conemaugh River to form the Kiskiminetas River. A few miles upstream of this confluence the stream is dammed to form the Loyalhanna Lake, a flood control project of the Army Corp of Engineers. In total, this project area encompasses 3,722 acres 3, 280 of which are considered lake at maximum pool. The Army Corp of Engineers manages this lake and the surrounding lands mainly for fishing and boating recreation and for hunting with the assistance of the Pennsylvania Game Commission who leases 2,115 acres of the project lands for wildlife management purposes and public hunting.

BLAIRSVILLE QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
HARBRIDGE RUN BDA	*Notable Significance*				
SPECIAL PLANT:	SP002	G4	S2	N	PE
CHESTNUT RIDGE BDA	*Exceptional Significance*				
NATURAL COMMUNITY:	NC001.1	G?	S3	N	N
NATURAL COMMUNITY:	NC004.1	G?	S3	N	N
NATURAL COMMUNITY:	NC005.2	G?	S3	N	N
NATURAL COMMUNITY:	NC006.2	G?	S3	N	N
NATURAL COMMUNITY:	NC007.2	G?	S3	N	N
SPECIAL ANIMAL:	SA001.1	G4	S2S3	N	CR
SPECIAL ANIMAL:	SA004.1	G4	S2S3	N	CR
SPECIAL ANIMAL:	SA005.2	G3	S1	N	PT
SPECIAL ANIMAL:	SA002.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA007.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA008.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA009.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA010.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA011.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA012.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA013.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA014.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA015.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA016.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA017.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA018.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA019.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA020.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA002.2	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA006.2	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA008.2	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA012.2	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA014.2	G3G4	S3	N	PT

SPECIAL ANIMAL:	SA015.2	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA002.3	G3G4	S3	N	PT
SPECIAL PLANT:	SP022	G4	S2	N	PE
SPECIAL PLANT:	SP023	G5	S2	N	PE

MANAGED LANDS: Keystone State Park
Conemaugh River Lake


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY
BLAIRSVILLE QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
CONEMAUGH
BLACK LICK
DERRY
BURRELL
INDIANA CO.
Conemaugh River Lake
Keystone State Park
HARBRIDGE RUN BDA
CHESTNUT RIDGE BDA
Mapped, edited, and published by the Geological Survey
SCALE 1:24 000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
ROAD CLASSIFICATION
BLAIRSVILLE, PA.
N4022.5—W7915/7.5
1964
PHOTOREVISED 1981

BLAIRSVILLE QUADRANGLE

This quadrangle covers part of the boundary between Westmoreland and Indiana County to the west of Blairsville. The Conemaugh River, serving as Westmoreland County's northern boundary with Indiana County, is dammed in this area to form the Conemaugh River Lake. The landscape in this Blairsville area is agricultural with remnant patches of second growth forest. Evidence of small scale strip mining exists south of Blairsville. Two Natural Heritage Areas and two managed lands are identified on the Blairsville quadrangle.

Harbridge Run BDA

Harbridge Run BDA encompasses a patch of a young Mesic Central Forest Community of tulip poplar (*Liriodendron tulipifera*) and black cherry (*Prunus serotina*) with dense, weedy undergrowth dominated by multiflora rose (*Rosa multiflora*), poison ivy (*Toxicodendron radicans*) and Morrow's honeysuckle (*Lonicera morrowii*). In a small patch of remnant habitat, a Pennsylvania Endangered plant species (**SP002**) is documented growing in limited numbers. In this small area rich, alkaline soils provide conditions that are suitable for SP002 and the associated herbaceous species that include false Solomon's-seal (*Smilacina racemosa*) and golden-alexanders (*Zizia aptera*). This small patch of forest and habitat for SP002 along Harbridge Run is bordered to the west by a township road and to the north, south and east by cleared land and residential development.

Threats and Stresses

The plants at this site depend upon the shaded conditions, alkaline, intact soils, and little competition from non-native plant species. This site is small and the natural community that harbors SP002 is only a remnant patch that has been subject to a great deal of fragmentation and disturbance. Road construction activity related to the adjacent township road and bridge over Harbridge Run has resulted in filled in areas along the road and into the forest edge within about fifteen meters of where SP002 has been found. Exotic plant species such as multiflora rose, Morrow's honeysuckle and tree-of-heaven (Ailanthus altissima) have responded to this disturbance and are present at the site. Continued fragmentation of the site, changes in light levels, disturbance to soils and competition from non-native vegetation would be detrimental to SP002.

Recommendations

Working with the landowner and the state or township road crews responsible for road and bridge maintenance to understand the value of this site would be a first step towards the conservation of this plant population. Establishment of a buffer between the road and the floodplain that would be left undisturbed by road activities would be important. Continued monitoring and removal of aggressive exotic species at the site would create more favorable conditions for SP002. Further investigation of this site and surrounding riparian and forested areas could reveal other important qualities.

Chestnut Ridge BDA

This Natural Heritage Area is discussed as part of the Bolivar quadrangle.

Keystone State Park

These managed lands are discussed as part of the Latrobe quadrangle.

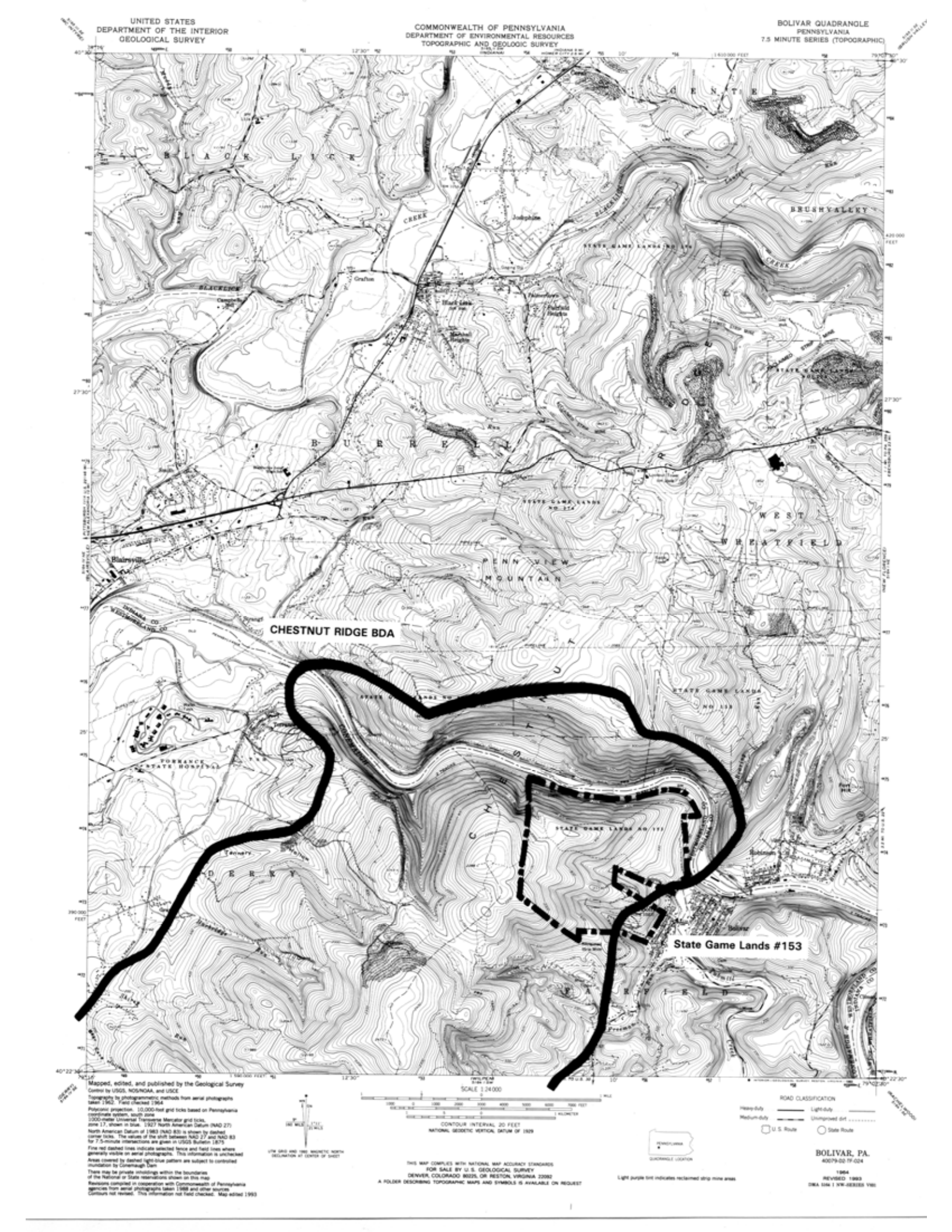
Conemaugh River Lake

This large lake and managed lands encompass not only this section of the Conemaugh River, but the lower reaches of Blacklick Creek and Aultmanns Run in Indiana County. Much of the area designated as lake on the quadrangle map is actually denoted as a potential 'high water' area and is not inundated presently. This is true for that section upstream of the confluence of the Conemaugh River and Blacklick Creek.

BOLIVAR QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
CHESTNUT RIDGE BDA	*Exceptional Significance*				
NATURAL COMMUNITY:	NC001.1	G?	S3	N	N
NATURAL COMMUNITY:	NC004.1	G?	S3	N	N
NATURAL COMMUNITY:	NC005.2	G?	S3	N	N
NATURAL COMMUNITY:	NC006.2	G?	S3	N	N
NATURAL COMMUNITY:	NC007.2	G?	S3	N	N
SPECIAL ANIMAL:	SA001.1	G4	S2S3	N	CR
SPECIAL ANIMAL:	SA004.1	G4	S2S3	N	CR
SPECIAL ANIMAL:	SA005.2	G3	S1	N	PT
SPECIAL ANIMAL:	SA002.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA007.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA008.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA009.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA010.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA011.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA012.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA013.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA014.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA015.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA016.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA017.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA018.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA019.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA020.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA002.2	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA006.2	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA008.2	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA012.2	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA014.2	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA015.2	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA002.3	G3G4	S3	N	PT
SPECIAL PLANT:	SP022	G4	S2	N	PE
SPECIAL PLANT:	SP023	G5	S2	N	PE

MANAGED LANDS: State Game Lands #153
Forbes State Forest (not mapped)



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY

BOLIVAR QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)

Mapped, edited, and published by the Geological Survey
Control by USGS, NOS/NOAA, and USCE
Topography by photogrammetric methods from aerial photographs taken 1962. Field checked 1964
Polyconic projection. 10,000-foot grid ticks based on Pennsylvania coordinate system, south zone
1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue. 1927 North American Datum (NAD 27)
North American Datum of 1983 (NAD 83) is shown by dashed corner ticks. The values of the shift between NAD 27 and NAD 83 for 7.5-minute intersections are given in USGS Bulletin 1675
Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked
Areas covered by dashed light-blue pattern are subject to controlled inundation by Conemaugh Dam
There may be private inholdings within the boundaries of the National or State reservations shown on this map
Revisions compiled in cooperation with Commonwealth of Pennsylvania agencies from aerial photographs taken 1988 and other sources
Contours not revised. This information not field checked. Map edited 1993

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

Light purple tint indicates reclaimed strip mine areas

ROAD CLASSIFICATION
Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
U.S. Route — State Route

BOLIVAR, PA.
40079-G2-TF-024
1964
REVISED: 1993
DMA 1094 I NW-SERIES V881

BOLIVAR QUADRANGLE

The Conemaugh River cuts through Chestnut Ridge forming the boundary between Westmoreland and Indiana Counties in the southern half of this quadrangle. The Conemaugh River Gorge is a prominent feature on this landscape. Situated at the eastern base of Chestnut Ridge are the towns of West Bolivar and Bolivar. The two small towns are bisected by Tubmill Creek, a southern tributary to the Conemaugh River. This quadrangle includes one Natural Heritage Area and two managed lands.

Chestnut Ridge BDA

The Chestnut Ridge BDA includes the northern section of Chestnut Ridge from and including the Conemaugh River Gorge to an area just east of Derry. This area includes that section of the mountain that is known to harbor a number of rare species, some of which are associated with a recognized subterranean natural community. Most of these species and habitats are found on the summit of the ridge and in the watersheds flowing off of the western flank of the ridge. The Chestnut Ridge BDA is largely under private ownership however, both the Pennsylvania Game Commission and the PA Bureau of Forestry own and manage some land within the site. State Game Lands #153 is situated in the northeast corner of the BDA along the Conemaugh River and encompasses close to 3,000 acres. A section of Forbes State Forest, the only section of the managed lands on Chestnut Ridge, is situated in the vicinity of the Shirey Run watershed. This section of the mountain is forested mostly with chestnut oak (*Quercus prinus*) and red oak (*Q. rubra*) dominating what would be considered a highly disturbed Dry-Mesic Acidic Central Forest on the ridgetop. Many of the oaks on the ridgetop and higher elevations are dead as a result of gypsy moth (*Lymantria dispar*) defoliation thus resulting in a dense shrub layer of blackberry briar (*Rubus allegheniensis*) and a dense ground cover of hay-scented fern (*Dennstaedtia punctilobula*). The oak forest is more intact on the upper slopes. Black birch (*Betula lenta*) appears to be succeeding the oak forest on the ridgetop and at lower elevations chestnut oak drops out and red maple (*Acer rubrum*), sweet gum (*Nyssa sylvatica*), and tulip poplar (*Liriodendron tulipifera*) become more common in the canopy. The middle slopes have an understory of mountain laurel (*Kalmia latifolia*), deerberry (*Vaccinium stamineum*) and blueberry (*Vaccinium pallidum*). Throughout the site significant outcrops of the Loyalhanna limestone geologic formation are present. Associated with this geology are many of the significant species and habitats within the Chestnut Ridge BDA. The Solution Cave Terrestrial Community (**NC001.1, NC004.1, NC005.2, NC006.2** and **NC007.2**) is found in a number of different localities within the site including the slopes of the Conemaugh River Gorge. The most concentrated number, and those which harbor a two species of special concern, are found in the Shirey Run, Bear Cave Hollow and Trout Run area. Known by names such as Bear Cave, Lemon Hole Cave, Con Cave and Rattlesnake Cave, some of these subterranean communities are intact, relatively undisturbed, and provide suitable habitat for two bat species of special concern (**SA001.1** and **SA004.1**; **SA005.2**), as well as significant hibernacula for overwintering bat colonies. A third animal species is found in high concentrations in this area, but is also found a various locations throughout the site

(**SA002.1, SA007.1 thru SA020.1, SA002.2, SA006.2, SA008.2, SA012.2**, **SA014.2, SA015.2** and **SA002.3**). Recognized as a Pennsylvania Threatened species, this animal inhabits the deep crevices between boulders throughout the site. On the top of the ridge and on the south part of the site, the outcrops provide habitat for a population of the Pennsylvania Endangered plant **SP022**. This area is has been highly altered due mainly to the loss of canopy trees and resulting take-over by blackberry briar (*Rubus allegheniensis*). To the south is yet another location for a plant species of special concern. **SP023** is a Pennsylvania Endangered species that resides in a small semi-forested wetland just below the ridgetop. Known occurrences of these plants are limited throughout the state and add an extra level of importance to the Chestnut Ridge BDA. Furthermore, several other plants of special concern have been found historically within the boundaries of this site.

Threats and Stresses

The natural communities and species of special concern within the Chestnut Ridge BDA depend upon the undisturbed geology of this site. In the case of the cave dwelling species, disturbance by human visitation or mechanical disturbance adjacent to the caves at critical times of the year (winter) could be detrimental to these populations. Continued loss of canopy, overcompetition by weedy native or non-native plants, direct disturbance to underground or above ground parts of plants, and changes in hydrology stand to further impact the two plant species of special concern at the site. Loss of canopy and/or direct manipulation of habitat stand as threats for the animal dwelling in rock outcrops, as well as the rare plants found at the site.

Recommendations

Opportunities to work with the landowners at the site and learn more about the special qualities of the site would be an important first step in beginning conservation efforts of this BDA. For a site of this size and condition, preventing loss of integrity through further fragmentation becomes an important consideration in its care and management. Also, monitoring of the existing natural communities and special species at the site would help in understanding the present stresses to these living resources.

State Game Lands #153

This managed lands represents a portion of a larger State Games Lands in southern Indiana County in the Conemaugh River Gorge. At 2,927 acres, this section of State Game Lands #153 includes steep north facing forested slope in the river gorge, as well as east facing slope along Tubmill Creek and the Conemaugh River that border West Bolivar.

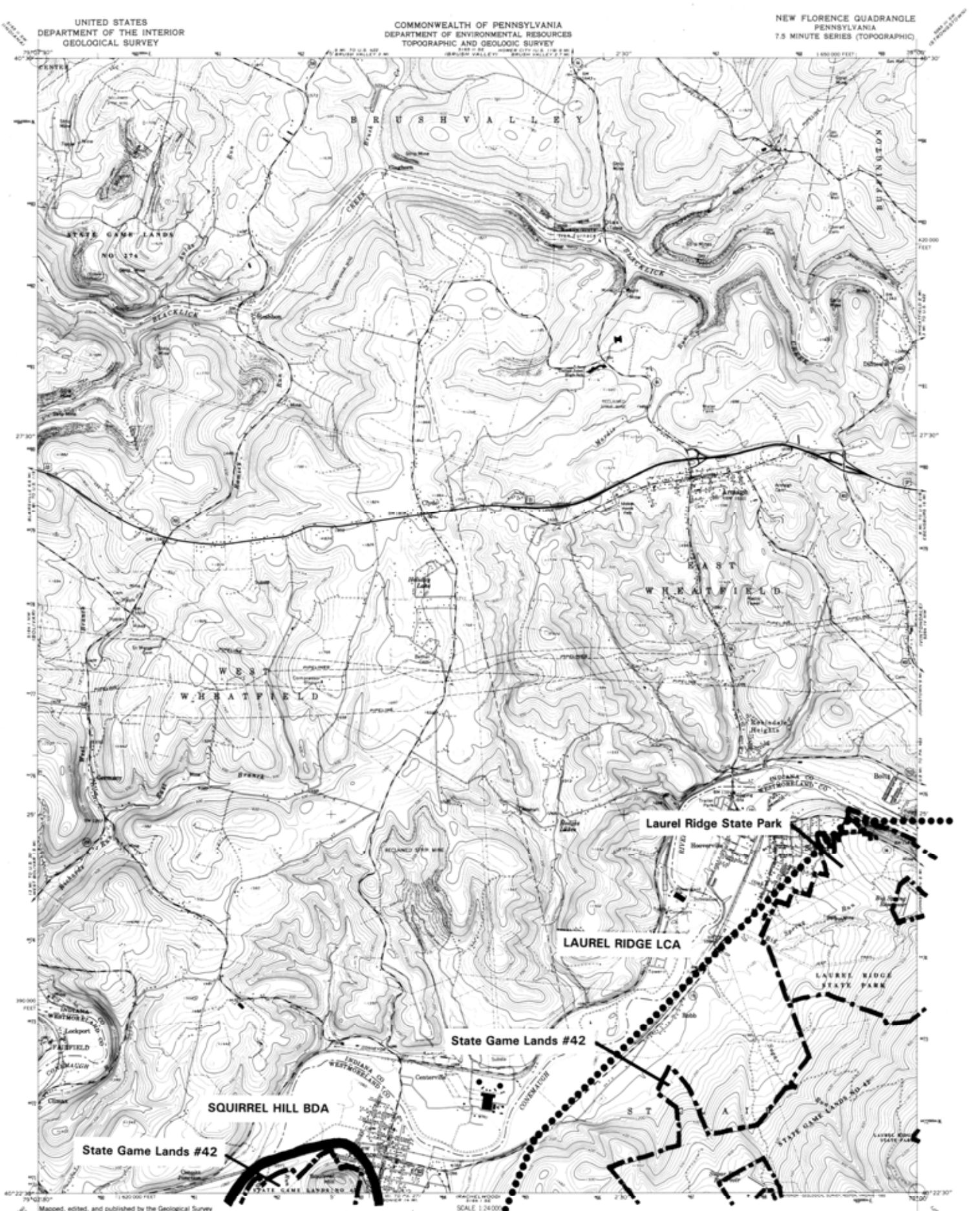
Forbes State Forest

Forbes State Forest represents over 55,000 acres in Westmoreland, Somerset and Fayette Counties that is owned and managed by the Pennsylvania Department of Conservation and

Natural Resources – Bureau of Forestry. Most of this state forest lays along Laurel Ridge and extends from just north of Route 30 to the Pennsylvania – West Virginia line. A small portion of this managed land is situated in the Shirey Run area of Chestnut Ridge. This particular parcel of Forbes is not mapped since boundaries are presently being defined. The Laurel Mountain Division, one of three in Forbes State Forest, is that division in Westmoreland County. Six State Parks - public lands that are owned and managed by the PA DCNR – Bureau of State Parks - are associated with Forbes State Forest. Those within Westmoreland County include Laurel Ridge State Park, Linn Run State Park, and Laurel Mountain State Park. Forest management of these public lands is a shared responsibility of the Bureau of Forestry.

NEW FLORENCE QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
SQUIRREL HILL BDA	*High Significance*				
SPECIAL PLANT:	SP010	G5	S2	N	TU
LAUREL RIDGE LCA	*Exceptional Significance*				
MANAGED LANDS:	State Game Lands #42 Laurel Ridge State Park				



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY

NEW FLORENCE QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)

Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1962. Field checked 1964

Polyconic projection. 10,000-foot grid ticks based on Pennsylvania coordinate system, south zone. 1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue

1927 North American Datum (NAD 27)

North American Datum of 1983 (NAD 83) is shown by dashed corner ticks. The values of the shift between NAD 27 and NAD 83 for 7.5-minute intersections are given in USGS Bulletin 1875

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

There may be private inholdings within the boundaries of the National or State reservations shown on this map

Revisions compiled in cooperation with Commonwealth of Pennsylvania agencies from aerial photographs taken 1988 and other sources. Contours not revised. This information not field checked. Map edited 1993

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

UTM GRID AND 1993 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225 OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

ROAD CLASSIFICATION
Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
U. S. Route — State Route

NEW FLORENCE, PA.
40079-D1-TF-024

1964
REVISED 1993
DMA 5164 I NE-SERIES V881

NEW FLORENCE QUADRANGLE

Westmoreland County is covered in the lower southeast corner of this quadrangle map where it is bounded to the north by the Conemaugh River on the Indiana – Westmoreland County line. The stretch of the Conemaugh River that flows through this area includes a few expansive floodplains that are unique to the county. The northern extension of the Laurel Ridge in Westmoreland County is covered by this quadrangle map. This section of the ridge is largely under the ownership of the PA Game Commission and the DCNR-Bureau of State Parks, as State Game Lands #42 and Laurel Ridge State Park, respectively. These two managed lands, as well as two Natural Heritage Areas are identified on the New Florence quadrangle.

Squirrel Hill BDA

This Natural Heritage Area is discussed as part of the Rachelwood quadrangle.

Laurel Ridge LCA

Laurel Ridge is a prominent ridge in the Allegheny Mountain section of the Appalachian Plateau physiographic province. Within Pennsylvania the ridge extends in a northeast to southwest direction nearly 65 miles (104 km) from the states southern border in Fayette County to the middle in Cambria County. The Laurel Ridge LCA encompasses that section of the ridge in Westmoreland County that extends from the Conemaugh River Gorge to County Line Road. The eastern border of the LCA parallels the summit of Laurel Ridge just east of the ridge and the western border extends to a point where the ridge meets the bottomlands along its western base. Given the highest conservation priority in this inventory, the Laurel Ridge LCA contains a number of natural communities, many species of special concern, and a mountainous, forested landscape that has remained minimally developed and relatively well protected. The BDA's and DA's that highlight these natural features within this large landscape conservation area include: Powdermill Run Nature Reserve BDA/DA (Stahlstown), Roaring Run Natural Area BDA/DA (Seven Springs), Linn Run State Park BDA (Ligonier), Spruce Flats Bog BDA (Ligonier), Indian Creek/Little Run BDA (Seven Springs), Camp Run BDA (Seven Springs), Powdermill Run BDA (Rachelwood), Baldwin Creek BDA (Rachelwood), Upper Tubmill Creek BDA (Rachelwood), South Fork Mill Creek BDA (Ligonier), Furnace Run BDA (Ligonier) and Silver Mine Hollow BDA (Ligonier). Descriptions for each of these Natural Heritage Areas are given in the discussion for the quadrangle indicated. Forbes State Forest, State Game Lands #42, Linn Run State Park, Laurel Ridge State Park and Laurel Mountain State Park comprise thousands of acres of the Laurel Ridge LCA and also provide a basis for its designation as a landscape conservation area.

<u>Threats and Stresses</u>

Overall, those activities that stand to greatly fragment the forested landscape or affect water

quality or quantity are of most concern. New second home development is becoming common on private land on Laurel Ridge, especially in areas that are in close proximity to the Seven Springs and Hidden Valley Ski Resorts. These large commercial recreation areas are situated on Laurel Ridge just outside of Westmoreland County and the LCA. Unplanned development of this area for second homes or large-scale industry would place additional demand on the infrastructure of this area that could result in serious degradation and depletion of ecological resources associated with this mountain. Increased unplanned infrastructure would likely lead to increased fragmentation of the landscape thus diminishing the ecological integrity of the mountain and compromising of the ability of species to migrate north and south along the ridge.

Recommendations

Careful planning within this LCA would benefit both the ecological resources and the people living and recreating on the land. Recognizing Laurel Ridge as an important ecological resource, as well as recreational resource, may be an initial step in this planning process. Encouraging the municipalities, public agencies and private landowners included in the LCA to work together to develop a common vision and consider sensitive planning which included ecologically sustainable land use practices would best allow the values of the area to be maintained. Efforts such as those by the Laurel Ridge Forum, a cooperative effort between public and private land conservation interests concerned with those issues mentioned, may furnish leadership in these efforts.

State Game Lands #42

State Game Lands #42 consists of four large tracts of land totaling 14, 618 acres in size. These Game Lands are situated to the west of Laurel Ridge and on the ridge itself and range from the steep riverside slopes along the Conemaugh River to the uplands along the top of Laurel Ridge. The general character of the lands that are owned and managed for wildlife by the Pennsylvania Game Commission is second growth to younger forest with small open areas maintained as food plots for wildlife.

Laurel Ridge State Park

The northernmost extension of Laurel Ridge State Park in Westmoreland County is covered by this quadrangle. This 13,625 acre state park stretches along the Laurel Ridge from the Youghiogheny River at Ohiopyle in Fayette County to the Conemaugh Gorge near Johnstown in Cambria County as non-contiguous patches of public land. Spanning the counties of Cambria, Fayette, Indiana, Somerset and Westmoreland, this state park's main recreational feature is the 70-mile Laurel Highlands Hiking Trail. This trail traverses not only the Laurel Ridge State Park land, it also covers other land owned and managed by the Bureau of State Parks, the Bureau of Forestry, the PA Game Commission and several private land owners. The park is largely undeveloped with the exception being the parks office on Route 653, the trail itself and those shelters and parking areas associated with the trail. The park is largely situated on the ridgeline along Laurel Ridge and extends in places onto both the western and

eastern slopes.

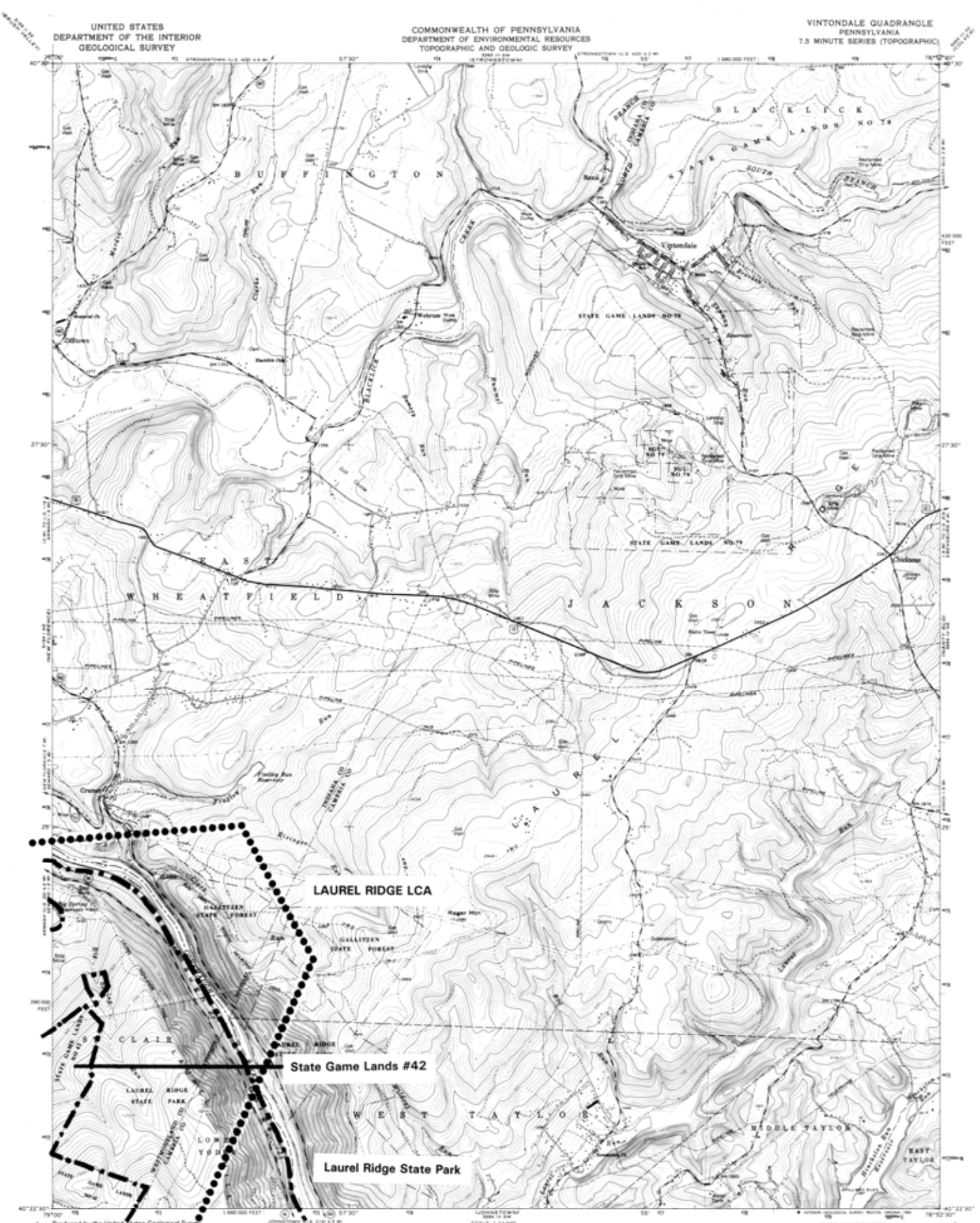
VINTONDALE QUADRANGLE

	PNDI Rank		Legal Status	
	Global	State	Fed.	State

NATURAL HERITAGE AREAS:

LAUREL RIDGE LCA *Exceptional Significance*

MANAGED LANDS: Laurel Ridge State Park
State Game Lands #42


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY
VINTONDALE QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
LAUREL RIDGE LCA
State Game Lands #42
Laurel Ridge State Park
BUFFINGTON
BLACKLICK
EAST WHEATFIELD
JACKSON
LAUREL
WEST TAYLOR
MIDDLE TAYLOR
EAST TAYLOR
CLAIR
STATE GAME LANDS NO 79
GALLITZEN STATE FOREST
LAUREL RIDGE STATE PARK
Vintondale
Produced by the United States Geological Survey
SCALE 1:24 000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
ROAD CLASSIFICATION
VINTONDALE, PA.
40078-G8-TF-024
1964
REVISED 1994

VINTONDALE QUADRANGLE

Laurel Ridge remains a prominent feature in the northeastern corner of Westmoreland County covered by the Vintondale quadrangle. The Conemaugh River Gorge cuts through Laurel Ridge in this area and forms the boundary between Westmoreland, Indiana and Cambria Counties. The landscape is characterized by contiguous forest which is included in Laurel Ridge State Park and State Game Lands #42. These two managed lands are identified on the Vintondale quadrangle and are encompassed by the Laurel Ridge LCA.

Laurel Ridge LCA

This Natural Heritage Area is discussed as part of the New Florence quadrangle.

Laurel Ridge State Park

These Managed Lands are discussed as part of the New Florence quadrangle.

State Game Lands #42

These Managed Lands are discussed as part of the New Florence quadrangle.

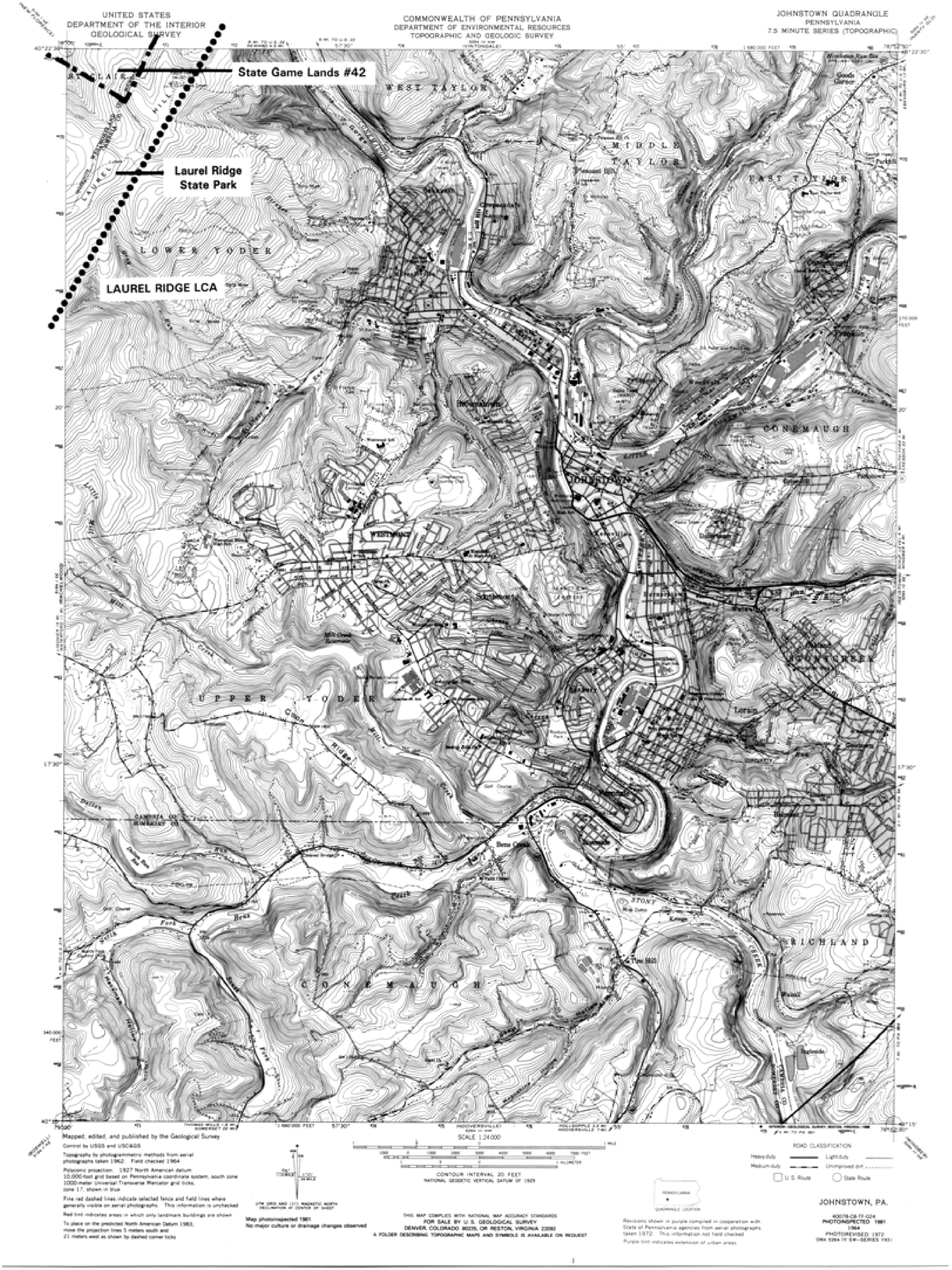
JOHNSTOWN QUADRANGLE

	PNDI Rank		Legal Status	
	Global	State	Fed.	State

NATURAL HERITAGE AREAS:

LAUREL RIDGE LCA *Exceptional Significance*

MANAGED LANDS: Laurel Ridge State Park
State Game Lands #42


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY
JOHNSTOWN QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
State Game Lands #42
Laurel Ridge
State Park
LAUREL RIDGE LCA
WEST TAYLOR
MIDDLE
TAYLOR
EAST TAYLOR
LOWER YODER
CONEMAUGH
JOHNSTOWN
UPPER YODER
RICHLAND
CONEMAUGH
Mapped, edited, and published by the Geological Survey
SCALE 1:24 000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
Map photoinspected 1981
No major culture or drainage changes observed
ROAD CLASSIFICATION
JOHNSTOWN, PA.
PHOTOINSPECTED 1981
1964
PHOTOREVISED 1972

JOHNSTOWN QUADRANGLE

The Johnstown quadrangle covers the area to the east of Laurel Ridge where the Little Conemaugh River and Stony Creek join to form the Conemaugh River at Johnstown just upstream of the Conemaugh River Gorge. A small section of the northeast corner of Westmoreland County extends into this quadrangle. The Laurel Ridge LCA and two managed lands are represented by this quadrangle.

Laurel Ridge LCA

This Natural Heritage Area is discussed as part of the New Florence quadrangle.

Laurel Ridge State Park

These Managed Lands are discussed as part of the New Florence quadrangle.

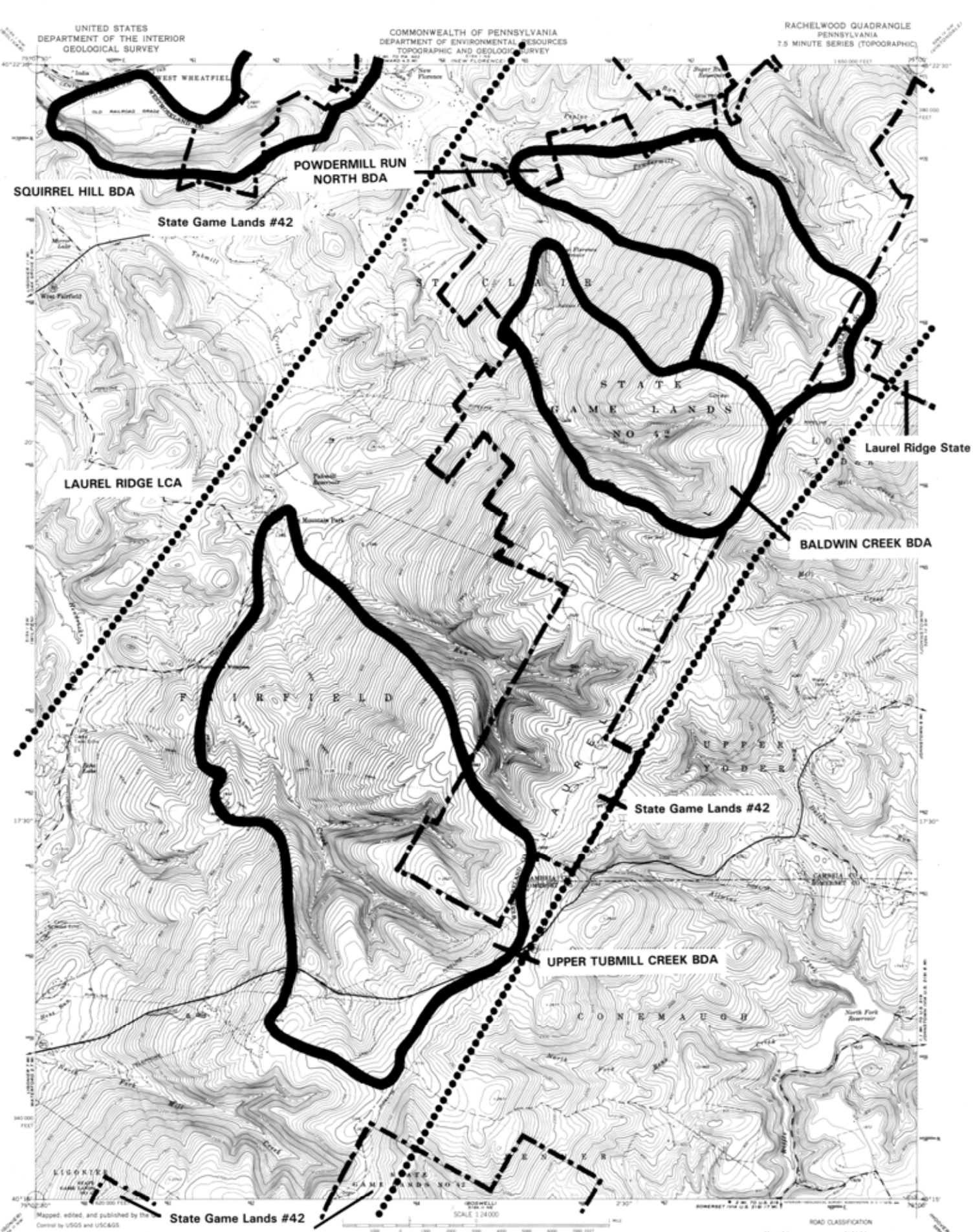
State Game Lands #42

These Managed Lands are discussed as part of the New Florence quadrangle.

RACHELWOOD QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
SQUIRREL HILL BDA	*High Significance*				
SPECIAL PLANT:	SP010	G5	S2	N	TU
LAUREL RIDGE LCA	*Exceptional Significance*				
POWDERMILL RUN NORTH BDA	*High Significance*				
NATURAL COMMUNITY:	NC003	G?	S3	N	N
BALDWIN CREEK BDA	*High Significance*				
NATURAL COMMUNITY:	NC002	G?	S3	N	N
UPPER TUBMILL CREEK BDA	*High Significance*				
NATURAL COMMUNITY:	NC006	G?	S3	N	N

MANAGED LANDS: State Game Lands #42
Laurel Ridge State Park


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY
RACHELWOOD QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
SQUIRREL HILL BDA
POWDERMILL RUN
NORTH BDA
State Game Lands #42
LAUREL RIDGE LCA
Laurel Ridge State
BALDWIN CREEK BDA
State Game Lands #42
UPPER TUBMILL CREEK BDA
State Game Lands #42
STATE GAME LANDS NO 42
FAIRFIELD
UPPER YODER
LOWER YODER
CONEMAUGH
SCALE 1:24 000
CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL
ROAD CLASSIFICATION
Heavy-duty
Light-duty
Medium-duty
Unimproved dirt
State Route
RACHELWOOD, PA.
N4015—W7900/7.5
1964
PHOTOREVISED 1973

RACHELWOOD QUADRANGLE

Laurel Ridge extends from the northeast to southwest across this quadrangle delineating the boundary between Westmoreland, Somerset and Cambria Counties. State Game Lands #42 covers a significant portion of the ridge in this area. The remaining land on the ridge is in private ownership. A number of relatively large watersheds are identified here on both the western and eastern slopes of Laurel Ridge. These watershed are characteristic of those along the entire length of the ridge however, three in particular are highlighted here as BDA's. This quadrangle identifies five Natural Heritage Areas and two Managed Lands.

Squirrel Hill BDA

The Squirrel Hill BDA includes several large floodplains, floodplain terrace areas, a forested hill (Squirrel Hill) and a section of forested slope that stretches along the south side of the site. Named after the rounded hilltop on the eastern end of the site in State Game Lands # 42, this site is recognized for the diversity of recovering natural communities along the Conemaugh River and as a site for a Pennsylvania Threatened plant (**SP010**). The western half of the steep slope bordering the southern boundary of the site is privately owned. Selective logging has taken place recently on the lower slopes on this property. The adjacent slope of SGL #42 holds a maturing Mesic Central Forest community dominated by sugar maple (*Acer saccharum*) and black cherry (*Prunus serotina*) in the canopy and spicebush (*Lindera benzoin*), striped maple (*Acer pensylvanica*) and sugar maple saplings in the shrub layer. The area referred to as Squirrel Hill in the eastern section of the site harbors a patch of mature Mesic Central Forest that is rich in common woodland tree and herbaceous species. Weedy species such as grapevine (*Vitus* sp.) and tree-of-heaven (*Ailanthus altissima*) are invading some of the recently logged areas. Many seepage areas are associated with these forested slopes. Water from these seepages appear to be collecting between the slope and the railroad grade that parallels the slope. This lowland area can be described as a mosaic of full canopy and partial canopy Shrub Swamp and open canopy Graminoid Marsh. Sugar maple, slippery elm (*Ulmus rubra*) and swamp white oak (*Quercus bicolor*) are the dominant trees. Silky dogwood (*Cornus amomum*) dominates the shrub layer while sedges (*Carex* spp.) and rushes (*Juncus* spp.), skunk cabbage (*Symplocarpus foetidus*), sensitive fern (*Onoclea sensibilis*) and other herbs cover the surface of the wetland. In a forested seepage area adjacent to one of these large wetland complexes, a small population of SP010 has been located.

Threats and Stresses

SP010 typically grows in swampy or vernally wet openings in the forest or in open, wet meadow situations. As such, the plant is dependent on intact soils that are supported by surface and groundwater flow. Any changes to soil, hydrology or competition from other vegetation stand to impact the population of SP010. Recent logging activities in an area immediately adjacent to where the plants are growing may have presented a stress to this population. In addition, continued spread of tree-of-heaven to other parts of this site is a concern for the site overall.

Recommendations

An important consideration in the care and management of SP010 and the associated forest and wetland communities at the site is loss of integrity through fragmentation of habitat. The requirements of SP010 and the associated natural communities at the site should be conveyed so as to be included in any management plan(s) that exist for the site. Monitoring and Management of non-native exotic species would be another important aspect of such a plan. Further investigation of the site and SP010 is also encouraged.

Laurel Ridge LCA

This Natural Heritage Area is discussed as part of the New Florence quadrangle.

Powdermill Run North BDA

Powdermill Run is a High Gradient Clearwater Creek (**NC003**) running down the western slope of Laurel Ridge southeast of New Florence. This stream drains into Baldwin Creek which then drains into the Conemaugh River. From its confluence with Baldwin Creek to its headwaters on the summit of Laurel Ridge, Powdermill Run has been designated as an Exceptional Value (EV) stream by the Pennsylvania Department of Environmental Protection – Bureau of Watershed Conservation. The watershed is recognized as the Powdermill Run North BDA because of its EV designation which indicates high water quality and intact aquatic communities. All but a few acres in the headwaters and along the northern boundary of the watershed is owned and managed by the PA Game Commission as part of SGL #42. With the exception of large patches of clear cut and selectively cut land on the southern and eastern uplands, a contiguous cover of maturing forest characterizes the watershed. Past logging in the stream valley and its slopes has left a maturing Mesic Central Forest Community that is dominated by black cherry (*Prunus serotina*), American beech (*Fagus grandifolia*), red oak (*Quercus rubra*) and red maple (*Acer rubrum*). Black birch (*Betula lenta*) and black cherry are common understory species along with witch hazel (*Hammamelis virginiana*) and mountain winterberry (*Ilex montana*). Dense growth of hay-scented fern (*Dennstaedtia punctilobula*) and wood fern (*Dryopteris carthusiana*) form a mosaic that covers the forest floor with patches of black huckleberry (*Gaylusaccia baccata*) and blueberry (*Vaccinium* sp.) occurring in dry, rocky areas. The lower reaches of the valley support a more northern forest of eastern hemlock (*Tsuga canadensis*), yellow birch (*Betula allegheniensis*), mountain maple (*Acer spicatum*), hobblebush (*Viburnum alnifolium*) and rhododendron (*Rhododendron maximum*). Massive sandstone boulders lie along the stream resulting in waterfalls and small plunge pools. The stream itself harbors golden saxifrage (*Chrysosplenium americanum*).

Threats and Stresses

Overall, those activities that stand to affect water quality are of most concern. Loss of soil and subsequent siltation of any water courses, input of nutrients, runoff of pesticides or herbicides, changes in water temperature due to loss of shading or ponding, and alterations to hydrology would all be detrimental to the stream community. Increased fragmentation of the forest in the

watershed could result in loss of species habitat, favorable conditions for non-native exotic species which outcompete native species for resources, and overall loss of ecological integrity of the forest.

Recommendations

Currently, this watershed is largely under the ownership and management of the PA Game Commission. Ongoing conservation efforts by the agency and special designation of the stream as Exceptional Value have provided this watershed significant protection. EV status of this stream carries with it the provision allowing for no degradation of water quality. An erosion and sedimentation plan must be in place for all earth moving activities over a minimum acreage and must provide for the goal of no degradation of water quality. Some special and general permits are also required for certain activities potentially affecting waterways (e.g. stream crossings) and wetlands. However, many activities receive no review or guidance under EV or any water quality designation [e.g. agriculture, small scale building or earth moving, timber harvesting (excluding road building or stream encroachment)]. Working with landowners to develop comprehensive management agreements would complement and bolster the protection framework already in place in this EV watershed.

Baldwin Creek BDA

Baldwin Creek is a High Gradient Clearwater Creek (**NC002**) that flows off of the western slope of Laurel Ridge and into the Conemaugh River. It is situated to the southeast of New Florence and it shares its northern watershed boundary with Powdermill Run. Like Powdermill Run, this stream has been given an Exceptional Value (EV) designation by the PA DEP – Bureau of Water Quality. This designation is in effect from the streams headwaters on the summit of Laurel Ridge to the point where it runs into the New Florence Water Dam just upstream of its confluence with Powdermill Run. The entire watershed of Baldwin Creek is included within State Game Lands #42. Most of the valley has a relatively contiguous cover of a young Mesic Central Forest on the slopes that grades into a drier Dry-Acidic Central Forest on the upper slopes. Large patches of clearcut and selectively logged forest dominate the upland. A large fire break runs along the southern border of the site. Just to the north and on the opposite side of the stream from the fire break is a large gas pipeline R.O.W. that is oriented east to west and cuts across the stream.

Threats and Stresses

Overall, those activities that stand to affect water quality are of most concern. Loss of soil and subsequent siltation of any water courses, input of nutrients, runoff of pesticides or herbicides, changes in water temperature due to loss of shading or ponding, and alterations to hydrology would all be detrimental to the stream community. Severe fragmentation of the forest in the watershed is also of concern since such activity often results in loss of species habitat, favorable conditions for non-native exotic species which outcompete native species for resources, and overall loss of ecological integrity of the forest.

A jeep road that parallels the stream and the powerline R.O.W. stand as two of the most prominent alterations of the landscape. Erosion of the road and subsequent loss of soil and sedimentation in the stream could result in degradation to the stream.

Recommendations

This watershed is under the ownership and management of the PA Game Commission. Ongoing conservation efforts by the agency and special designation of the stream as Exceptional Value have provided this watershed significant protection. EV status of this stream carries with it the provision allowing for no degradation of water quality. An erosion and sedimentation plan must be in place for all earth moving activities over a minimum acreage and must provide for the goal of no degradation of water quality. Some special and general permits are also required for certain activities potentially affecting waterways (e.g. stream crossings) and wetlands. However, many activities receive no review or guidance under EV or any water quality designation [e.g. agriculture, small scale building or earth moving, timber harvesting (excluding road building or stream encroachment)]. Working with landowners to develop comprehensive management agreements would complement and bolster the protection framework already in place in this EV watershed.

Upper Tubmill Creek BDA

Tubmill Creek represents a third Exceptional Value stream as designated by the PA DEP – Bureau of Water Quality on this quadrangle. Tubmill Creek is a High Gradient Clearwater Creek (**NC006**) that flows off of the western slope of Laurel Ridge directly into the Conemaugh River downstream of New Florence. The EV designation for the stream extends from the headwaters on the summit of Laurel Ridge to the Tubmill Reservoir at Ross Mountain Park. With the exception of the upper part of the northeasternmost tributary which is part of State Game Lands #42, this watershed is under private ownership. This watershed was evaluated through the use of aerial photography and aerial reconnaissance. The natural forest communities on the slopes and uplands of this watershed similar to those found in Powdermill Run and Baldwin Creek to the north. The watershed is entirely forested with clearings in the uplands and an associated network of vehicle trails. One area in the northeastern part of the watershed is cleared with off-road vehicles trails throughout. A pipeline R.O.W. and a telephone R.O.W. cut across the upper reaches of the watershed in a southwest to northeast direction. Route 271 parallels these R.O.W. and crosses the two R.O.W.'s in places.

Threats/Stresses

As is the case with the other EV watersheds on this quadrangle, those activities that stand to affect water quality are of most concern. Loss of soil and subsequent siltation of any water courses, input of nutrients, runoff of pesticides or herbicides, changes in water temperature due to loss of shading or ponding, and alterations to hydrology would all be detrimental to the stream community. Severe fragmentation of the forest in the watershed is also of concern

since such activity often results in loss of species habitat, favorable conditions for non-native exotic species that outcompete native species for resources, and overall loss of ecological integrity of the forest.

The use of off-road vehicles on the site, as well as the drainage and impacts associated with Route 271 which crosses the upper watershed may contribute to sedimentation or pollution of the stream.

Recommendations

For a site this size, limiting fragmentation and maintaining stream water quality are important considerations in the care and management of the watershed. EV status of this stream carries with it the provision allowing for no degradation of water quality. An erosion and sedimentation plan must be in place for all earth moving activities over a minimum acreage and must provide for the goal of no degradation of water quality. Some special and general permits are also required for certain activities potentially affecting waterways (e.g. stream crossings) and wetlands. However, many activities receive no review or guidance under EV or any water quality designation [e.g. agriculture, small scale building or earth moving, timber harvesting (excluding road building or stream encroachment)]. Working with landowners to develop comprehensive management agreements would complement and bolster the protection framework already in place in this EV watershed.

State Game Lands #42

These Managed Lands are discussed as part of the New Florence quadrangle.

Laurel Ridge State Park

These Managed Lands are discussed as part of the New Florence quadrangle.

WILPEN QUADRANGLE

	PNDI Rank		Legal Status	
	Global	State	Fed.	State

NATURAL HERITAGE AREAS:

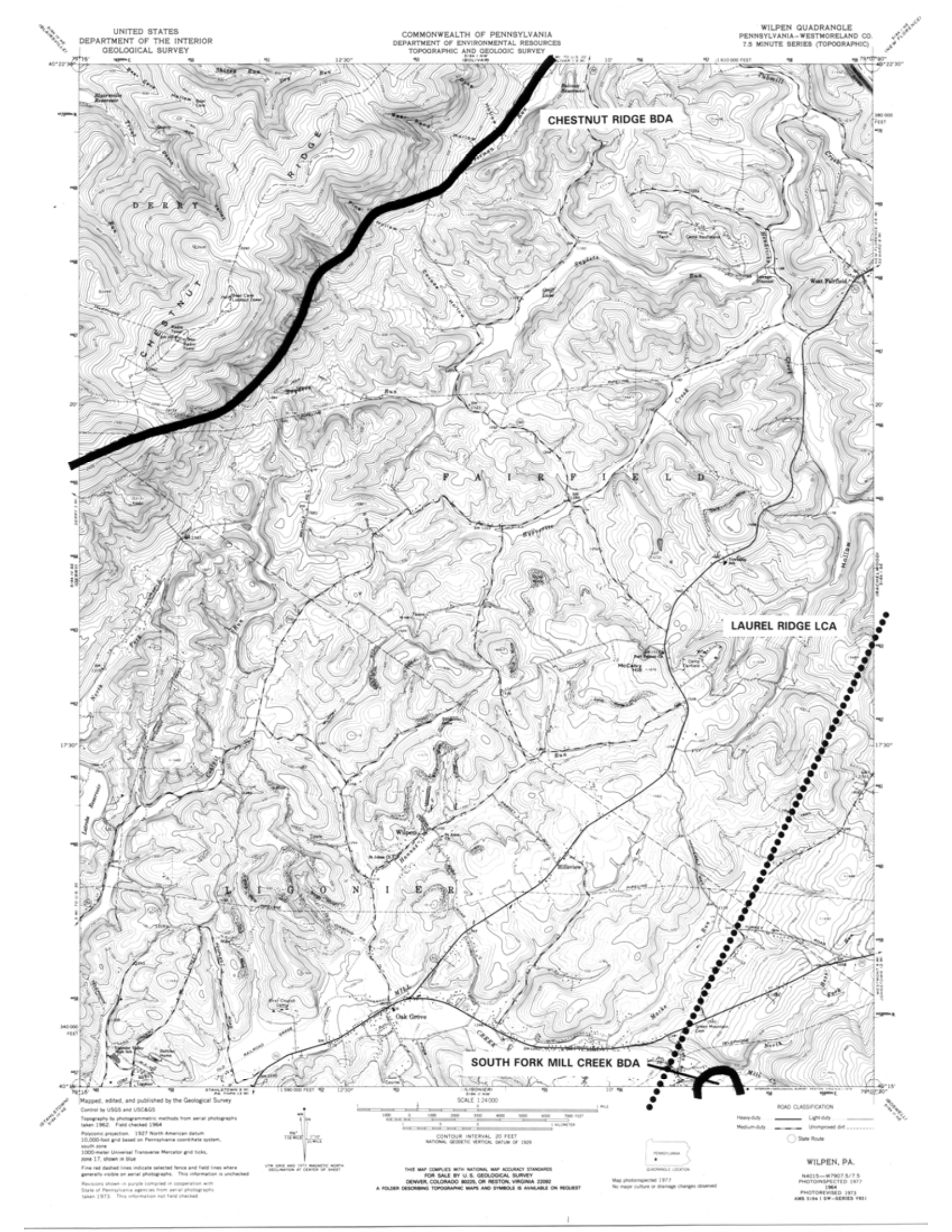
CHESTNUT RIDGE BDA	*Exceptional Significance*				
NATURAL COMMUNITY:	NC001.1	G?	S3	N	N
NATURAL COMMUNITY:	NC004.1	G?	S3	N	N
NATURAL COMMUNITY:	NC005.2	G?	S3	N	N
NATURAL COMMUNITY:	NC006.2	G?	S3	N	N
NATURAL COMMUNITY:	NC007.2	G?	S3	N	N
SPECIAL ANIMAL:	SA001.1	G4	S2S3	N	CR
SPECIAL ANIMAL:	SA004.1	G4	S2S3	N	CR
SPECIAL ANIMAL:	SA005.2	G3	S1	N	PT
SPECIAL ANIMAL:	SA002.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA007.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA008.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA009.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA010.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA011.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA012.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA013.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA014.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA015.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA016.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA017.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA018.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA019.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA020.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA002.2	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA006.2	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA008.2	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA012.2	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA014.2	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA015.2	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA002.3	G3G4	S3	N	PT
SPECIAL PLANT:	SP022	G4	S2	N	PE
SPECIAL PLANT:	SP023	G5	S2	N	PE

LAUREL RIDGE LCA *Exceptional Significance*

SOUTH FORK MILL CREEK BDA *High Significance*

NATURAL COMMUNITY:	NC019	G?	S3	N	N

MANAGED LANDS: Forbes State Forest (not mapped)


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY
WILPEN QUADRANGLE
PENNSYLVANIA—WESTMORELAND CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
CHESTNUT RIDGE BDA
LAUREL RIDGE LCA
SOUTH FORK MILL CREEK BDA
DERRY
FAIRFIELD
LIGONIER
CHESTNUT RIDGE
Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS
Topography by photogrammetric methods from aerial photographs taken 1962. Field checked 1964
Polyconic projection. 1927 North American datum
10,000-foot grid based on Pennsylvania coordinate system, south zone
1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue
Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked
Revisions shown in purple compiled in cooperation with State of Pennsylvania agencies from aerial photographs taken 1973. This information not field checked
SCALE 1:24 000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
ROAD CLASSIFICATION
Heavy-duty
Medium-duty
Light-duty
Unimproved dirt
State Route
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
Map photoinspected 1977
No major culture or drainage changes observed
WILPEN, PA.
N4015—W7907.5/7.5
PHOTOINSPECTED 1977
1964
PHOTOREVISED 1973
AMS 5164 I SW—SERIES V851

WILPEN QUADRANGLE

This quadrangle encompasses a section of the Chestnut Ridge and the inter-mountain valley north of the Ligonier between Chestnut Ridge and Laurel Ridge. The northern two-thirds of the area is drained by the Tubmill Run watershed and the southern third by the Mill Creek watershed. This quadrangle contains sections of three Natural Heritage Areas and one managed land.

Chestnut Ridge BDA

This Natural Heritage Area is discussed as part of the Bolivar quadrangle.

Laurel Ridge LCA

This Natural Heritage Area is discussed as part of the New Florence quadrangle.

South Fork Mill Creek BDA

This Natural Heritage Area is discussed as part of the Ligonier quadarangle.

Forbes State Forest

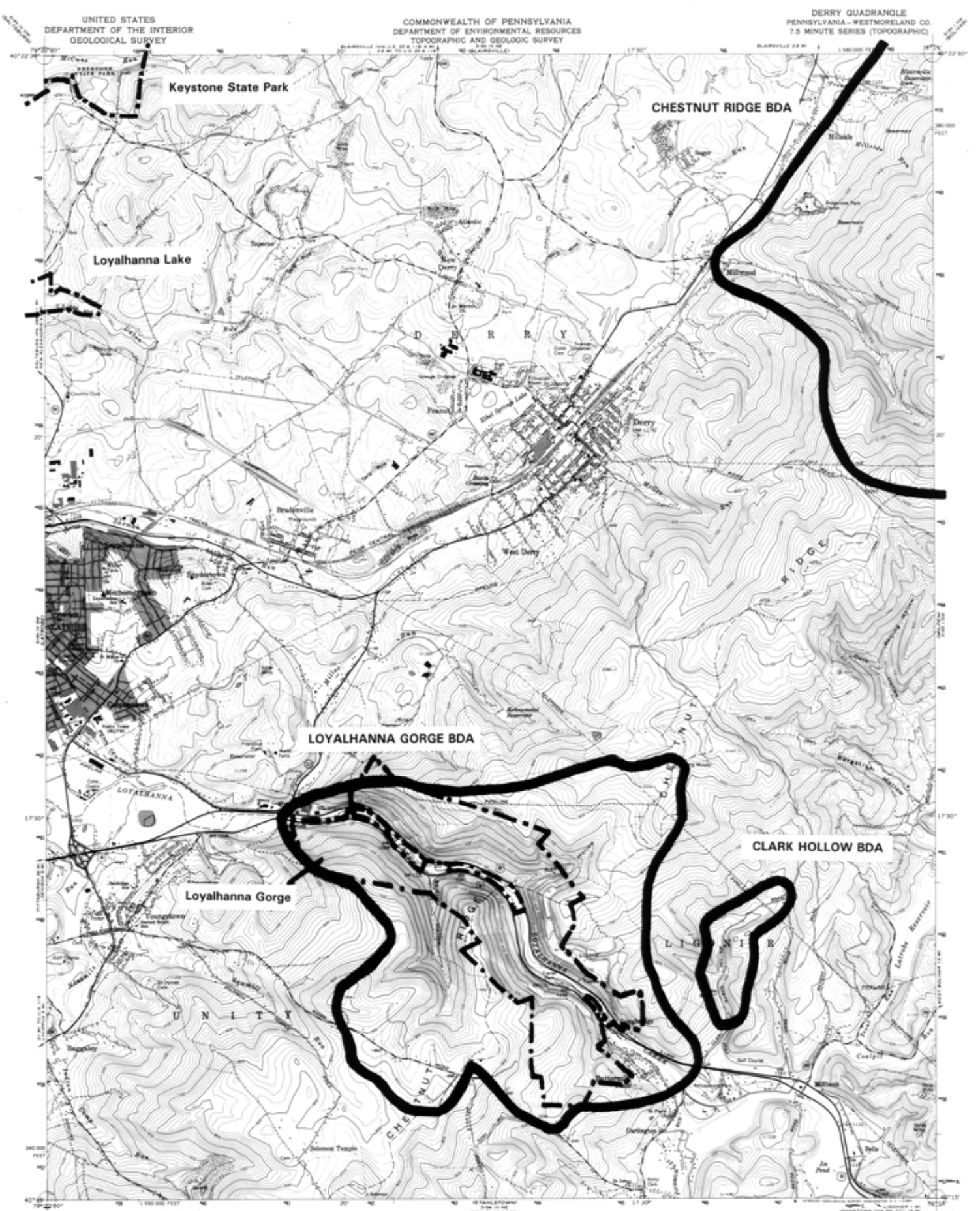
These Managed Lands are discussed as part of the Boswell quadrangle.

DERRY QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
CHESTNUT RIDGE BDA	*Exceptional Significance*				
NATURAL COMMUNITY:	NC001.1	G?	S3	N	N
NATURAL COMMUNITY:	NC004.1	G?	S3	N	N
NATURAL COMMUNITY:	NC005.2	G?	S3	N	N
NATURAL COMMUNITY:	NC006.2	G?	S3	N	N
NATURAL COMMUNITY:	NC007.2	G?	S3	N	N
SPECIAL ANIMAL:	SA001.1	G4	S2S3	N	CR
SPECIAL ANIMAL:	SA004.1	G4	S2S3	N	CR
SPECIAL ANIMAL:	SA005.2	G3	S1	N	PT
SPECIAL ANIMAL:	SA002.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA007.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA008.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA009.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA010.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA011.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA012.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA013.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA014.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA015.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA016.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA017.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA018.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA019.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA020.1	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA002.2	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA006.2	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA008.2	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA012.2	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA014.2	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA015.2	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA002.3	G3G4	S3	N	PT
SPECIAL PLANT:	SP022	G4	S2	N	PE
SPECIAL PLANT:	SP023	G5	S2	N	PE

LOYALHANNA GORGE BDA	*Exceptional Significance*				
NATURAL COMMUNITY:	NC010	G?	S3	N	N
NATURAL COMMUNITY:	NC005	G?	S3	N	N
NATURAL COMMUNITY:	NC009	G?	S3	N	N
NATURAL COMMUNITY:	NC026	G?	S2	N	N
SPECIAL ANIMAL:	SA010a	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA005	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA009	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA010b	G4	S3	N	CR
SPECIAL PLANT:	SP026	G5	S3	N	PT
SPECIAL PLANT:	SP025	G5	S3	N	PR
CLARK HOLLOW BDA	*Notable Significance*				
SPECIAL PLANT:	SP024	G5	S3	N	PR

MANAGED LANDS: Keystone State Park
Loyalhanna Gorge
Loyalhanna Lake


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY
DERRY QUADRANGLE
PENNSYLVANIA—WESTMORELAND CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
Keystone State Park
CHESTNUT RIDGE BDA
Loyalhanna Lake
LOYALHANNA GORGE BDA
CLARK HOLLOW BDA
Loyalhanna Gorge
D E R R Y
U N I T Y
L I G O N I E R
CHESTNUT RIDGE
Derry
Bradenville
West Derry
Millwood
Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS
Topography by photogrammetric methods from aerial photographs taken 1962. Field checked 1964
Polyconic projection. 1927 North American datum
10,000-foot grid based on Pennsylvania coordinate system, south zone
1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue
Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked
Red tint indicates area in which only landmark buildings are shown
U. S. Reservation boundary from maps by U. S. Corps of Engineers
Area covered by dashed light-blue pattern is subject to controlled inundation by Loyalhanna Dam
Map photoinspected 1977
No major culture or drainage changes observed
SCALE 1:24000
CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL
ROAD CLASSIFICATION
Heavy-duty
Medium-duty
Light-duty
Unimproved dirt
U.S. Route
State Route
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
Revisions shown in purple compiled in cooperation with State of Pennsylvania agencies from aerial photographs taken 1973. This information not field checked
DERRY, PA.
N4015—W7915/7.5
PHOTOINSPECTED 1977
1964
PHOTOREVISED 1973
AMS 5164 IV SE—SERIES V851

DERRY QUADRANGLE

Chestnut Ridge and the lowlands to the west near Latrobe occupy the majority of this quadrangle. A prominent feature on the landscape here is the gorge that is formed by Loyalhanna Creek as it cuts through Chestnut Ridge. The majority of this area drains into Loyalhanna Creek. The area within the northeastern corner of the map that drains into McGee Run. The Derry quadrangle contains three Natural Heritage Areas and three managed lands.

Chestnut Ridge BDA

This Natural Heritage Area is discussed as part of the Boswell quadrangle.

Loyalhanna Gorge BDA/Loyalhanna Gorge

As Loyalhanna Creek drains the western slope of Laurel Ridge, it flows in a northwest direction to its confluence with the Conemaugh River. Along this course it cuts through Chestnut Ridge and forms a water gap in the mountain. The Gorge that results represents a unique natural feature on the landscape of Westmoreland County and as such, was purchased for the protection of its natural qualities by the Western Pennsylvania Conservancy and is recognized here as the Loyalhanna Gorge BDA**.** Because of the Western Pennsylvania Conservancy's ownership and management of this site, it is also recognized as a managed lands in the inventory.

The steep north and south facing slopes along this gorge are covered with forest that varies in age and successional stage. The forest on the south facing slope of the gorge is generally recovering from recent logging activity and is fragmented by a large powerline R.O.W. on the top of the slope and by a quarry operation on the eastern end of the gorge. The north facing slope from Kingston to Buttermilk Falls is a maturing Mesic Central Forest Community (**NC026**) that provides habitat for two plant species of special concern (**SP025** and **SP026**). Sugar maple (*Acer saccharum*) and tulip poplar (*Liriodendron tulipifera*) dominate the canopy with basswood (*Tilia americana*), beech (*Fagus grandifolia*), black cherry (*Prunus serotina*) and red maple (*Acer rubrum*) codominating. SP025 shares the subcanopy closer to the rivers edge with witch hazel (*Hammamelis virginiana*), spicebush (*Lindera benzoin*) and a number of deciduous tree saplings. Wood fern (*Dryopteris intermedia*), wild ginger (*Asarum canadensis*), black snakeroot (*Cimicifuga racemosa*), pale touch-me-not (*Impatiens pallida*) and Virginia waterleaf (*Hydrophyllum virginianum*) are some of the herbaceous species that blanket the rich, rocky soils on the slopes and grow in association with SP026. On the mid to upper slopes on both the north and south sides of this gorge, the Loyalhanna limestone protrudes and serves as the foundation for a number of natural fracture caves (**NC005, NC009** and **NC010**) that provide habitat for two animal species of special concern. **SA010b** is dependent on this habitat as a hibernaculum during certain times of the year. To date this animal has been found in only one of the caves at this site. **SA005, SA009** and **SA010a** represent the locations of a Pennsylvania Threatened mammal that is also associated with the cave communities, as well as deep crevices between naturally outcropping boulders. This

animal no longer appears to be inhabiting areas where it was once abundant and may be declining in numbers throughout its range in the state.

Threats and Stresses

The species and natural communities at this site share similar requirements. An intact, undisturbed immediate habitat which includes geologic formations, as well as surrounding forest is of utmost importance. Adequate shading, absence of competition from non-native species and intact hydrology are all required for the survival of these elements of the site. The presence of exotic species, including garlic mustard (*Alliaria petiolata*), resulting from clearing and disturbance on uplands above the steep slopes of the gorge, is a cause for concern at this site, especially on the southern side of the gorge. Since the two plant populations are situated in close proximity to Route 30, activities related to road maintenance and improvement stand to impact these plants. Increased activity on rock outcrops and caves on the site poses a potential threat to the special animal species that reside in these sections of the site.

Recommendations

Maintaining an intact forest canopy and sufficient buffer in areas where significant natural communities and species of special concern exist are probably the most important steps in protecting and maintaining the natural qualities at this site. Incorporation of information concerning the requirements of these communities and species of special concern into a management plan for the site would enable the Western Pennsylvania Conservancy, the Pennsylvania Department of Transportation, utility companies and any future entity involved in the management of this site to make informed decisions for planning or conducting activities within the BDA. Continued monitoring of species of special concern, as well as additional inventory, will help to insure the continued existence and health of the species and natural communities present at the site.

Clark Hollow BDA

Clark Hollow meets Loyalhanna Creek just east of Longbridge on the eastern edge of the Loyalhanna Gorge BDA. The lower forested slopes within the hollow are recognized here as the Clark Hollow BDA. This Natural Heritage Area provides habitat for a special plant population, **SP024**.

Threats and Stresses

Requirements for SP024 include adequate levels of shade and soils and immediate habitat that are intact. A portion of the population of SP024 identified for this site is growing in close proximity to Clark Hollow Road which parallels the stream as it cuts through the valley. Road maintenance and improvement poses a threat to these plants.

Recommendations

Working with the land owner and the township road maintenance personnel to convey the needs and distribution of the plant would be important. Furnishing detailed management recommendations would also be a good step in assuring that this plant population continues growing in this location. Additional survey work is needed at this site to determine the full extent and condition of this plant.

Keystone State Park

This Managed Lands is discussed as part of the Latrobe quadrangle.

Loyalhanna Gorge

These Managed Lands are discussed as part of the Loyalhanna Gorge BDA description.

Loyalhanna Lake

These Managed Lands are discussed as part of the Saltsburg Quadrangle.

LATROBE QUADRANGLE

	PNDI Rank		Legal Status	
	Global	State	Fed.	State

NATURAL HERITAGE AREAS: None

MANAGED LANDS: Keystone State Park
Twin Lakes Park
Loyalhanna Lake
Ann Rudd Saxman Nature Park

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY

LATROBE QUADRANGLE
PENNSYLVANIA—WESTMORELAND CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

Mapped, edited, and published by the Geological Survey
Control by USGS and NOS/NOAA

Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1962. Field checked 1964

Polyconic projection. 10,000-foot grid ticks based on Pennsylvania coordinate system, south zone
1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue
1927 North American Datum (NAD 27)

North American Datum of 1983 (NAD 83) is shown by dashed corner ticks. The values of the shift between NAD 27 and NAD 83 for 7.5-minute intersections are given in USGS Bulletin 1875

Red tint indicates areas in which only landmark buildings are shown
Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked
Reservation boundary from maps by U. S. Corps of Engineers
Areas covered by dashed light-blue pattern are subject to controlled inundation by Loyalhanna Dam
There may be private inholdings within the boundaries of the National or State reservations shown on this map

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225 OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ROAD CLASSIFICATION

Primary highway, hard surface
Light-duty road, hard or improved surface
Secondary highway, hard surface
Unimproved road
Interstate Route
U. S. Route
State Route
County Route

LATROBE, PA.
40079-C4-TF-024

1964
REVISED 1993

LATROBE QUADRANGLE

This quadrangle covers that center portion of Westmoreland County that includes most of Latrobe and the area to the west of the town. Loyalhanna Creek is a prominent feature on the landscape as it flows north through Latrobe after cutting through Chestnut Ridge to the east. Many roads, railroads and utility R.O.W.'s have fragmented what was once an agricultural landscape that is transforming to residential and commercial uses. Four managed lands have been identified on this quadrangle. There are no Natural Heritage Areas identified.

Keystone State Park

Located in northcentral Westmoreland County, this 1,182 acre state park is one of four state parks in the county that are owned and managed by the Department of Conservation and Natural Resources – Bureau of State Parks. The park is highlighted by a 78-acre man-made lake that was originally constructed in the early 1900's to supply water for a coke plant located downstream. Both McCune and Davis Run, as well as other unnamed tributaries supply water to this lake. The landscape surrounding the lake consists mainly of maturing and reverting forest on north and west facing slopes. Development in these areas is limited to hiking and snowmobile trails. Some areas are cleared, especially those associated with the lake, as picnic and open space areas. Several roads, including State Route 982, extend throughout the park.

Twin Lakes Park

Twin Lakes Park is located just north of Route 22 between the towns of Greensburg and Latrobe. This park is owned and managed by the Westmoreland County Bureau of Parks and Recreation. Formerly owned by a local coal company, the park features two man-made ponds that are surrounded by forested slopes and cleared lakeside and uplands. The surrounding land is a mix of tree plantation and natural forest. Trails have been established in the eastern section of the park for the purposes of hiking and nature study.

Loyalhanna Lake

These Managed Lands are discussed as part of the Saltsburg quadrangle.

Ann Rudd Saxman Nature Park

Located behind Donohoe Center just east of Greensburg is a 60-acre section of semi-forested stream valley which has been designated the Ann Rudd Saxman Nature Park. Owned and managed by Westmoreland County, this Nature Park has been set aside for the natural history and conservation value that it provides for those interested in outdoor education and recreation. A maturing American beech (*Fagus grandifolia*) stand surrounded by a younger

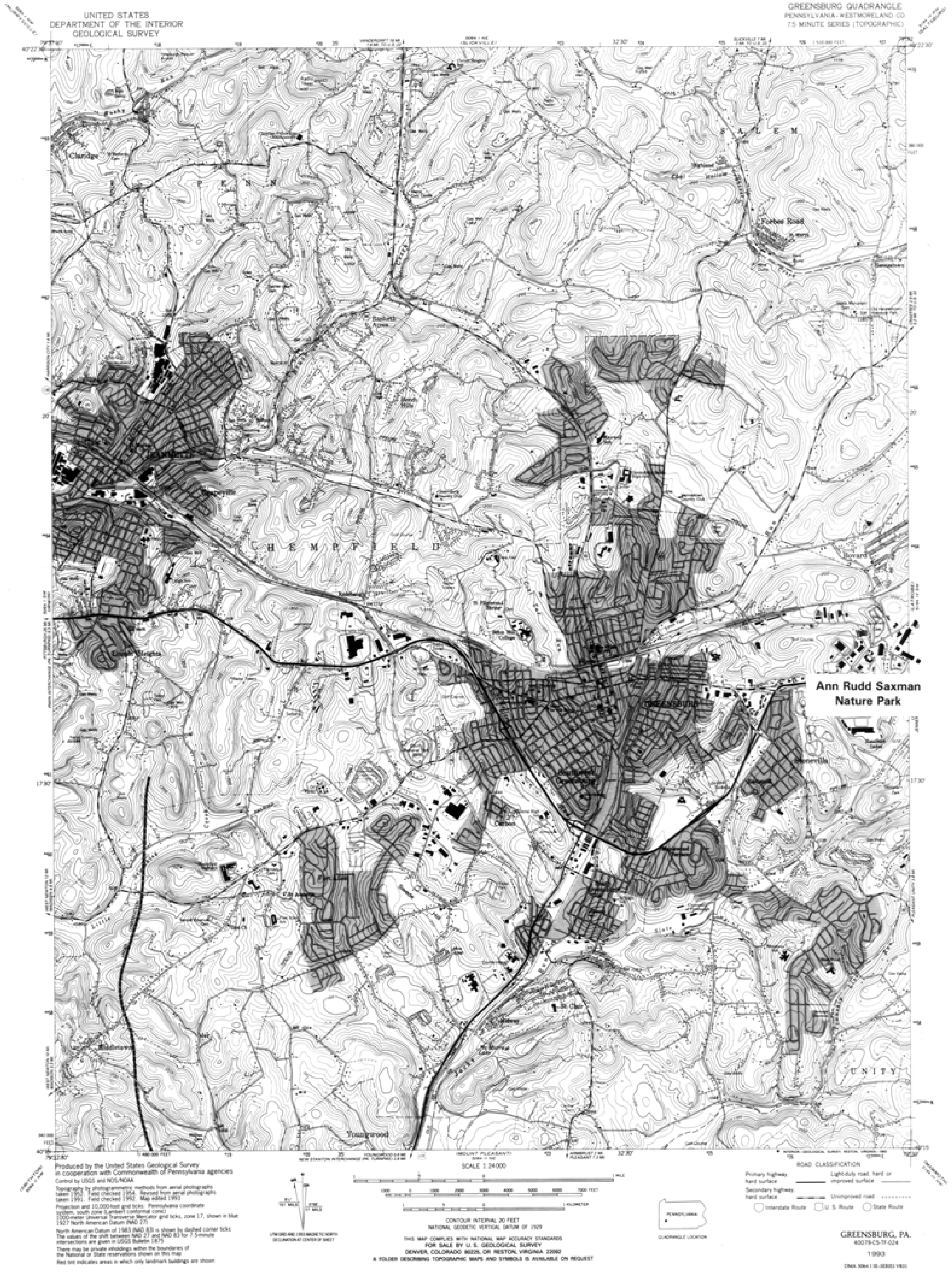
forest of tulip poplar (*Liriodendron tulipifera*), maple (*Acer* sp.), black cherry (*Prunus serotina*) and red oak (*Quercus rubra*) characterize the naturally forested slopes and stream valley while open meadows reverting to forest border the area in the uplands. Trails extend throughout the park and active management has been largely limited to the maintenance of trails.

GREENSBURG QUADRANGLE

	PNDI Rank		Legal Status	
	Global	State	Fed.	State

NATURAL HERITAGE AREAS: None

MANAGED LANDS: Ann Rudd Saxman Nature Park


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
GREENSBURG QUADRANGLE
PENNSYLVANIA-WESTMORELAND CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
SALEM
PENN
Forbes Road
HEMPFIELD
Bovard
Ann Rudd Saxman
Nature Park
GREENSBURG
UNITY
Youngwood
Produced by the United States Geological Survey
in cooperation with Commonwealth of Pennsylvania agencies
Red tint indicates areas in which only landmark buildings are shown
SCALE 1:24 000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
ROAD CLASSIFICATION
GREENSBURG, PA.
1993

GREENSBURG QUADRANGLE

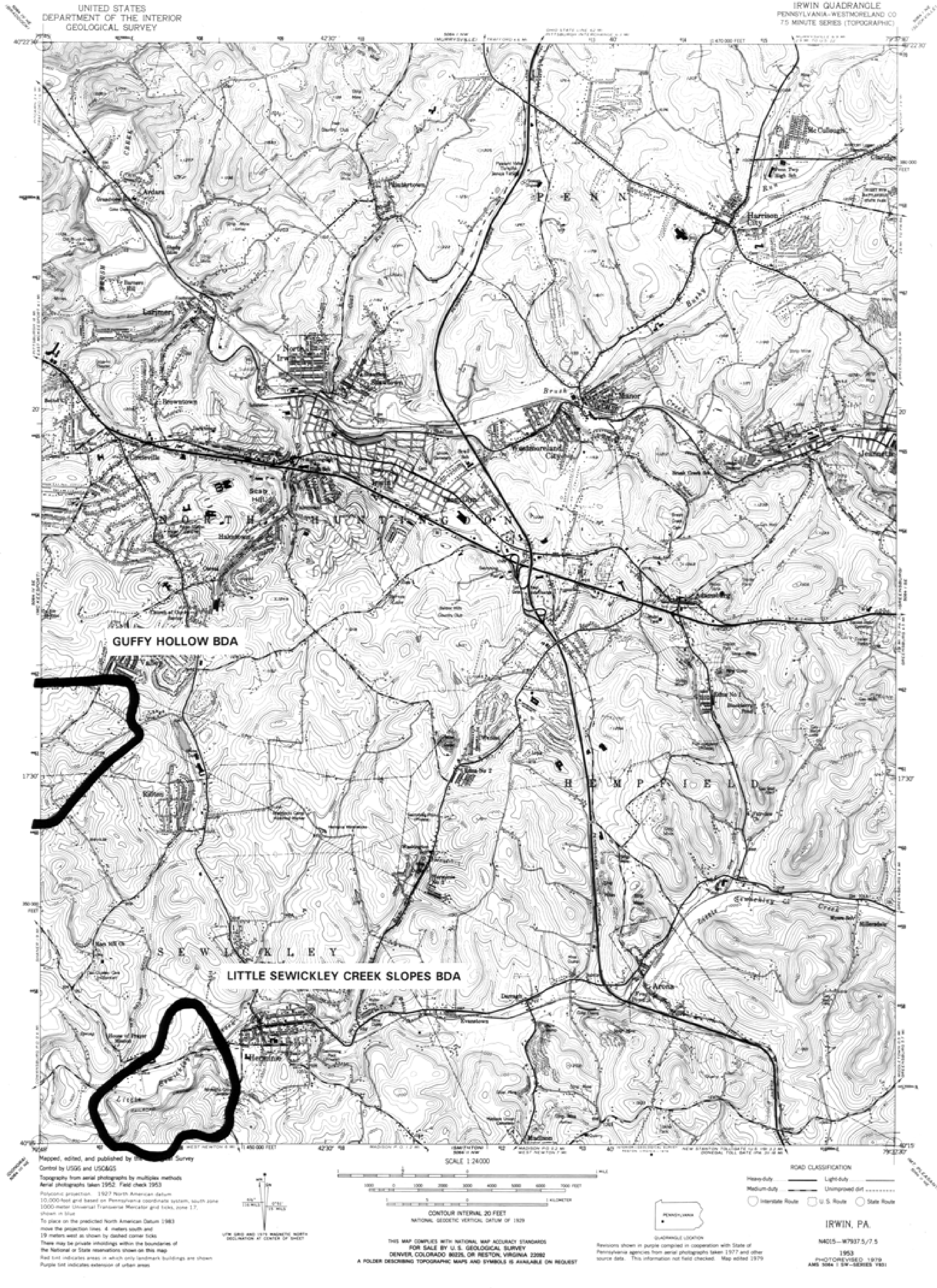
This quadrangle encompasses Greensburg – the county seat and largest town in Westmoreland County - and neighboring Jeanette, as well as the industrial and commercial areas that are situated along the Route 30 corridor that connects the two towns. These towns and the associated expressways which include Route 119 and the newly constructed Route 66 (PA Turnpike extension) comprise a large section of the landscape in this part of the county. There is one Managed Land identified on this quadrangle however, no Natural Heritage Areas are identified.

Ann Rudd Saxman Nature Park

These Managed Lands are discussed as part of the Latrobe quadrangle.

IRWIN QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
GUFFY HOLLOW BDA	*High Significance*				
SPECIAL PLANT:	SP002	G4	S3	N	PR
SPECIAL PLANT:	SP004	G4	S3	N	PR
SPECIAL PLANT:	SP006	G4	S3	N	PR
SPECIAL PLANT:	SP007	G4	S3	N	PR
SPECIAL PLANT:	SP009	G4	S3	N	PR
SPECIAL PLANT:	SP003	G5	S2	N	PT
SPECIAL PLANT:	SP005	G5	S2	N	PT
LITTLE SEWICKLEY CREEK SLOPES BDA	*High Significance*				
SPECIAL PLANT:	SP003	G4	S3	N	PR
MANAGED LANDS:	None				


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
IRWIN QUADRANGLE
PENNSYLVANIA-WESTMORELAND CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
PENN
Harrison City
McCullough
Ardara
Larimer
North Irwin
Westmoreland City
Jeannette
NORTH HUNTINGDON
GUFFY HOLLOW BDA
HEMPFIELD
SEWICKLEY
LITTLE SEWICKLEY CREEK SLOPES BDA
Sewickley Creek
Arona
Madison
Little
Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS
Topography from aerial photographs by multiplex methods
Aerial photographs taken 1952. Field check 1953
SCALE 1:24000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
ROAD CLASSIFICATION
Heavy-duty
Light-duty
Medium-duty
Unimproved dirt
Interstate Route
U. S. Route
State Route
PENNSYLVANIA
QUADRANGLE LOCATION
IRWIN, PA.
N4015—W7937.5/7.5
1953
PHOTOREVISED 1979
AMS 5064 I SW—SERIES V831

IRWIN QUADRANGLE

Brush Creek is the most prominent natural feature on this otherwise highly developed landscape. The northern two-thirds of the land covered by this quadrangle is drained by Brush Creek. The southern third is drained by Little Sewickley Creek. Numerous small towns, residential developments and roads and expressways cover this landscape leaving only those steep slopes along streams with natural forest cover. Two Natural Heritage Areas are located on this quadrangle. There are no Managed Lands identified.

Guffy Hollow BDA

This Natural Heritage Area is discussed as part of the McKeesport quadrangle.

Little Sewickley Creek Slopes BDA

This site encompasses a one-mile corridor along Little Sewickley Creek downstream of Herminie. An abandoned railroad grade parallels the creek on its southeast shore at the base of forested slopes. A population of a plant species of special concern (**SP003**) resides on the disturbed berm area of the railroad grade under a partial sugar maple (*Acer saccharum*) and red oak (*Quercus rubra*) canopy. The presence of this plant species is the basis for the designation of the Little Sewickley Creek Slopes BDA. Generally, this site is somewhat disturbed by the railroad grade cutting through the site. Past agricultural activity is suggested by the presence of a weedy ground layer in the lowland areas and natural forest cover is restricted to the slopes and floodplain by residential development and agricultural land in the uplands.

Threats and Stresses

Requirements of SP003 are such that changes in light levels or competition from weedy species would likely adversely affect this plant population. Direct disturbance to the roots or substrate on which the plants are growing would be detrimental, as well. At the present time, ORV's (Off-Road Vehicles) are damaging sections of the slope and bottomland along the stream, as well as habitat for SP003.

Recommendations

Working with the owners at this site to understand the needs and distribution of the plant and to furnish, if desired, more detailed management recommendations, would be a good step in assuring that this plant continues securely in this location. Additional inventory would provide a better understanding of the natural features at the site.

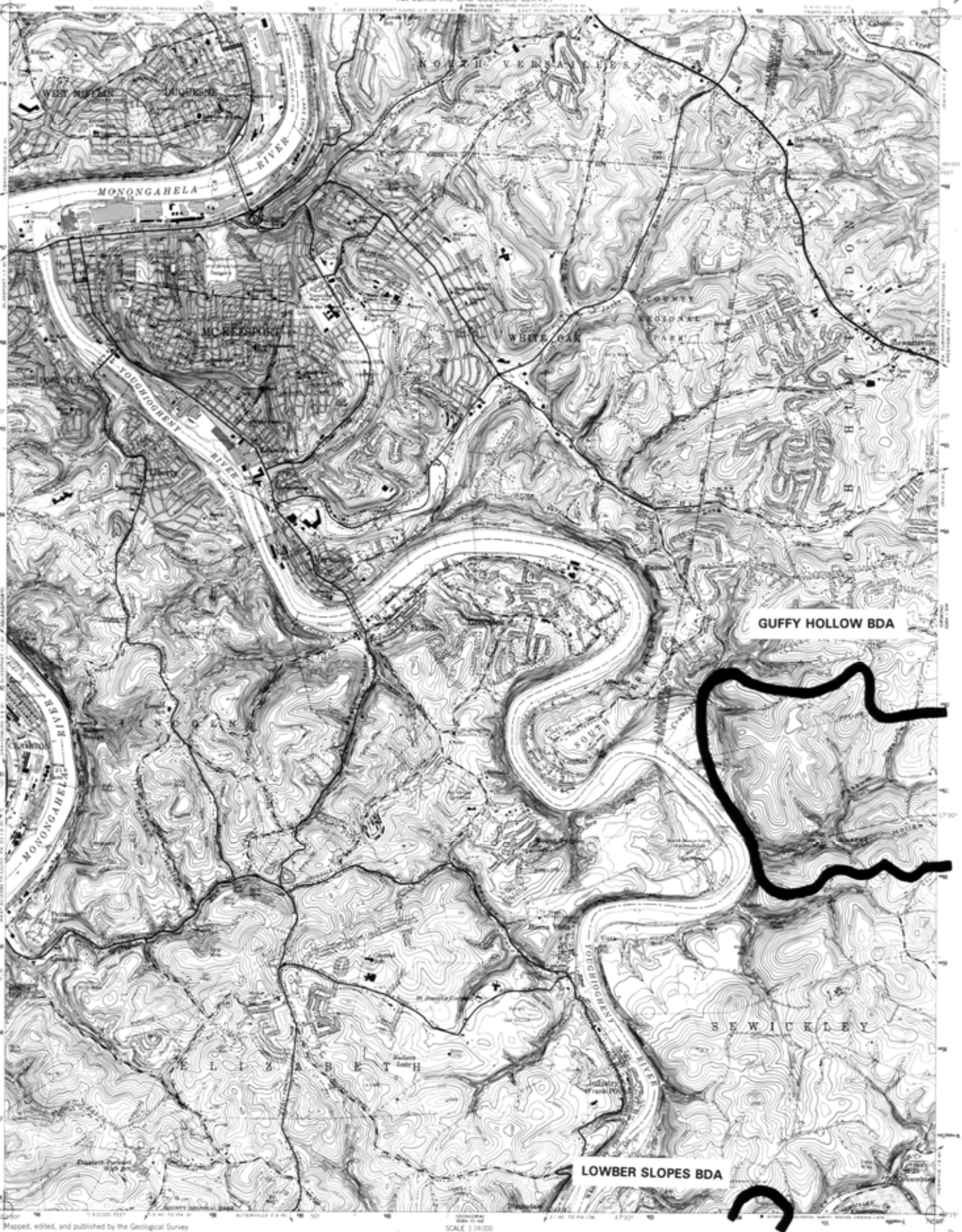
McKEESPORT QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
GUFFY HOLLOW BDA	*High Significance*				
SPECIAL PLANT:	SP002	G4	S3	N	PR
SPECIAL PLANT:	SP004	G4	S3	N	PR
SPECIAL PLANT:	SP006	G4	S3	N	PR
SPECIAL PLANT:	SP007	G4	S3	N	PR
SPECIAL PLANT:	SP009	G4	S3	N	PR
SPECIAL PLANT:	SP003	G5	S2	N	PT
SPECIAL PLANT:	SP005	G5	S2	N	PT
LOWBER SLOPES BDA	*Notable Significance*				
SPECIAL PLANT:	SP003.1	G5	S2	N	PT
MANAGED LANDS:	None				

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF PENNSYLVANIA
DEPARTMENT OF INTERNAL AFFAIRS
TOPOGRAPHIC AND GEOLOGIC SURVEY

MC KEESPORT QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and the City of Pittsburgh

Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1952. Field check 1953. Revised 1960

Polyconic projection. 1927 North American datum
10,000-foot grid based on Pennsylvania coordinate system, south zone
1000-meter Universal Transverse Mercator grid ticks,
zone 17, shown in blue

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

Red tint indicates areas in which only landmark buildings are shown

Revisions shown in purple compiled in cooperation with State of Pennsylvania agencies from aerial photographs taken 1977 and other source data. This information not field checked. Map edited 1979

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

UTM GRID AND 1978 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

PENNSYLVANIA
QUADRANGLE LOCATION

Boundary lines shown in purple compiled from latest information available from the controlling authority

ROAD CLASSIFICATION

Heavy-duty	Light-duty
Medium-duty	Unimproved dirt
U.S. Route	State Route

MC KEESPORT, PA.
N4015—W7945/7.5

1960
PHOTOREVISED 1979
AMS 5064 IV SE—SERIES V851

McKEESPORT QUADRANGLE

The far western edge of Westmoreland County occupies the eastern third of this quadrangle. Less urbanized than the adjacent McKeesport area in Allegheny County, the landscape here is a mix of agricultural land, forested stream valleys, and scattered residential development. With two large rivers situated in and near the county, the landscape largely consists of uplands dissected by deeply cut, forested stream valleys. The expansive floodplains of the rivers serve as locations for a number of large river towns. In general, the Youghiogheny River drains the this part of the county with the exception of Brush Creek, a tributary to the Monongahela River that drains the northern section of this quadrangle. The upper reaches of Jacks Run extend into Westmoreland County from neighboring Allegheny County. This watershed was identified as the ***Jacks Run Valley BDA*** in the Allegheny Natural Heritage Inventory (Smith, et al., 1994). The section of this BDA that extends into Westmoreland County is largely in residential development and for this reason does not have the qualities necessary to be considered a BDA for this study. Two Natural Heritage Areas are recognized on this quadrangle for Westmoreland County. There are no Managed Lands identified.

Guffy Hollow BDA

Guffy Hollow and it's tributary, Possum Hollow, flow into the Youghiogheny River just north of the town of Shaner. The forested slopes with slightly alkaline soils along both of these streams provides suitable habitat for one Pennsylvania Rare plant species. This species is found in numerous locations in the valley (**SP002, SP004, SP006, SP007 and SP009**). The maturing canopy of sugar maple (*Acer saccharum*), American beech (*Fagus grandifolia*) and red oak (*Quercus rubra*) on steeper, portions of the mid to lower slopes has remained somewhat intact considering the timber harvest that has taken place in the watershed. The rare plant species at the site grows in association with other species such as wild ginger (*Asarum canadensis*), sharp-lobed hepatica (*Hepatica acutilobula*), wild stonecrop (*Sedum ternatum*) and cut-leaved toothwort (*Dentaria laciniata*) on the more exposed, alkaline slopes of Possum Hollow, it's tributaries and Guffy Hollow.

To the north of Guffy Hollow is the Crawford Run watershed. An eastern tributary to this stream provides habitat for yet another species of special concern. This Pennsylvania Threatened species is found in two locations at the site, **SP003** and **SP005**. This area, part of Braddock Trail Park, is owned by North Huntingdon Township and had been managed as a park. The forest on the slopes above the tributary stream where SP003 and SP005 are growing is relatively young and recovering from past disturbance. Guffy Hollow, Possum Run and the eastern tributary of Crawford Run together are recognized as the Guffy Hollow BDA **.**

Threats and Stresses

Habitat requirements for this plant are such that dramatic changes in light level, direct disturbance to the plants or their habitat, changes in hydrology or in competition levels would likely adversely affect these plants. The PA Rare plant grows in close proximity to roads in

Possum Hollow. Maintenance or improvement activities by township road crews could directly impact some of these plants. The presence of exotic species, including garlic mustard (*Alliaria petiolata*) is a cause for concern with SP002, SP004, SP006, SP007 and SP009, but as yet only appears in adjacent habitat. Direct impacts related to off-road vehicle use in Braddock Trail Park are a concern for SP003 and SP005.

Recommendations

Working with private landowners and the township of North Huntingdon to better understand the site and to develop management plans would be an important first step in approaching the protection of this area. If the desire to protect these species and natural communities exists, then avoiding direct impact to plants and maintaining an intact forest canopy are probably the most critical factors to consider. Maintenance of the road along Possum Hollow would need to address potential threats above. Threats posed by off-road vehicles and by exotic plants could also be an important focus of land owners and park managers if protection at this site were a goal.

Lowber Slopes BDA

This Natural Heritage Area is discussed as part of the Donora quadrangle.

MONONGAHELA QUADRANGLE

	PNDI Rank		Legal Status	
	Global	State	Fed.	State

NATURAL HERITAGE AREAS: None

MANAGED LANDS: None

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

MONONGAHELA QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography from aerial photographs by multiplex methods
Aerial photographs taken 1952. Field check 1954

Polyconic projection. 1927 North American datum
10,000-foot grid based on Pennsylvania coordinate system, south zone
1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue

To place on the predicted North American Datum 1983 move the projection lines 4 meters south and 18 meters west as shown by dashed corner ticks

Red tint indicates areas in which only landmark buildings are shown

Revisions shown in purple compiled in cooperation with State of Pennsylvania agencies from aerial photographs taken 1977 and other source data. This information not field checked. Map edited 1979

UTM GRID AND 1979 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

PENNSYLVANIA
QUADRANGLE LOCATION

ROAD CLASSIFICATION

Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
U. S. Route — State Route
Interstate Route

MONONGAHELA, PA.

N4007.5—W7952.5/7.5

1954
PHOTOREVISED 1979
AMS 5064 III NW—SERIES V831

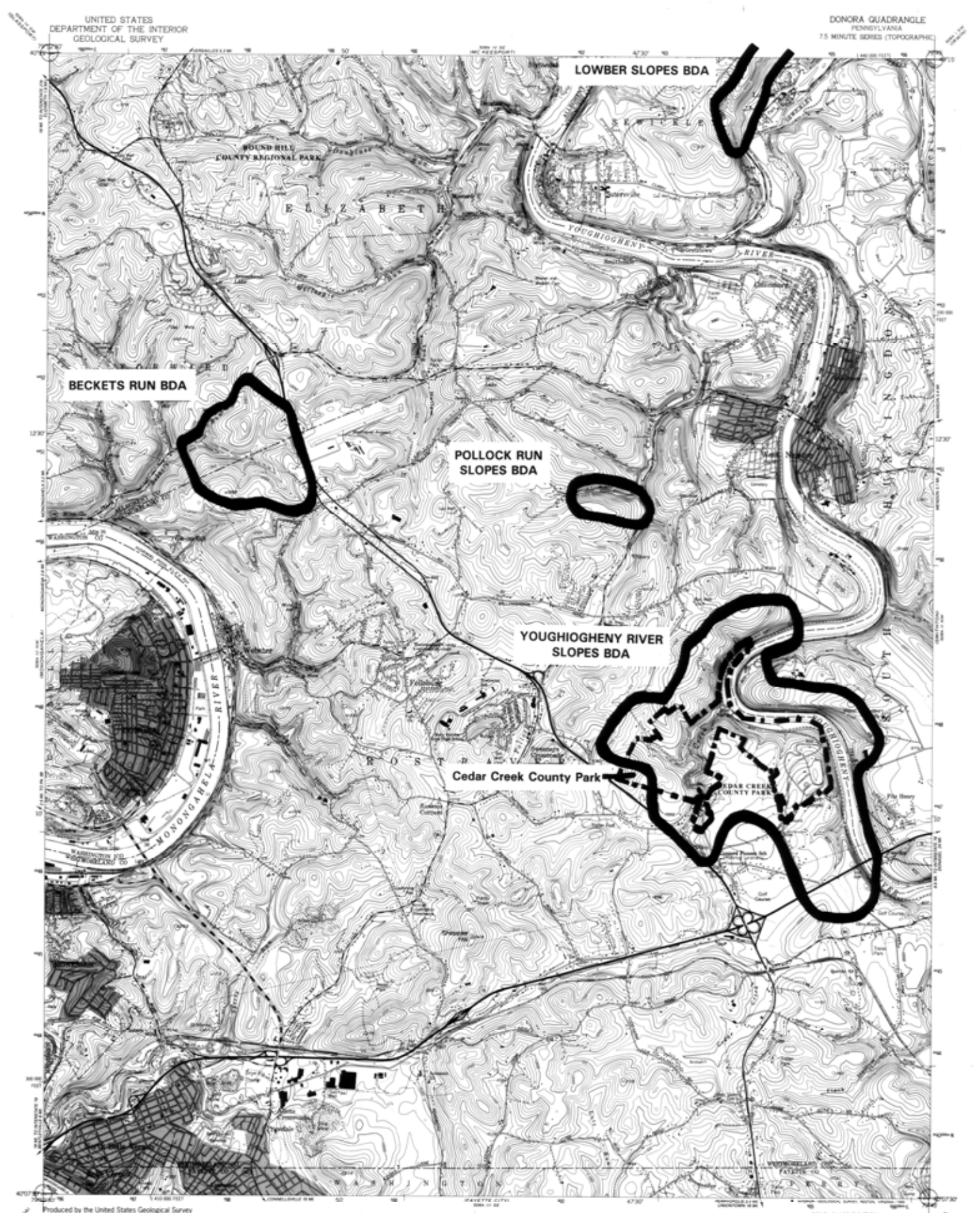
MONONGAHELA QUADRANGLE

Only a small section of the southwestern corner of Westmoreland County extends into the southeastern corner of the quadrangle where the town of Monessen lies along the shores of the Monongahela River. The river serves as a boundary between Westmoreland and Washington Counties. There are no known Natural Heritage Areas or Managed Lands on this quadrangle.

DONORA QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
LOWBER SLOPES BDA	*Notable Significance*				
SPECIAL PLANT:	SP003	G5	S2	N	PT
YOUGHIOGHENY RIVER SLOPES BDA	*Exceptional Significance*				
SPECIAL PLANT:	SP004	G4	S2	N	PT
SPECIAL PLANT:	SP005	G4	S2	N	PT
SPECIAL PLANT:	SP006	G4	S2	N	PT
SPECIAL PLANT:	SP011	G4	S2	N	PT
SPECIAL PLANT:	SP009	G5	S2	N	PT
SPECIAL PLANT:	SP008	G4	S3	N	PR
SPECIAL PLANT:	SP010	G4	S2	N	PE
SPECIAL PLANT:	SP012	G4	S2	N	PE
POLLOCK RUN SLOPES BDA	*Notable Significance*				
SPECIAL PLANT:	SP007	G4	S3	N	PR
BECKETS RUN BDA	*Notable Significance*				
SPECIAL PLANT:	SP002	G4	S3	N	PR

MANAGED LANDS: Cedar Creek County Park


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
DONORA QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
LOWBER SLOPES BDA
BECKETS RUN BDA
POLLOCK RUN
SLOPES BDA
YOUGHIOGHENY RIVER
SLOPES BDA
Cedar Creek County Park
BOUND HILL
COUNTY REGIONAL PARK
ELIZABETH
YOUGHIOGHENY RIVER
MONONGAHELA RIVER
WASHINGTON
Produced by the United States Geological Survey
in cooperation with Commonwealth of Pennsylvania agencies
Control by USGS and NOS/NOAA
Topography by photogrammetric methods from aerial photographs taken 1952. Field checked 1954. Revised from aerial photographs taken 1990. Field checked 1992. Map edited 1993
Projection and 10,000-foot grid ticks: Pennsylvania coordinate system, south zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue
1927 North American Datum (NAD 27)
North American Datum of 1983 (NAD 83) is shown by dashed corner ticks
The values of the shift between NAD 27 and NAD 83 for 7.5-minute intersections are given in USGS Bulletin 1875
Red tint indicates areas in which only landmark buildings are shown
Unlabeled wells are gas wells
SCALE 1:24 000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
ROAD CLASSIFICATION
Primary highway, hard surface
Secondary highway, hard surface
Light-duty road, hard or improved surface
Unimproved road
Interstate Route
U. S. Route
State Route
PENNSYLVANIA
QUADRANGLE LOCATION
DONORA, PA.
40079-B7-TF-024
1993

DONORA QUADRANGLE

The southwestern corner of Westmoreland County where it meets Allegheny, Washington and Fayette Counties covers approximately two-thirds of this quadrangle. The Youghiogheny River is the most prominent natural features on this quadrangle, meandering from south to north where it meets Sewickley Creek and then flows to its confluence with the Monongahela River. Thin strips of steep forested slopes interrupted by small tributary valleys and developed floodplains characterize this river corridor. The Donora quadrangle includes four Natural Heritage Areas and one managed lands.

Lowber Slopes BDA

Just north of its confluence with the Youghiogheny River, Sewickley Creek flows past the community of Lowber. Situated on the eastern edge of the large floodplain that the town occupies is a forested slope. A woodland of red maple (*Acer rubrum*), sugar maple (*Acer saccharum*), black maple (*Acer nigrum*) and hackberry (*Celtis occidentalis*) covers the mid to upper slope. The lower slope is an open pasture with dense patches of multiflora rose (*Rosa multiflora*). The forested section of the slope is the location for a plant species of special concern (**SP003**) which is the basis for the designation of this site as the Lowber Slopes BDA. This plant grows on moist, seepy, forested slopes that have rich, somewhat alkaline soils.

Threats and Stresses

Although attempts have been made to limit grazing to the open pasture section of this site, grazing on the upper parts of the slope where SP003 is located is evident and direct disturbance to the plants is a threat. Competition from exotic species also threatens the plants at this site. Multiflora rose is abundant and appears to be spreading from the open pasture area into the forest. In addition, any changes in light level or hydrology could adversely impact this species.

Recommendations

Working with the landowner to convey the needs and distribution of the plant and furnishing more detailed management recommendations would be an effective first step. Restricting cattle from grazing in the forested areas, allowing potential forest habitat in the area to revert and eradicating the multiflora rose population, or portions of it, could be effective measures in assuring that the plant continues to survive in this location.

Youghiogheny River BDA

As the Youghiogheny River flows north to its confluence with the Monongahela River it makes a slight bend to the west and then back to the east just before entering the town of West Newton. Along this course of the river, patches of relatively undisturbed forest cover steep slopes that are formed at bends in the river. Cool, moist slopes of a tributary stream valley and a thin stretch of riparian area form at one of these river bends and form the basis for the Youghiogheny River BDA. Four plant species of special concern are associated with this site.

Cedar Creek County Park encompasses approximately 460 acres on the western side of the river. This county owned managed lands includes a large corridor of floodplain and steep slopes along the river, as well as a significant portion of the Cedar Creek valley in the northern part of the park (referred to as the Cedar Creek Gorge). This park, as well as areas immediately adjacent to the park, contain locations for three species of special concern (**SP004**, **SP005, SP006, SP008, SP009, SP010, SP011,** and **SP012**). A thin strip of a remnant Floodplain Forest community situated between the river and a railroad grade provides habitat for a Pennsylvania Threatened species that is found in four locations (**SP004, SP005, SP006** and **SP011**). Large sycamore (*Platanus occidentalis*) and silver maple (*Acer saccharinum*) cover slippery elm (*Ulmus rubra*), a dense layer of spicebush (*Lindera benzoin*), wingstem (*Verbesina alternifolia*), cutleaf coneflower (*Rudbeckia laciniata*), jewelweed (*Impatiens* sp.) and false nettle (*Boehmeria cylindrica*). Just above the railroad grade and the Floodplain Forest, on a north facing slope, is habitat for a second Pennsylvania Threatened species, **SP009.** Sugar maple (*Acer saccharum*), red oak (*Quercus rubra*) dominate the canopy of this maturing forest and a rich display of wildflowers, including the uncommon spring blue-eyed Mary (*Collinsia verna*), grow in association with SP009. Northwest of this section of the site, Cedar Creek forms a deeply cut valley to the Youghiogheny River. This valley harbors a rich, maturing Mesic Central Forest Community dominated by sugar maple, red oak and other hardwood trees. The herbaceous flora is abundant and diverse suggesting rich, mesic, perhaps alkaline soils. Representative of this flora are round-leaved ragwort (*Senecio obovatus*), yellow pimpernel (*Taenidia integerrima*) and orange-fruited horse gentian (*Triosteum aurantiacum*). A large population of the Pennsylvania Rare **SP008** grows in association with these species on a west facing slope in the valley. Although not confirmed, this same area is thought to harbor a small population of a Pennsylvania Rare plant (**SP010**), as well. A second location for this species (**SP012**) is on a south facing slope on the opposite side of the river from Cedar Creek County Park. A patch of Dry-Mesic Calcareous Central Forest dominated by mature red oak, white oak (*Q. alba*), yellow oak (*Q. muehlenbergii*) and hickory (*Carya* spp.) represents an unusual forest community for Westmoreland County. A dense shrub layer of spicebush and an herbaceous layer of SP012, small wood sunflower (*Helianthus microcephalus*), green violet (*Hybanthus concolor*), white snakeroot (*Eupatorium rugosum*) and false Solomon's Seal (*Smilacina racemosa*) interspersed by small limestone outcropping further characterize this calcareous slope

Threats and Stresses

Requirements of the plant species of special concern are such that changes in light levels, hydrology, direct disturbance to the slopes and floodplain, and increased aggressiveness of invasive exotic plant species are threats to the well-being of these populations. In all cases, the forest communities that harbor the special plant populations are poorly buffered with upland forest being nearly non-existent. This situation, as well as the presence of the railroad

R.O.W. on both sides of the river, fragments the slope and floodplain forests, and creates a corridor for invasive plants species. Garlic mustard (*Alliaria petiolata*) and dames rocket (*Hesperis matronalis*) are present within the Cedar Creek valley. The use of bicycles and off-road vehicles stand as a potential threat to the special plant populations on the upper slopes that grow along the edges of a hiking trail.

Recommendations

Providing more forested buffer for the natural communities is an important step in protecting the special plant populations at this site. This could be accomplished by encouraging land on the upper edge of the slope and some portions of the upland to revert back to forest cover. Working with the numerous land owners and managers at the site to incorporate into any existing management plan information for the protection of the plants of special concern is also encouraged. Continued efforts to coordinate, plan and implement management of this site might address such issues as creating more adequate buffer and protection through acquisition, enforcing a "no bike, no off-road vehicle" policy for sensitive areas and slopes, and monitoring and removal invasive exotic species. Surveys for additional plant populations is needed in some parts of this site.

Pollock Run Slopes BDA

Pollock Run is a tributary to the Youghiogheny River downstream of West Newton. On a north facing slope along one of the western tributaries of Pollock Run sits a site for a plant species of special concern, **SP007**. The Pollock Run Slopes BDA is characterized by a remnant Mesic Central Forest community that is dominated by maturing sugar maple (*Acer saccharum*). Rich, moist slopes interrupted at mid slope by small limestone outcrops are covered in early spring by a dense layer of trout lily (*Erythronium* sp.), wild leeks (*Allium tricoccum*), cut-leaved toothwort (*Dentaria laciniata*), dutchman's breeches (*Dicentra cuccularia*), sharp-lobed hepatica (*Hepatica acutilobula*) and SP007.

Threats and Stresses

Dramatic changes in light level or in competition levels would likely adversely affect this plant population. Direct disturbance to the plants or the substrate on which they grow could be detrimental. No such changes in habitat appear imminent, but given the age of the trees in the canopy, logging of the site could occur in the near future.

Recommendations

Work with the owner to provide an understanding of the needs and distribution of the plant and to furnish, if desired, more detailed management recommendations, would be a good step in assuring that this plant continue to survive in this location.

Beckets Run BDA

Beckets Run is a tributary stream that flows into the Monongahela River at Milesville. Approximately one mile upstream from this confluence a tributary valley of Beckets Run branches off to the east. In this valley, recognized as the Beckets Run BDA, grows a small population of the Pennsylvania Rare **SP002**. The overall quality of this site is poor. What appears to have been a relatively healthy maturing Mesic Central Forest Community with an extremely rich display of prevernal flora is presently degraded by the use of off-road vehicles that have entered the site via the pipeline R.O.W.'s that cut through the valley. SP002 is represented by a small group of individual plants that are located in a fairly rocky area near the mouth of a small stream valley. Generally, the forest canopy of sugar maple (*Acer saccharum*), red maple (*A. rubrum*) and American beech (*Fagus grandifolia*) is somewhat intact in the lower valley. The uplands have been cleared or are presently reverting back to forest. The herbaceous ground cover on the lower slopes and valley bottom exists in patches between vehicle trails and on steep slopes. Growing in association with the forest and the native prevernal species are the invasive exotics multiflora rose (*Rosa multiflora*), tree-of-heaven (*Ailanthus altissima*) and garlic mustard (*Alliaria petiolata*).

Threats and Stresses

Needs of this plant include shaded habitat with undisturbed soils and non-compacted soils. Continued use of off-road vehicles at this site will continue to degrade the area as soils erode and wash away. Invasive exotic species are beginning to aggressively outcompete native species for resources. As a result of these activities which are having direct impact to habitat, the population of SP002 continues to decline.

Recommendations

Informing the landowner of the presence of SP002 and the impacts of off-road vehicles to this species, the natural community and the health of the stream would be an important first step in addressing the threats at this site. Additionally, notification to the utility company responsible for the maintenance of the pipeline R.O.W.'s of the erosion and sedimentation problems on the pipeline is encouraged. If protection is an ultimate goal for the landowner then creating a plan for management of the site which could address and prioritize efforts to restore the site is suggested. Restoration efforts needed at the site include elimination of off-road vehicles, removal and monitoring of exotic invasive species and stabilization of eroded and sliding hillsides.

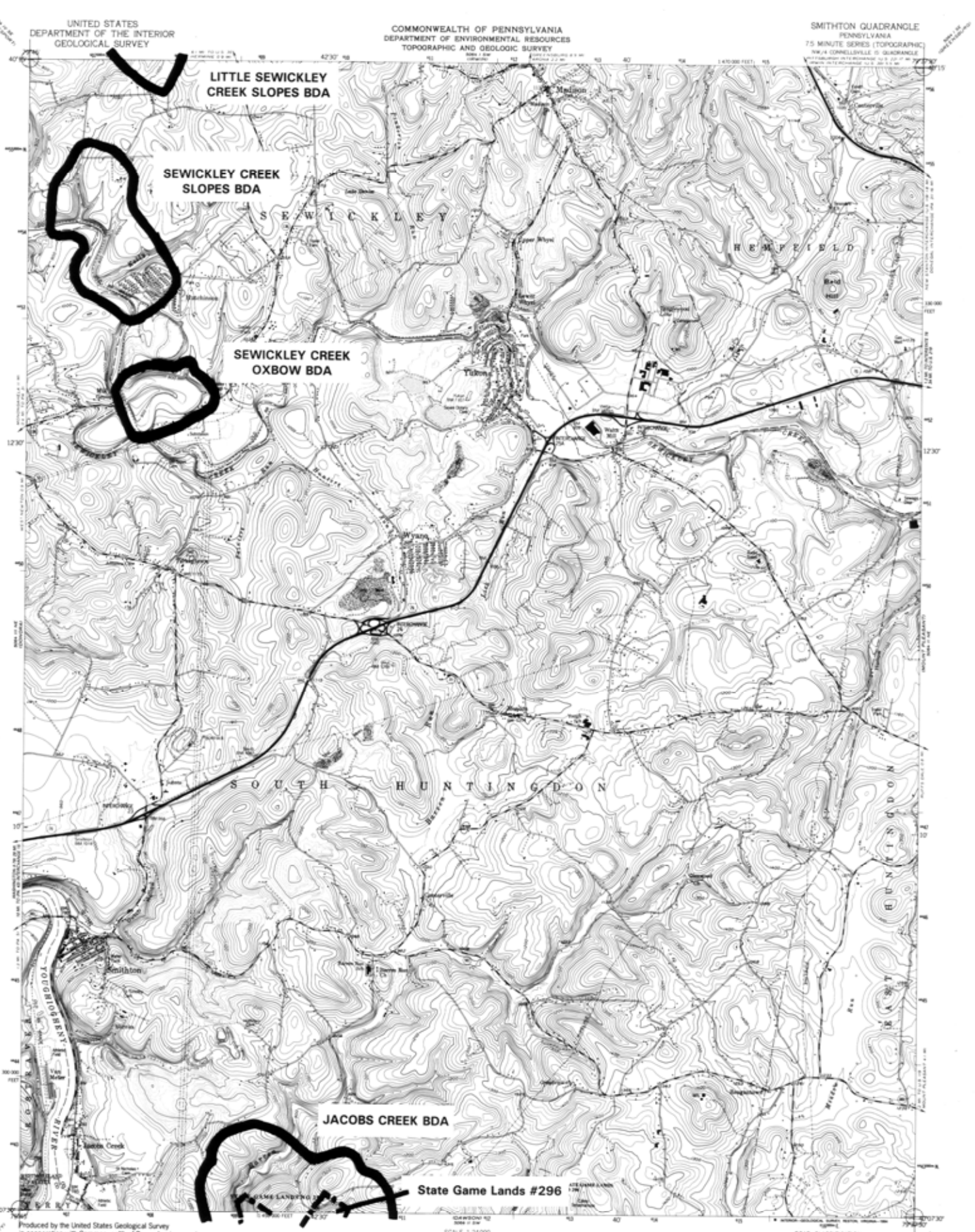
Cedar Creek County Park

These managed lands are described above in the description for Youghiogheny River BDA

SMITHTON QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
SEWICKLEY CREEK SLOPES BDA	*Exceptional Significance*				
NATURAL COMMUNITY:	NC008	G?	S2S3	N	N
SPECIAL PLANT:	SP008a	G3	S1	N	PE
SPECIAL PLANT:	SP008b	G5	S2	N	TU
SPECIAL PLANT:	SP009	G4	S3	N	PR
SEWICKLEY CREEK OXBOW BDA	*High Significance*				
SPECIAL PLANT:	SP004	G4	S3	N	PR
SPECIAL PLANT:	SP006a	G5	S1	N	PE
SPECIAL PLANT:	SP006b	G4	S2	N	PE
LITTLE SEWICKLEY CREEK SLOPES BDA	*High Si*gnificance				
SPECIAL PLANT:	SP003	G4	S3	N	PR
JACOBS CREEK BDA	*Exceptional Significance*				
SPECIAL PLANT:	SP001	G3G4	S2S3	N	TU

MANAGED LANDS: State Game Lands #296


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY
SMITHTON QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
LITTLE SEWICKLEY CREEK SLOPES BDA
SEWICKLEY CREEK SLOPES BDA
SEWICKLEY CREEK OXBOW BDA
JACOBS CREEK BDA
State Game Lands #296
SEWICKLEY
HEMPFIELD
SOUTH HUNTINGDON
Smithton
Madison
Yukon
Wyano
Reid Hill
Jacobs Creek
Youghiogheny River
Produced by the United States Geological Survey
in cooperation with Commonwealth of Pennsylvania agencies
Control by USGS and NOS/NOAA
Topography by photogrammetric methods from aerial photographs
taken 1952. Field checked 1954. Revised from aerial photographs
taken 1993. Field checked 1994. Map edited 1994
Projection and 10,000-foot grid ticks: Pennsylvania coordinate
system, south zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue
1927 North American Datum (NAD 27)
North American Datum of 1983 (NAD 83) is shown by dashed corner ticks
The values of the shift between NAD 27 and NAD 83 for 7.5-minute
intersections are given in USGS Bulletin 1875
There may be private inholdings within the boundaries of
the National or State reservations shown on this map
All wells are gas wells
SCALE 1:24000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
ROAD CLASSIFICATION
Primary highway, hard surface
Light-duty road, hard or improved surface
Secondary highway, hard surface
Unimproved road
Interstate Route
U. S. Route
State Route
PENNSYLVANIA
QUADRANGLE LOCATION
SMITHTON, PA.
NW/4 CONNELLSVILLE 15' QUADRANGLE
40079-B6-TF-024
1994
DMA 3064 II NW - SERIES V831

SMITHTON QUADRANGLE

Sewickley Creek flows east to west across Westmoreland County in this quadrangle. On the course to its confluence with the Youghiogheny River, Sewickley Creek cuts through areas of limestone strata. Exposed limestone is somewhat unusual west of Chestnut Ridge in Westmoreland County and in this case some of these areas support rare species that are associated with calcareous outcroppings and the associated alkaline soils. This quadrangle includes four Natural Heritage Areas and one managed lands.

Sewickley Creek Slopes BDA

At a point where Sewickley Creek flows in a northerly direction beyond the town of Hutchison the stream cuts into two sections of south facing slope. The steep rocky slopes that remain are calcareous in nature and serve as habitat for a two plant species of special concern, **SP008a** and **SP008b**. SP008a is considered Pennsylvania Endangered and SP008b is Pennsylvania Tentatively Undetermined. The Sewickley Creek Slopes BDA is characterized by these steep south and southwest facing slopes that are interrupted by small tributary stream valleys. Forest cover on the rocky slopes is characterized as a Dry-Mesic Calcareous Central Forest (**NC008**) with oak (*Quercus rubra*, *Q. alba,* and *Q. muehlenbergii*), shagbark hickory (*Carya ovata*), redbud (*Cercis canadensis*) and flowering dogwood (*Cornus florida*) dominating. The surrounding forest is largely maturing sugar maple (*Acer saccharum*) and American beech (*Fagus grandifolia*) restricted to the slopes and the upper edges of the slopes. Kelly Run and a second small tributary downstream are forested. Agricultural and residential areas border the slopes. The most downstream of the tributary valleys within the site provides habitat for a second species of special concern, the Pennsylvania Rare **SP009**.

Threats and Stresses

SP008a and SP008b require a dry, calcareous, semi-shaded habitat in upland areas. Activities that would accelerate erosion, change light levels, introduce herbicides or invasive exotic species, or directly disturb soil and roots of the plants would adversely affect the population. These same activities would impact SP009 on the lower slopes of the tributary valley. At present, both off-road vehicle use at the site and presence of garlic mustard (*Alliaria petiolata*), an invasive exotic species, are two threats to the species of special concern

Recommendations

Protection of these plants would involve all of the landowners at the site and the neighboring homeowners on the southwestern end of Hutchison. Activities associated with the open fields and residential area above NC008 and other sections of forested slope would ideally take into account the requirements of the natural community and special plants. Additional forested buffer on the top edges of the slope and upland, as well as below the slope, would help to address potential threats. Monitoring of impacts by exotic invasive species and off-road vehicles would be useful in any protection activities taking place at the site.

Sewickley Creek Oxbow BDA

The Sewickley Creek Oxbow BDA consists of agricultural fields and pasture with adjacent patches of forest. A channel scar wetland sits at the base of a small linear hill within the site. The small patches of forest that line the hillsides within the site appear to be a Dry-Mesic Calcareous Central Forest Community. Sugar maple (*Acer saccharum*) and basswood (*Tilia* sp.) dominate a canopy that overlays a rich ground layer of herbaceous species including wild geranium (*Geranium maculatum*), agrimony (*Agrimonia gryposepala*) and violets (*Viola* spp.). Multiflora rose (*Rosa multiflora*) and tartarian honeysuckle (*Lonicera tartarica*) share the understory with flowering dogwood (*Cornus florida*). Three plant species of special concern, **SP004, SP006a** and **SP006b** grow in association with other herbaceous species in these forest patches along the oxbow wetland and adjacent areas. SP006a is listed as Pennsylvania Endangered and both SP006b and SP004 are considered Pennsylvania Rare.

Threats and Stresses

Although this site is degraded, the presence of two plants that very rarely occur in Pennsylvania makes it important. All three of the plants species of special concern require rich, undisturbed soils under shaded conditions. Activities that would result in a change in light levels, encouragement of exotic species or direct disturbance to the plants would adversely affect the populations. The presence of multiflora rose and tartarian honeysuckle is of concern. These invasive exotic species have the potential to alter the habitat by outcompeting native species for resources. Direct trampling of plants by unconfined cattle is also a concern at the site.

Recommendations

The significance of this site lies in the fact that it harbors remnant populations of three important species of special concern. Working with the landowner to understand the needs of these plants and, if desired, to develop a protection strategy would be an important first step in approaching the management of this site. Monitoring and removal of invasive exotic species and restricting cows from the forested slopes and adjacent buffer areas would be important elements in any protection plan.

Little Sewickley Creek Slopes BDA

This Natural Heritage Area is discussed as part of the Irwin quadrangle.

Jacobs Creek BDA

This Natural Heritage Area is discussed as part of the Dawson quadrangle.

State Game Lands #296

These managed lands are discussed as part of the Dawson quadrangle.

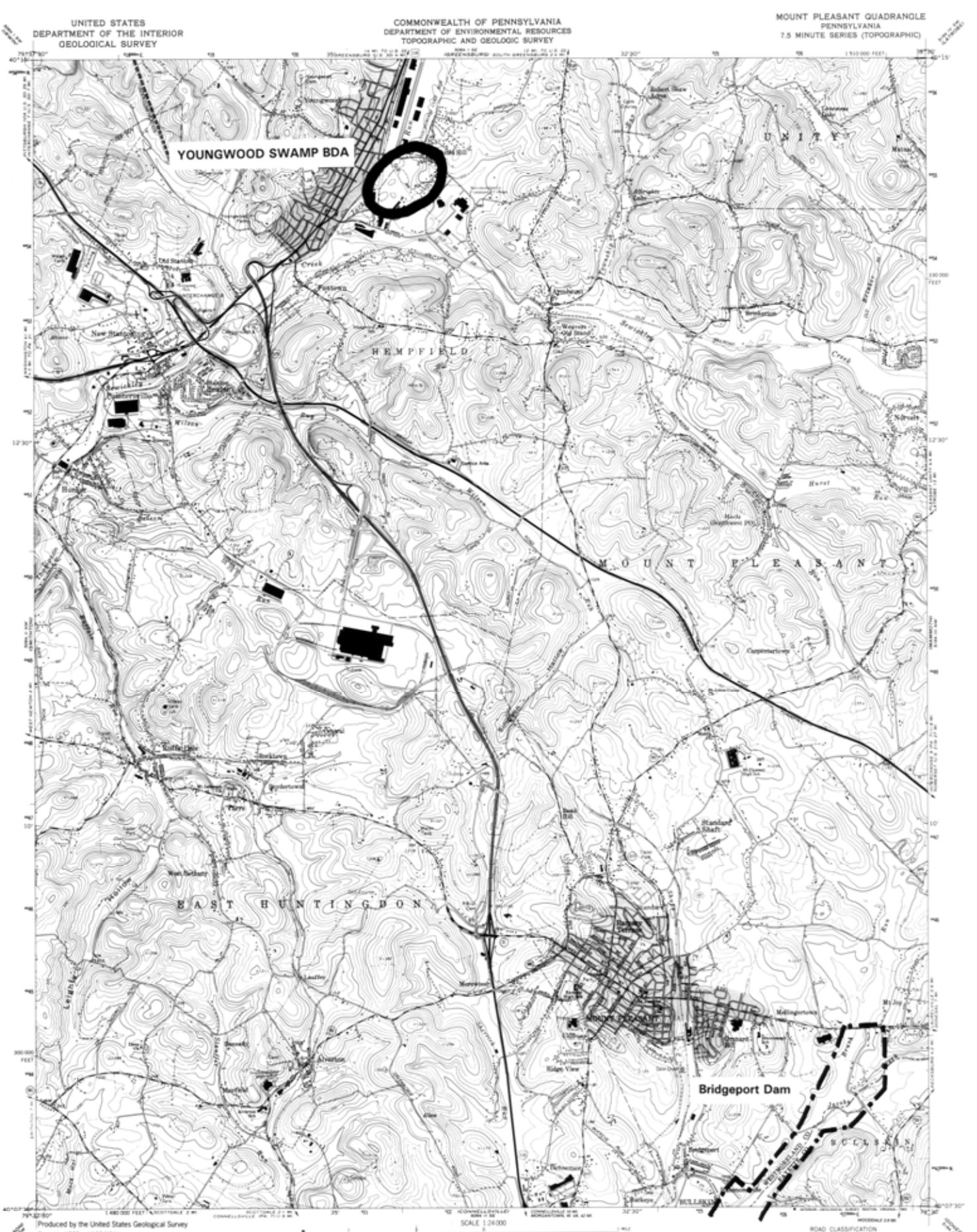
MT. PLEASANT QUADRANGLE

	PNDI Rank		Legal Status	
	Global	State	Fed.	State

NATURAL HERITAGE AREAS:

YOUNGWOOD SWAMP BDA *County Significance*

MANAGED LANDS: Bridgeport Dam



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY

MOUNT PLEASANT QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)

Produced by the United States Geological Survey

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1962-63. Field checked 1964. Revised from aerial photographs taken 1991. Field checked 1992. Map edited 1993

Projection and 10,000-foot grid ticks: Pennsylvania coordinate system, south zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue
1927 North American Datum (NAD 27)

North American Datum of 1983 (NAD 83) is shown by dashed corner ticks
The values of the shift between NAD 27 and NAD 83 for 7.5-minute intersections are given in USGS Bulletin 1875
Unlabeled wells are gas wells

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

ROAD CLASSIFICATION
Primary highway, hard surface — Light-duty road, hard or improved surface
Secondary highway, hard surface — Unimproved road
Interstate Route · U.S. Route · State Route

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

MOUNT PLEASANT, PA.
40079-B5-TF-024
1993

MT. PLEASANT QUADRANGLE

The landscape covered by this quadrangle is largely fragmented by industrial and commercial development, numerous highways and secondary roads. The towns of Mount Pleasant and Youngwood are located on this map, as well as numerous smaller communities that have developed around these larger towns. The natural features that are prominent in this area include Sewickley Creek, Jacks Creek, Jacobs Creek and their major tributaries. A significant amount of industrial, residential and commercial development is concentrated along these stream corridors, thus lending to the overall poor quality of these stream systems. One Natural Heritage Area and one managed lands are covered by this quadrangle.

Youngwood Swamp BDA

Situated along Jacks Run adjacent to the town of Youngwood is a 50-acre remnant of what was once an extensive wetland complex within this valley. The Youngwood Swamp BDA represents a Forested Swamp community that provides unique habitat in the county for a diversity of wetland plant and animal species. A variety of mature trees and shrubs, numerous herbaceous species including cattails (*Typha* sp.) inhabit the standing waters of the wetland. Remnants of the once active streetcar line remain as a raised rail bed through the center of the wetland. The site is privately owned and is locally recognized as a unique natural place not only for the plant and animal life that it harbors, but for the passive recreation and scientific education opportunities that it provides.

Threats and Stresses

Activities that would alter the hydrology or water quality, reduce the forested buffer area that currently exists for the wetland, or directly disturb or impact the wetland vegetation or soils are cause for concern at this site. The invasion of non-native invasive species stands as a potentially important threat especially for a site that is small in size and restricted by surrounding development.

Recommendations

Maintaining hydrology and water quality are probably the most critical factors in keeping the qualities of Youngwood Swamp intact. Equally important is minimizing further fragmentation and elimination of wetland habitat and forested buffer at the site. Working towards collaborative efforts between the present owner and interested citizens and organizations would be an important step towards protecting this site.

Bridgeport Dam

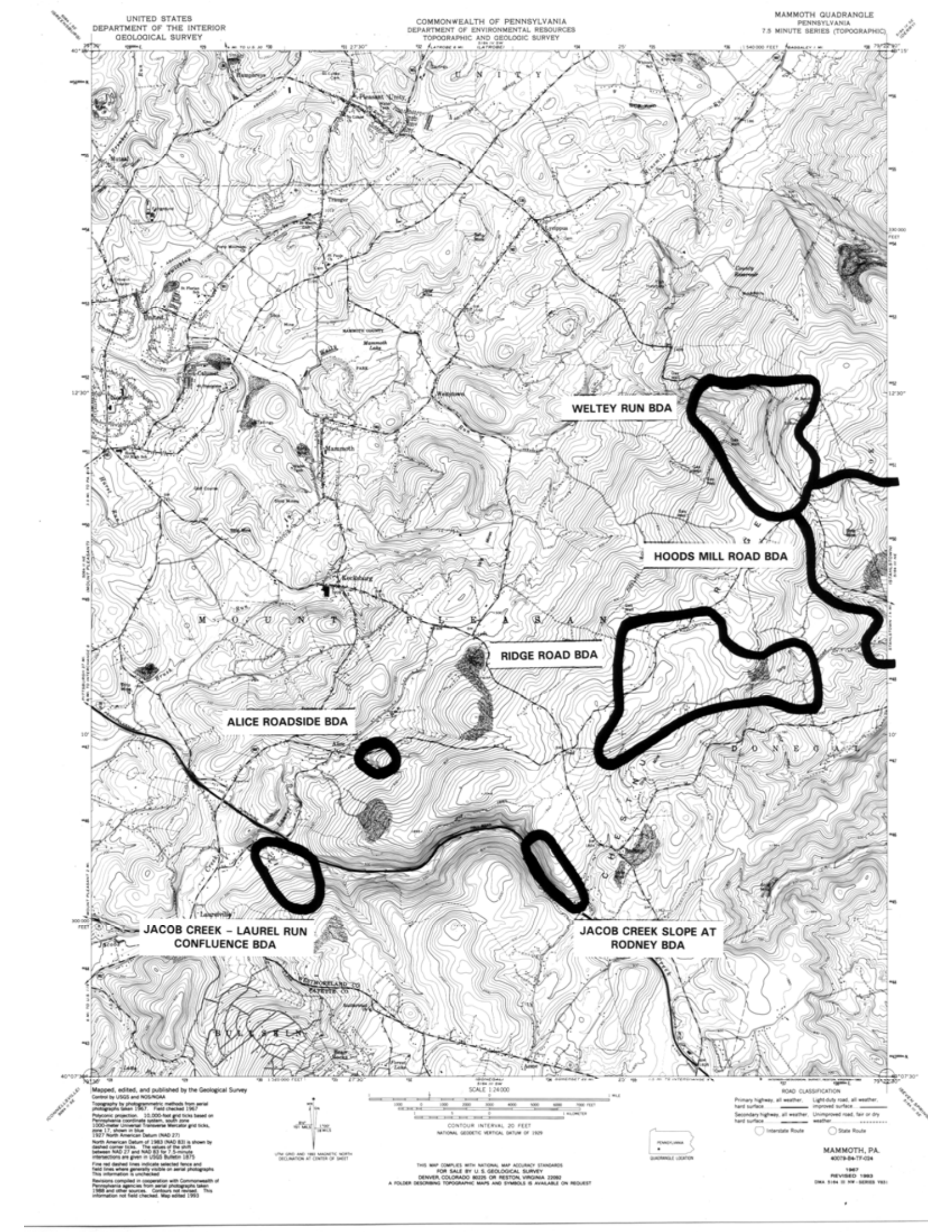
This 314 acre managed lands is owned by the Westmoreland County Bureau of Parks and Recreation. Associated with the managed lands is a flood control reservoir and associated open space that is used for recreational purposes. Also associated with the Bridgeport Dam is

a corridor of open space land that is largely wet bottomland along Jacobs Creek and the lower reaches of its tributary, Brush Run. Some of this wet riparian area is reverting farmland and floodplain forest that has been set aside by the county and will unlikely be developed. Sections of this corridor have the potential to revert back to the natural wetland communities that may have once existed along the stretch of stream. Invasive, exotic species, particularly multiflora rose (*Rosa multiflora*), an exotic honeysuckle (*Lonicera* sp.), common buckthorn (*Rhamnus cathartica*), dame's rocket (*Hesperis matronalis*) and agricultural grasses such as phalaris (*Phalaris arundinaceae*), pose a threat to the recovery of these natural communities. Management of these species could possibly be addressed through the efforts of the Westmoreland Bureau of Parks and Receation.

MAMMOTH QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
JACOB CREEK-LAUREL RUN CONFLUENCE BDA	*Notable Significance*				
SPECIAL PLANT:	SP003	G5	S3	N	PR
ALICE ROADSIDE BDA	*Notable Significance*				
SPECIAL PLANT:	SP013	G5	S3	N	PR
JACOB CREEK SLOPE AT RODNEY BDA	*Notable Significance*				
SPECIAL ANIMAL:	SA006	G3G4	S3	N	PT
WELTEY RUN BDA	*High Significance*				
SPECIAL PLANT:	SP001	G5	S3	N	PR
SPECIAL PLANT:	SP010	G5	S3	N	PR
HOODS MILL ROAD BDA	*High Significance*				
SPECIAL PLANT:	SP003.1	G5	S3	N	PR
SPECIAL PLANT:	SP015	G5	S3	N	PR
SPECIAL PLANT:	SP018	G5	S3	N	PR
RIDGE ROAD BDA	*Notable Significance*				
SPECIAL PLANT:	SP012	G5	S3	N	PR
SPECIAL PLANT:	SP014	G5	S3	N	PR
SPECIAL PLANT:	SP015	G5	S3	N	PR
SPECIAL PLANT:	SP016	G5	S3	N	PR

MANAGED LANDS: None


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY
MAMMOTH QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
WELTEY RUN BDA
HOODS MILL ROAD BDA
RIDGE ROAD BDA
ALICE ROADSIDE BDA
JACOB CREEK – LAUREL RUN CONFLUENCE BDA
JACOB CREEK SLOPE AT RODNEY BDA
Mapped, edited, and published by the Geological Survey
SCALE 1:24 000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
ROAD CLASSIFICATION
MAMMOTH, PA.
40079-B4-TF-024
1967
REVISED 1983

MAMMOTH QUADRANGLE

The division between the Pittsburgh Low Plateau Section and the Allegheny Mountain Section of the Appalachian Plateaus Physiographic Province runs across the quadrangle. The western slope of Chestnut Ridge and sections of the ridgeline are drained by Sewickley Creek and Brush Run which flow onto the lower elevation areas that form the western part of the county. Numerous tributary stream valleys and sections of upland forest on this ridge harbor several species of special concern. One species is very common and is the basis for the designation of five of the six Natural Heritage Areas on this quadrangle. There are no managed lands on this quadrangle.

Jacob Creek – Laurel Run Confluence BDA

As Jacobs Creek approaches its confluence with Laurel Run the steep forested slopes that formed the headwaters of the creek become less steep to a point where they begin to gently slope to form the beginnings of a floodplain along the stream. A population of **SP003** occurs in this area and is the basis for the Jacob Creek-Laurel Run Confluence BDA. The site for this plant population includes scattered residential buildings. The steep forested slopes to the east are presently being logged.

Threats and Stresses

Activities that result in changes in light levels and/or direct disturbance to the soil and roots of the plant would adversely effect the population. This site was not visited as part of this study therefore, it is not clear whether the logging activity in the Jacobs Creek valley extends into or threatens this site. Further, it is not clear what, if any, activities or conditions are presently impacting or threatening the population of SP003.

Recommendations

Making the landowner aware of the presence of SP003 would be a good first step in the protection of this site. If protection of the plant species is of concern to the owner of this site, a simple management plan could be developed to maintain habitat and keep track of the population over time to assess its health. Further investigation of the site and the extent of the plant population is needed.

Alice Roadside BDA

This site is situated on a forested slope on the southeast side of Laurel Creek in the vicinity of Alice at the base of Chestnut Ridge. The Alice Roadside BDA is the location of a small population of the Pennsylvania Rare, **SP013**.

Threats and Stresses

Activities that would accelerate erosion, result in dramatic changes in light levels, or directly

impact the roots or substrate on which the plant grows would adversely affect SP013. Plants that are growing along the road within this site are potentially subject to direct disturbance related to road maintenance or construction.

Recommendations

Further investigation into the condition of the site and extend of the plant population is needed. Protection of these plants would involve land owners, as well as Mount Pleasant Township and would require a familiarity with the habitat and the species. Maintenance of the roads within the site would need to address the potential threats above.

Jacob Creek Slope at Rodney BDA

Jacobs Creek forms a deeply cut valley through the western slope of Chestnut Ridge. A section of south-facing slope in the upper reaches of the watershed is recognized as the Jacob Creek Slope at Rodney BDA. On this slope overlooking the Pennsylvania Turnpike, which traverses the length of valley, large sandstone boulders outcrop and serve as habitat for the Pennsylvania Threatened **SA006**. This species is a resident of the Allegheny Mountain Section of Pennsylvania where it typically inhabits deep crevices and underground galleries of sandstone boulders. The forest that these outcroppings are a part of has been recently logged. Most of the canopy has been removed leaving a very exposed, disturbed condition at the site.

Threats and Stresses

At the present time, populations of SA006 in Pennsylvania seem to be declining for largely unknown reasons. Research suggests that the requirements of the animal include an undisturbed, rocky habitat whose microhabitat (surface temperature, humidity, moisture etc.) is maintained. Disturbances such as extensive tree removal can cause significant differences in such factors as surface temperatures and moisture levels in the forest.

Recommendations

Protection of SA006 at this site would involve both the landowners and the Pennsylvania Turnpike Commission and would require a familiarity with the habitat that this animal requires. Timbering has occurred at the site in the recent past. Additional field surveys and an evaluation of this animal population are needed in order to determine the viability and health of the individuals of SA006 at this site.

Welty Run BDA

Welty Run originates on the summit of Chestnut Ridge and flows along the western slope to its confluence with Sewickley Creek Near the town of United. The upper reaches of this stream valley are the location of the Welty Run BDA. A Dry-Mesic Acidic Central Forest

community occupies the gentle west and north facing slopes of the valley. Red oak (*Quercus rubra*), white oak (*Q. alba*), red maple (*Acer rubrum*) and black cherry (*Prunus serotina*) are common canopy species with tulip poplar (*Liriodendron tulipifera*) becoming common on the lower slope along the stream and along its associated seepage areas. The canopy structure varies throughout the site as a result of past logging activity. Most recently, a selective cut was performed in the southeast end of the site. Saplings of some of the canopy species share the subcanopy/shrub layer with a species of special concern, **SP001** and **SP010**. This Pennsylvania Rare shrub grows in abundance throughout this site, but appears to be most concentrated in the uppermost reaches of the watershed. It is reported for a number of other sites in the near vicinity on Chestnut and Laurel Ridges. This particular site represents one of the largest numbers of plants for all of the sites identified for this species in the study.

Threats and Stresses

Dramatic changes in light level or in competition levels would likely adversely impact this rare plant population. Direct disturbance of the roots or substrate on which the plant grows would be detrimental. Recent logging that has taken place has been done is a relatively low impact fashion, but it is not clear how this activity might have affected the population of these plants. Since this rare plant grows in close proximity to Route 130 and a secondary road in the eastern part of the site, road maintenance or construction, if not planned appropriately, could impact this plant.

Recommendations

Working with the owner and the entity responsible for road maintenance on Route 130 to understand the needs and distribution of the plant and to furnish, if desired, detailed management recommendations, would be a good first step in assuring that the plant continue at this site.

Hoods Mill Road BDA

This Natural Heritage Area is discussed as part of the Stahlstown quadrangle.

Ridge Road BDA

This site is situated on the summit of Chestnut Ridge and encompasses the upper reaches of a northern tributary stream to Jacobs Creek. The Ridge Road BDA is the location of four sub-populations of the Pennsylvania Rare **SP012, SP014, SP015** and **SP016**.

Threats and Stresses

Activities that would accelerate erosion, result in dramatic changes in light levels, or directly impact the roots or substrate on which the rare plant population grows would have adverse effects. Plants that are growing along roads within this site may be subject to disturbance related to road maintenance or construction.

Recommendations

Further investigation into the condition of the site and extend of the plant population is needed. Protection of these plants would involve landowners, as well as Donegal and Mount Pleasant Township and would require a familiarity with the habitat and the species. Maintenance of the roads within the site would need to address the potential threats above.

STAHLSTOWN QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
HOODS MILL ROAD BDA	*High Significance*				
SPECIAL PLANT:	SP003.1	G5	S3	N	PR
SPECIAL PLANT:	SP015	G5	S3	N	PR
SPECIAL PLANT:	SP018	G5	S3	N	PR
BUFFALO NUT SANCTUARY DA	High Significance				
SPECIAL PLANT:	SP003.1	G5	S3	N	PR
SPECIAL PLANT:	SP015	G5	S3	N	PR
SPECIAL PLANT:	SP018	G5	S3	N	PR
BAGGALEY ROADSIDE BDA	*Notable Significance*				
SPECIAL PLANT:	SP019	G5	S3	N	PR
BETHEL CHURCH ROAD BDA	*Notable Significance*				
SPECIAL PLANT:	SP020	G5	S3	N	PR
CAMBELLE RUN BDA	*Notable Significance*				
SPECIAL PLANTS:	SP016	G5	S3	N	PR
FOURMILE RUN TRIBUTARY BDA	*Notable Significance*				
SPECIAL PLANT:	SP021	G5	S3	N	PR
HAUGER HOOD ROAD SLOPE BDA	*Notable Significance*				
SPECIAL PLANT:	SP014	G5	S3	N	PR
LAUREL RIDGE LCA	*Exceptional Significance*				
INDIAN CREEK/LITTLE RUN BDA	*High Significance*				

NATURAL COMMUNITY:	NC012	G?	S1S2	N	N
NATURAL COMMUNITY:	NC013	G?	S1S2	N	N
SPECIAL PLANT:	SP001	G5	S3	N	PR
SPECIAL PLANT:	SP011	G5	S3	N	PR
SPECIAL PLANT:	SP024	G5	S3	N	PR
SPECIAL PLANT:	SP012	G5	S3	N	TU
SPECIAL PLANT:	SP013	G5	S3	N	TU

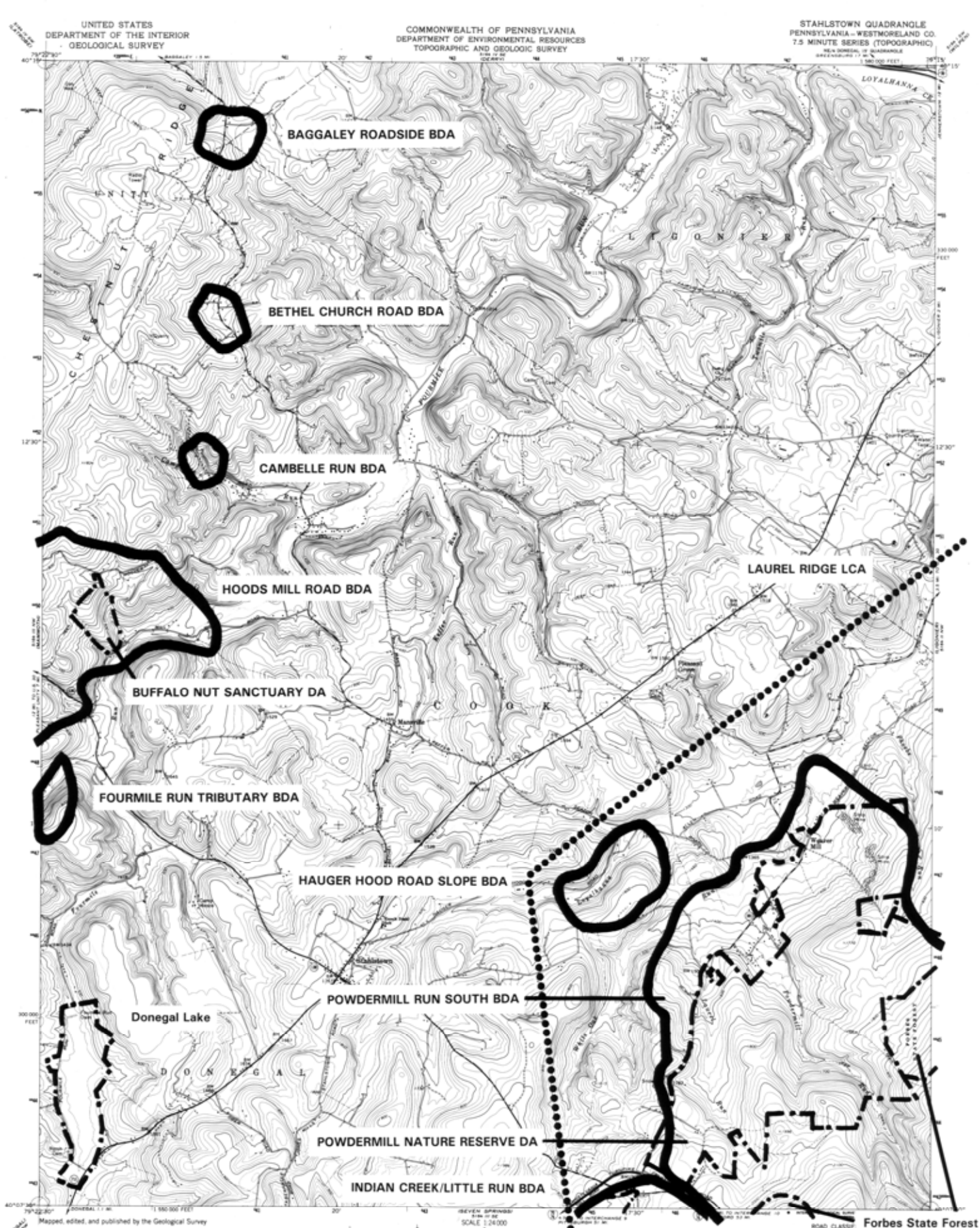
POWDERMILL RUN SOUTH BDA *Exceptional Significance*

SPECIAL ANIMAL:	SA011	G5T5	S3	N	N
SPECIAL ANIMAL:	SA012A	G5T5	S3	N	N
SPECIAL ANIMAL:	SA022	G3G4	S3	N	PT
SPECIAL PLANT:	SP005	G5	S3	N	TU
SPECIAL PLANT:	SP017	G5	S3	N	PR

POWDERMILL NATURE RESERVE DA *Exceptional Significance*

SPECIAL ANIMAL:	SA011	G5T5	S3	N	N
SPECIAL ANIMAL:	SA012A	G5T5	S3	N	N
SPECIAL ANIMAL:	SA022	G3G4	S3	N	PT
SPECIAL PLANT:	SP005	G5	S3	N	TU
SPECIAL PLANT:	SP017	G5	S3	N	PR

MANAGED LANDS: Forbes State Forest
Donegal Lake



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY

STAHLSTOWN QUADRANGLE
PENNSYLVANIA—WESTMORELAND CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography by photogrammetric methods from aerial photographs taken 1967. Field checked 1967

Polyconic projection. 1927 North American datum
10,000-foot grid based on Pennsylvania coordinate system, south zone
1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

Revisions shown in purple compiled in cooperation with State of Pennsylvania agencies from aerial photographs taken 1973. This information not field checked

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

UTM GRID AND 1973 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

To place on the predicted North American Datum 1983, move the projection lines 5 meters south and 20 meters west as shown by dashed corner ticks

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

Map photoinspected 1977
No major culture or drainage changes observed

ROAD CLASSIF.
Primary highway, all weather, hard surface
Light improved surface
Secondary highway, all weather, hard surface
Unimproved road, fair or dry weather
Interstate Route
U. S. Route
State Route

STAHLSTOWN, PA.
NE/4 DONEGAL 15' QUADRANGLE
40079-83-TF-024
PHOTOINSPECTED 1977
1967
PHOTOREVISED 1973
DMA 5184 III NE—SERIES V831

STAHLSTOWN QUADRANGLE

Sections of both of the major ridges in Westmoreland County are featured in this quadrangle. The eastern slope of Chestnut Ridge and the western slope of Laurel Ridge drop to the intermountain valley that is drained by Loyalhanna Creek in the northeastern corner of the map. Eleven Natural Heritage Areas are scattered across this landscape along with two Managed Lands.

Hoods Mill Road BDA/Buffalo Nut Sanctuary DA

The Hoods Mill Road BDA recognizes a relatively large section of forested slopes along a number of small tributary streams that flow off of the eastern slope of Chestnut Ridge and into Fourmile Run. The site includes a forested landscape, patches of which are relatively mature, fragmented by roads, patches of cleared forest, and two areas of former strip mines. The designation of the site is based, in part, on the presence of one of the largest groupings throughout its range in Pennsylvania of a Pennsylvania Rare shrub (**SP003.1, SP015** and **SP018**). The BDA also includes a dedicated managed lands, the Buffalo Nut Sanctuary DA. The Buffalo Nut Sanctuary comprises approximately thirty acres of maturing Mesic Central Forest dominated by a canopy of tulip poplar (*Liriodendron tulipifera*), American beech (*Fagus grandifolia*) and red oak (*Quercus rubra*) and an understory of spicebush (*Lindera benzoin*), American beech and SP003.1, SP015 and SP018. The Buffalo Nut Sanctuary is owned and managed by the Carnegie Museum of Natural History and has been set aside for the long-term protection of the rare plant population that exists on this tract of land. Although this rare shrub is found throughout the site, the Buffalo Nut Sanctuary appears to harbor the best habitat and highest concentration of plants.

Threats and Stresses

Activities that threaten the plants at this site include, changes in light levels, direct physical disturbance, and indirect disturbance to soils and root systems. Since this rare shrub is a parasitic plant dependent on the nutrients provided by host trees, loss of these trees in the near vicinity of the population could be detrimental. Continued fragmentation of the site will result in elimination of habitat for the plant, as well as increased competition from weedy, aggressive species. Plants that are located in close proximity to the roads within the site may be subject to disturbances related to road maintenance or construction.

Recommendations

Working with landowners to understand the needs and distribution of the plant and to furnish, if desired, more detailed management recommendations, would be a good step in assuring that this plant continue at the site. Ultimately, the best protection for the rare species at this site falls within the DA designation furnished by the Carnegie Museum of Natural History. Additional acquisition of lands adjacent to the Buffalo Nut Sanctuary would put more of the population under direct protection. Road maintenance within the site should take into consideration the threats noted above.

Baggaley Roadside BDA

This site is situated at the intersection of Bethel Church Road and T920 on the eastern slope of Chestnut Ridge**.** Baggaley Roadside BDA is largely forested land that supports special plant population **SP019**.

Threats and Stresses

Activities that would accelerate erosion, result in dramatic changes in light levels, or directly impact the roots or substrate on which the plant grows would adversely affect SP019. Since SP019 is a parasitic plant dependent on the nutrients provided by host trees, loss of these trees in the near vicinity of the population could be detrimental. Plants growing along roads within this site are subject to disturbance related to road maintenance or construction.

Recommendations

Further investigation into the condition of the site and extent of the plant population is needed. Protection of these plants would involve land owners, as well as Unity, Ligonier and Cook Township and would require a familiarity with the habitat and the species. Maintenance of the roads within the site would need to address the potential threats above.

Bethel Church Road BDA

This small site encompasses two sides of Bethel Church Road approximately 2.0 miles north of the Fourmile Run crossing of Bethel Church Road. The Bethel Church Road BDA is situated on the eastern slope of Chestnut Ridge and serves as another location for a small population of **SP020.** Plants have been observed growing in the forest along the edge of the road.

Threats and Stresses

This Natural Heritage Area shares the same requirements and therefore, is threatened by that same activities that other sites for SP020 in the county - activities that would accelerate erosion, result in dramatic changes in light levels, or directly impact the roots or substrate on which the plant grows. Since SP020 is a parasitic plant dependent on the nutrients provided by host trees, loss of these trees in the near vicinity of the population could be detrimental. Plants observed are growing along roads within this site they are subject to disturbance related to road maintenance or construction.

Recommendations

Further investigation into the condition of the site and extend of the plant population is needed. Protection of these plants would involve landowners, as well as Cook Township and

would require a familiarity with the habitat and the species. Maintenance of the roads within the site would need to address the potential threats above.

Cambelle Run BDA

The Cambelle Run BDA is a small roadside site on the eastern slope of Chestnut Ridge that provides habitat for the plant species of special concern, **SP016**. This site is adjacent to a lightly used dirt road along Cambelle Run. Although a few plants were identified from the road, potential for a larger population exists at this site.

Threats and Stresses

Activities that would accelerate erosion along the roadside, result in dramatic changes in light levels, or directly impact the roots or substrate on which the plant grows would adversely affect SP016. Since SP016 is a parasitic plant dependent on the nutrients provided by host trees, loss of these trees in the near vicinity of the population could be detrimental. Plants growing along Noel Road are subject to disturbance related to road maintenance, construction and erosion.

Recommendations

Further investigation into the condition of the site and extend of the plant population is needed. Protection of these plants would involve land owners, as well as the entity responsible for the road maintenance and would require a familiarity with the habitat and the species. Maintenance of the roads within the site would need to address the potential threats above.

Fourmile Run Tributary BDA

This small site is situated along a tributary to Fourmile Run and includes the bottomlands along the stream and the north facing slopes adjacent to the bottomlands. Like some of the other sites for **SP021** situated on the east slope of Chestnut Ridge in this quadrangle, the Fourmile Run Tributary BDA harbors plants were observed within the forest bordering the road.

Threats and Stresses

This Natural Heritage Area shares the same requirements and therefore, is threatened by that same activities as other sites for SP021 in the county - activities that would accelerate erosion, result in dramatic changes in light levels, or directly impact the roots or substrate on which the plant grows. Since SP021 is a parasitic plant dependent on the nutrients provided by host trees, loss of these trees in the near vicinity of the population could be detrimental. Plants observed are growing along roads within this site they are subject to disturbance related to road maintenance or construction.

Recommendations

Further investigation into the condition of the site and extend of the plant population is needed. Protection of these plants would involve land owners, as well as the entity responsible for SR2004 and would require a familiarity with the habitat and the species. Maintenance of the roads within the site would need to address the potential threats above.

Hauger Hood Road Slope BDA

Loyalhanna Creek originates near Stahlstown on the Stahlstown quadrangle. Patches of forested slopes lie adjacent to the stream as it flows northeast along the base of Laurel Ridge. One section of the forested slope provides habitat for the species of special concern, **SP014.** Hauger Hood Road Slope BDA sits along Hauger Hood Road that traverses Loyalhanna Creek at the base of the slope. Rich, mesic soils of the Mesic Central Forest community on the southeast side of the stream support a diversity of both woody and herbaceous species which include maturing red oak (*Quercus rubra*), tulip poplar (*Liriodendron tulipifera*), sugar maple (*Acer saccharum*), red maple (*A. rubrum*) and basswood (*Tilia* sp.), as well as trillium (*Trillium grandiflora* and *T. erectum*), mayapple (*Podophyllum peltatum*), violets (*Viola* spp.), foamflower (*Tiarella cordifolia*) and a variety of ferns. The understory is characterized by spicebush (*Lindera benzoin*), witchhazel (*Hammamelis virginiana*) and SP014.

Threats and Stresses

This Natural Heritage Area is threatened by that same activities as other sites for SP014 in the county - activities that would accelerate erosion, result in dramatic changes in light levels, or directly impact the roots or substrate on which the plant grows. Since SP014 is a parasitic plant dependent on the nutrients provided by host trees, loss of these trees in the near vicinity of the population could be detrimental. Plants observed are growing along roads within this site they are subject to disturbance related to road maintenance or construction.
Recommendations

As more information becomes available related to the rare status of this plant in Pennsylvania and its habitat needs, it would be prudent to work with the landowner to take measures for the protection of this species.

Laurel Ridge LCA

This Natural Heritage Area is discussed as part of the New Florence quadrangle.

Indian Creek/Little Run BDA

This Natural Heritage Area is discussed as part of the Seven Springs quadrangle.

Powdermill Run South BDA/Powdermill Nature Reserve DA

Powdermill Run is a High Gradient Clearwater Creek Community that flows off of the western slope of Laurel Ridge through a section of Forbes State Forest just north of Kregar. The natural condition of the this large forested watershed is not unlike many of the other watersheds that flow off of the western slope of Laurel Ridge and are included within the Laurel Ridge LCA. Because of the high quality character of this stream, the presence of a number of species of special concern and the location of the Powdermill Nature Reserve, a dedicated managed lands, this watershed and parts of the adjacent Laurel Run and Phoebe Run watersheds have been given the designation of the Powdermill Run South BDA. The Powdermill Nature Reserve DA is a 2,200 acre tract in the lower reaches of the Powdermill Run watershed that is owned and managed by the Carnegie Museum of Natural History as a field station. The thrust of the mission for Powdermill is to provide opportunities for research and education while at the same time preserving the natural qualities that exist on the land. As an added measure of protection, the Western Pennsylvania Conservancy holds a conservation easement on this property. This easement aids in the protection of the natural resources of concern which include the forest and stream communities, as well as a number of species of special concern. Species of special concern within this BDA include two mammals (**SA011** and **SA012**, as well as **SA022**) and two plants (**SP005** and **SP017**). The mammal species of special concern, as well as many other mammals and birds, have been the subject of scientific study by resident researchers at Powdermill. SA011 and SA012 represents two locations for one of the animal species that inhabit the forest floor in the eastern section of the reserve. SA022 is a second small mammal that is found at the Reserve, as well. Uplands in the Phoebe Run watershed serve as the location of a **SP017,** a Pennsylvania Rare shrub that is identified for a number of Natural Heritage Areas in and around the area covered by this quadrangle. The high quality stream and streamside seeps harbor a population of the Pennsylvania Rare **SP005**. Populations of the plant have been found in some of the other watersheds within the Laurel Ridge LCA, as well.

Threats and Stresses

Management at this site is largely dedicated to the protection of the natural qualities present and as such has helped to reduce the number of potential threats or stresses to this ecosystem. Generally speaking, the requirements for the species of special concern at the site include an intact forest canopy both for shading and nutrients, high water quality and intact hydrology, and minimal direct disturbance to the forest floor where nesting and hibernation occur. Considering these needs, possible activities that might stand to affect immediate habitat include those that would result in a change in light levels, direct impact to plants or animals, unplanned trail or road construction, or activities that have the potential to alter hydrology of the watershed.

Recommendations

Continued management of this Nature Reserve under the guidelines set forth by the Carnegie Museum of Natural History will help to ensure the protection of this site. Working with the Carnegie Museum to incorporate the location and needs of species of special concern into a management plan for this site would help to guide recreation or resource management activities that are planned in the future. Additionally, coordination between the Carnegie Museum and the Bureau of Forestry on acquisition of additional land in the watershed would be an important step towards full protection for Powdermill Run and its associated features. Additional survey and monitoring of natural communities and species of special concern at the site would allow for a more thorough understanding of ecosystem function and what is needed for ultimate protection of this site.

Forbes State Forest

These managed lands are discussed as part of the Boswell quadrangle.

Donegal Lake

Donegal Lake is a man-made lake formed on Fourmile Run at the eastern base of Chestnut Ridge. Owned and managed by the Pennsylvania Fish and Boat Commission, this lake and the surrounding land totals 232 acres. It is managed as a recreational lake for fishing and boating. The lake itself, as well as emergent marsh habitat along the edges, provides wildlife habitat and is a good place for observing migrating waterfowl and other birds.

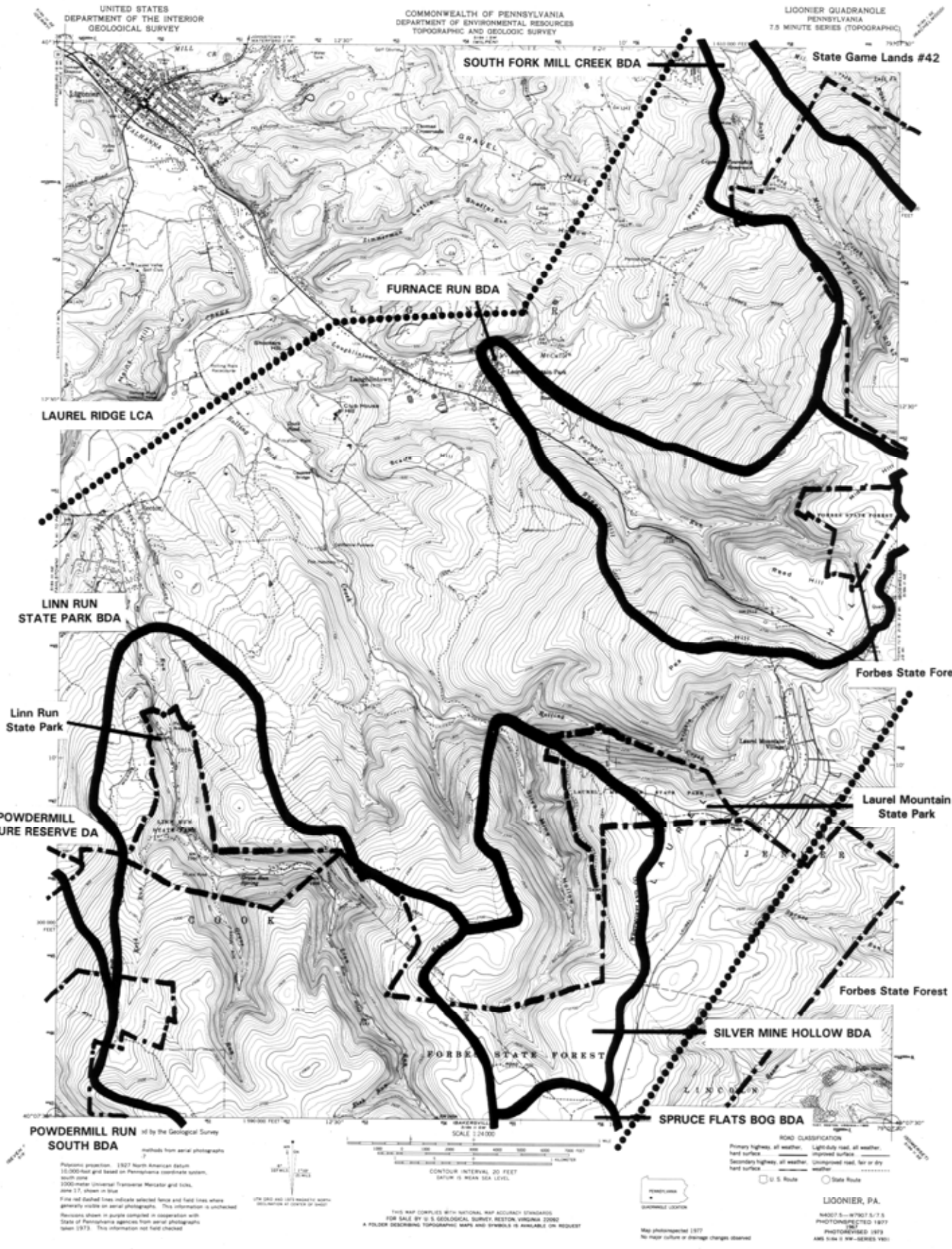
LIGONIER QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
LAUREL RIDGE LCA	*Exceptional Significance*				
POWDERMILL RUN SOUTH BDA	*Exceptional Significance*				
SPECIAL ANIMAL:	SA011	G5T5	S3	N	N
SPECIAL ANIMAL:	SA012A	G5T5	S3	N	N
SPECIAL ANIMAL:	SA022	G3G4	S3	N	PT
SPECIAL PLANT:	SP005	G5	S3	N	TU
SPECIAL PLANT:	SP017	G5	S3	N	PR
POWDERMILL NATURE RESERVE DA	*Exceptional Significance*				
SPECIAL ANIMAL:	SA011	G5T5	S3	N	N
SPECIAL ANIMAL:	SA012A	G5T5	S3	N	N
SPECIAL ANIMAL:	SA022	G3G4	S3	N	PT
SPECIAL PLANT:	SP005	G5	S3	N	TU
SPECIAL PLANT:	SP017	G5	S3	N	PR
LINN RUN STATE PARK BDA	*High Significance*				
SPECIAL ANIMAL:	SA022	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA027	G3G4	S3	N	PT
SPECIAL PLANT:	SP012	G5	S3	N	PT
SPECIAL PLANT:	SP013	G5	S3	N	PT
SPECIAL PLANT:	SP020	G5	S3	N	PT
SPECIAL PLANT:	SP021	G5	S3	N	PT
SPECIAL PLANT:	SP022	G5	S3	N	PT
SPECIAL PLANT:	SP023	G5	S3	N	PT
SPECIAL PLANT:	SP025	G5	S3	N	PT
SPECIAL PLANT:	SP026	G5	S3	N	PR
SPRUCE FLATS BOG BDA	*High Significance*				
SPECIAL PLANT:	SP016	G5	S2	N	PT

SILVER MINE HOLLOW BDA *County Significance*					
FURNACE RUN BDA *High Significance*					
NATURAL COMMUNITY:	NC028	G?	S3	N	N
SOUTH FORK MILL CREEK BDA *High Significance*					
NATURAL COMMUNITY:	NC011	G?	S3	N	N

MANAGED LANDS:

Forbes State Forest
Laurel Mountain State Park
State Game Lands #42
Linn Run State Park


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY
LIGONIER QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
SOUTH FORK MILL CREEK BDA
State Game Lands #42
FURNACE RUN BDA
LAUREL RIDGE LCA
LINN RUN
STATE PARK BDA
Linn Run
State Park
Forbes State Forest
Laurel Mountain
State Park
POWDERMILL
NATURE RESERVE DA
Forbes State Forest
SILVER MINE HOLLOW BDA
SPRUCE FLATS BOG BDA
POWDERMILL RUN
SOUTH BDA
SCALE 1:24000
CONTOUR INTERVAL 20 FEET
LIGONIER, PA.

LIGONIER QUADRANGLE

The Ligonier quadrangle largely encompasses the western slope of the Laurel Ridge and a section of the Ligonier Valley which is situated between Chestnut and Laurel Ridges. Numerous watersheds that are situated on the western slope of Laurel Ridge are highlighted on this quadrangle. Eight Natural Heritage Areas and four Managed Lands are recognized on the Ligonier quadrangle.

Laurel Ridge LCA

This Natural Heritage Area is discussed on the New Florence quadrangle.

Powdermill Run South BDA/Powdermill Nature Reserve DA

This Natural Heritage Area is discussed on the Stahlstown quadrangle.

Linn Run State Park BDA

The Linn Run State Park BDA represents the majority of the Linn Run watershed and includes the Linn Run State Park and part of Forbes State Forest. This watershed BDA is similar to the other watersheds flowing off of the western slope of Laurel Ridge. It includes a high quality stream system and relatively contiguous, intact forest communities that together provide suitable conditions for several species of special concern. This site represents a Natural Heritage Area and Managed Lands included within the Laurel Ridge LCA.

Linn Run State Park is a 571 acre tract of land that has been extracted from what was once Forbes State Forest and is presently being managed as a state park by the DCNR – Bureau of State Parks. The Park is situated in the lower Linn Run valley and is largely developed for passive recreation and overnight accommodations. A number of rustic cabins lining the stream in the lower half of the park. The park has managed to maintain a forested character with only a few small patches of completely cleared land. Mature tulip poplar (*Liriodendron tulipifera*), hemlock (*Tsuga canadensis*), red oak (*Quercus rubra*) and sugar maple (*Acer saccharum*) dominate the Mesic Central Forest community on the lower slopes of Linn Run and the Grove Run, Rock Run and Fish Run. The rich, diverse forest that has remained also includes a subcanopy of striped maple (*Acer pensylvanica*), spicebush (*Lindera benzoin*), witch hazel (*Hammamelis virginiana*), saplings of tulip poplar and sugar maple and a wide array of herbaceous species including numerous fern species, blue cohosh (*Caulophyllum thalictroides*), trilliums (*Trillium* spp.), white wood aster (*Aster divaricatus*), horse balm (*Collinsonia canadensis*) and wood nettle (*Laportea canadensis*). An additional component to the herbaceous layer which is common in both the main Linn Run valley and the lower reaches of Grove Run is a Pennsylvania Threatened species (**SP012, SP013, SP020, SP021, SP022, SP023** and **SP025**). This plant is found in smaller numbers in adjacent watersheds to

the south, but appears to be particularly well adapted to the habitat provided in the Linn Run valley. A second plant species of special concern, **SP026**, is found in Rock Run. This Pennsylvania Rare plant grows in the stream and along its edges, and in some of the seepages or spring runs that flow into Rock Run. Moving up in elevation to the mid slope the forest becomes drier with more oak in the canopy. At mid slope large sandstone boulders outcrop and add a different element to the character of the forest. These outcroppings provide habitat for a Pennsylvania Threatened animal (**SA022** and **SA027**) that dwells in the crevices of this outcrop. The forest of the mid to upper slope extends onto Forbes State Forest. However management of the forest on state park land and state forest land falls under the Bureau of Forestry.

Threats and Stresses

The plant and animal species of special concern within the watershed depend upon the relatively undisturbed character of the forest canopy and habitat provided at this site. The plant depend upon the rich, undisturbed soils and intact hydrology of the site while the animal depends upon the rocky and remote conditions of the site for cover. Activities that stand to have the greatest impact include those that would result in dramatic changes in light levels, water quality or hydrology, competition from non-native invasive species, and further fragmentation of the habitat and surrounding areas that support the elements.

Recommendations

Recognizing the important qualities of this site and incorporating any additional information into the existing management plan would be a good first step in assuring the protection of the plant species and animal species at the site. Designation of a portion of the state park as a Natural Area or Public Plant Sanctuary would also provide a high degree of protection for these areas.

Spruce Flats Bog BDA

This Natural Heritage Area is discussed as part of the Bakersville quadrangle.

Silver Mine Hollow BDA

The Silver Mine Hollow BDA recognizes the watershed of Silver Mine Hollow, a tributary to Rolling Rock Creek entering Loyalhanna Creek in the vicinity of the Rolling Rock Farm. The ownership of this watershed is shared by both private landowners and the Bureau of Forestry and was not ground surveyed except for the very upper reaches of the stream valley which are located on Forbes State Forest. Anecdotal information from individuals familiar with the site suggest that a mature forest can be found in the lower valley and slopes of Silver Mine Hollow. Sources suggest that this is a unique forest community and older than many of the similar forest communities in the area. The upper reaches of the watershed that are located in Forbes State Forest can be described as 'boggy' along the stream with a dense mat of

Sphagnum moss (*Sphagnum* sp.), rhododendron (*Rhododendron maximum*), winterberry (*Ilex montana*), witch hazel (*Hammamelis virginiana*) and striped maple (*Acer pensylvanica*) in the understory and hemlock (*Tsuga canadensis*) and red maple (*Acer rubrum*) in the canopy. Red oak (*Quercus rubra*), tulip poplar (*Liriodendron tulipifera*) and black cherry (*Prunus serotina*) are more dominant in the canopy on the lower to mid slopes and hay-scented fern (*Dennstaedtia punctilobula*) forms a dense ground layer. This upper section of Silver Mine Hollow appears to have been logged in the last thirty to fifty years. This suggests that it is significantly younger than the forest community downstream. This site is included as part of the Laurel Ridge LCA

Threats and Stresses

Considering the importance of the mature or "old growth" trees that make up the forest community at the site, tree removal would change the character of the forest dramatically. Changes in light and moisture levels resulting from tree removal would greatly impact the requirements for maintaining a mature forest. Further fragmentation of the forest ecosystem as evidenced in some areas would lend to the overall loss of ecological integrity of the forest, as well.

Recommendations

Currently, this watershed is under private and public ownership (Bureau of Forestry). Ongoing conservation efforts by the agency have provided this watershed some protection. Working with landowners toward a comprehensive management agreement would complement the measures already in place by the Bureau of Forestry for the upper watershed. Further survey of the site would lend additional information for management efforts.

Furnace Run BDA

Furnace Run is a High Gradient Clearwater Creek (**NC028**) that is designated an Exceptional Value watershed. The Furnace Run BDA which encompasses this large watershed is situated on the western slope of Laurel Ridge just upstream of the town of Laughlintown and is included in the Laurel Ridge LCA The Furnace Run BDA also represents a large, contiguous forested section of the county. As is the case with most of the forest on Laurel Ridge, this forest has been subject to repeated timbering and is presently a mix of various aged forest patches including a relatively mature riparian forest. This landscape interpretation was done with the use of aerial photography and aerial reconnaissance since a ground survey was not performed. This site is largely under private ownership with a small section of Forbes State Forest in the headwaters.

Threats and Stresses

Overall, those activities that stand to affect water quality are of most concern. Loss of soil and subsequent siltation of any water courses, input of nutrients, runoff of pesticides or herbicides, changes in water temperature due to loss of shading or ponding, and alterations to hydrology

would all be detrimental to the stream community. This particular watershed is subject to impacts related to Route 30. Runoff during rain and snow events of compounds such as road salt, motor oil and petroleum residue from asphalt etc. are some of the elements that can contribute to stream pollution and degradation. Impermeable surfaces such as asphalt roads also contribute to greater runoff of water into the stream. Fragmentation of the forest in the watershed is also of concern and may result in loss of species habitat, favorable conditions for non-native exotic species which outcompete native species for resources, and overall loss of ecological integrity of the forest.

Recommendations

Currently, this watershed is under private and public ownership (Bureau of Forestry). Ongoing conservation efforts by the agency and special designation of the stream as Exceptional Value have provided this watershed some protection. EV status of this stream carries with it the provision allowing for no degradation of water quality. An erosion and sedimentation plan must be in place for all earth moving activities over a minimum acreage and must provide for the goal of no degradation of water quality. Some special and general permits are also required for certain activities potentially affecting waterways (e.g. stream crossings) and wetlands. However, many activities receive no review or guidance under EV or any water quality designation [e.g. agriculture, small scale building or earth moving, timber harvesting (excluding road building or stream encroachment)]. Working with landowners to develop comprehensive management agreements would complement and bolster the protection framework already in place in this EV watershed.

South Fork Mill Creek BDA

The South Fork Mill Creek BDA is recognized as one of a number of large, forested watersheds on the western flank of Laurel Ridge featuring a High Gradient Clearwater Creek (**NC011**) as Exceptional Value. Mill Creek is one of the largest watersheds in Westmoreland County with the North Fork, South Fork and Left and Right Forks meeting just east of Waterford. The South Fork of Mill Creek is bounded by the Laurel Ridge to the east, Pine Hill to the northeast and Penrod and Peyton Hills to the southwest. Most of the watershed is under the ownership of the PA Game Commission as part of State Game Lands #42 and the site as a whole is included within the Laurel Ridge LCA. The forest is largely contiguous and is recognized as a Dry-Mesic Acidic Central Forest Community that has been cut over several times. Red oak (*Quercus rubra*), red maple (*Acer rubrum*), black cherry (*Prunus serotina*), black birch (*Betula lenta*) and striped maple (*Acer pensylvanicum*) are some of the dominant canopy and subcanopy trees of the forest. Rocky, dry habitats support mountain laurel (*Kalmia latifolia*), early low blueberry (*Vaccinium angustifolium*), late low blueberry (*V. vacillens*) and some trailing arbutus (*Epigaea repens*). Seepage areas in the headwaters of the stream add to the overall diversity of the site and harbor a variety of wetland species such as cinnamon fern (*Osmunda cinnamomea*), golden saxifrage (*Chrysosplenium americanum*) and numerous mosses (Bryophytes). Overall, the forest community in the watershed is young and recovering from past disturbance related to logging.

Threats and Stresses

Overall, those activities that stand to affect water quality are of most concern. Loss of soil (erosion) and subsequent siltation of any water courses, input of nutrients or pollutants such as road salt, runoff of pesticides or herbicides, changes in water temperature due to loss of shading or ponding, and any alterations to hydrology would all be detrimental to the stream community. Currently, road maintenance/improvement of Penrod Road in the lower part of the watershed and a low use dirt road paralleling the stream in State Game Lands are two areas that could negatively impact the stream through erosion and sedimentation if not carefully managed and maintained.

Recommendations

EV status of this stream carries with it the provision allowing for no degradation of water quality. An erosion and sedimentation plan must be in place for all earth moving activities over a minimum acreage and must provide for the goal of no degradation of water quality. Some special and general permits are also required for certain activities potentially affecting waterways (e.g. stream crossings) and wetlands. However, many activities receive no review or guidance under EV or any water quality designation [e.g. agriculture, small scale building or earth moving, timber harvesting (excluding road building or stream encroachment)]. Working with landowners to develop comprehensive management agreements would complement and bolster the protection framework already in place in this EV watershed.

Forbes State Forest

These Managed Lands are discussed as part of the Bolivar quadrangle.

Laurel Mountain State Park

Nearly the size of Linn Run State Park, this 493 acre managed lands is owned and managed by the Bureau of State Parks. Until recently, this area was a ski area privately operated through a concession agreement with the Bureau of State Parks. These managed lands border on Forbes State Forest and in doing so form a natural extension into the upper Rolling Rock and Silver Mine Hollow valleys. With the exception of the ski slopes and parts of the uplands where a water supply pond and maintenance and buildings related to the ski operation exist, the remainder of the park is managed in a similar fashion to the surrounding forest that is owned and managed by the Bureau of Forestry.

State Game Lands #42

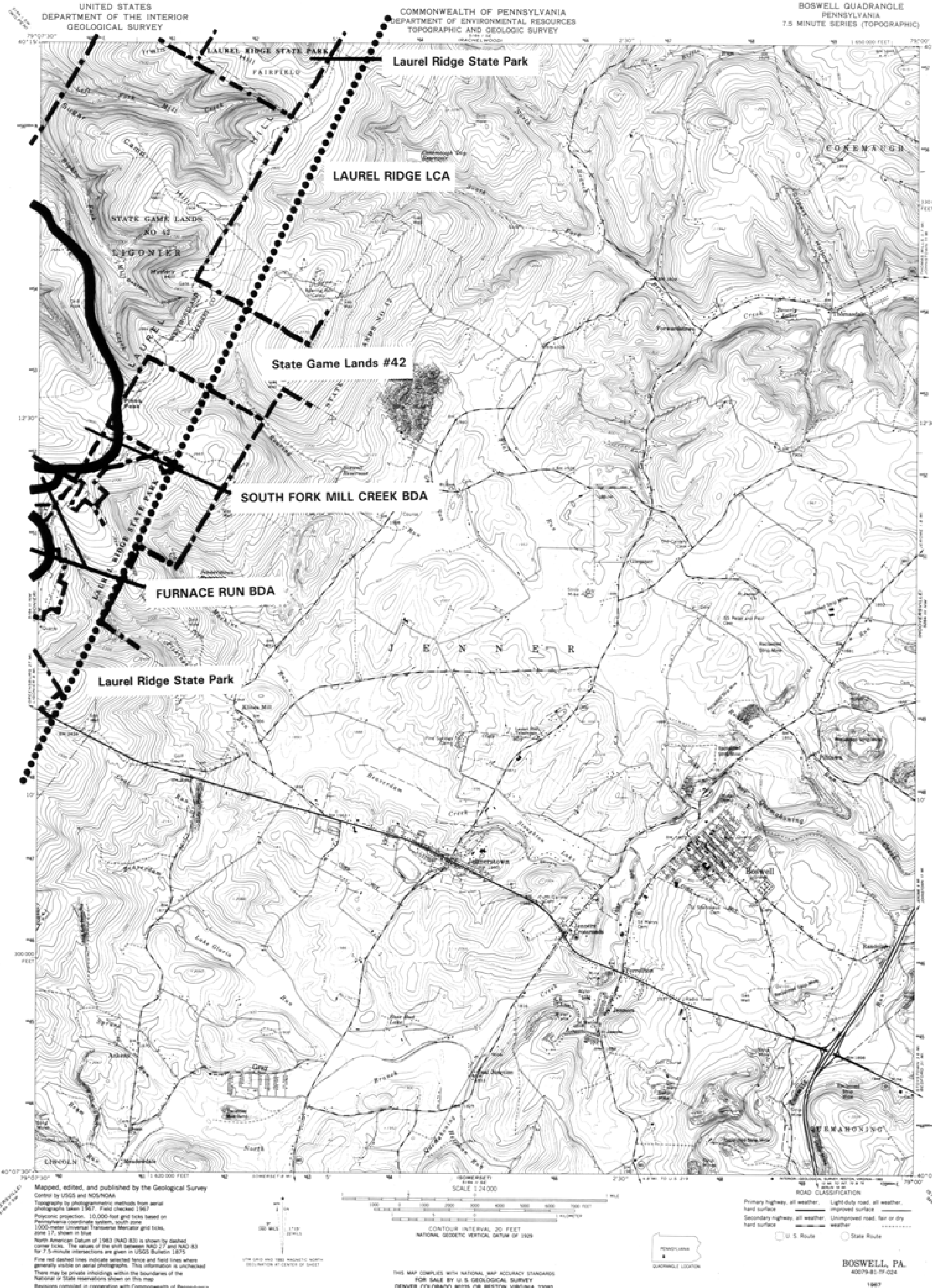
These managed lands are discussed as part of the New Florence quadrangle.

Linn Run State Park

These managed lands are discussed above as part of the Linn Run State Park BDA.

BOSWELL QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
LAUREL RIDGE LCA	*Exceptional Significance*				
*S*OUTH FORK MILL CREEK BDA	*High Significance*				
NATURAL COMMUNITY:	NC005	G?	S3	N	N
FURNACE RUN BDA	*High Significance*				
NATURAL COMMUNITY:	NC028	G?	S3	N	N
MANAGED LANDS:	Laurel Ridge State Park State Game Lands #42				



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY
BOSWELL QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
Laurel Ridge State Park
LAUREL RIDGE LCA
State Game Lands #42
SOUTH FORK MILL CREEK BDA
FURNACE RUN BDA
Laurel Ridge State Park
STATE GAME LANDS NO 42
LIGONIER
CONEMAUGH
JENNER
QUEMAHONING
LINCOLN
Boswell
Lake Gloria
Mapped, edited, and published by the Geological Survey
SCALE 1:24 000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225 OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
ROAD CLASSIFICATION
BOSWELL, PA.
1967
REVISED 1993

BOSWELL QUADRANGLE

With the exception of the northwestern corner, this quadrangle includes the highly agricultural area that lies at the base of the eastern slope of Laurel Ridge on the Allegheny Front in Somerset County. The eastern reaches of Westmoreland County are covered in the northwest corner of the map and are characterized by the contiguously forested upper watersheds of the South and Middle Forks of Mill Creek. Three Natural Heritage Areas and two managed lands extend onto this quadrangle.

Laurel Ridge LCA

This Natural Heritage Area is discussed as part of the New Florence quadrangle.

South Fork Mill Creek BDA

This Natural Heritage Area is discussed as part of the Ligonier quadrangle.

Furnace Run BDA

This Natural Heritage Area is discussed as part of the Ligonier quadrangle.

Laurel Ridge State Park

These managed lands are discussed as part of the New Florence quadrangle.

State Game Lands #42

These managed lands are discussed as part of the New Florence quadrangle.

BAKERSVILLE QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
LAUREL RIDGE LCA	*Exceptional Significance*				
SPRUCE FLATS BOG BDA	*High Significance*				
SPECIAL PLANT:	SP016	G5	S2	N	PT
LINN RUN STATE PARK BDA	*High Significance*				
SPECIAL ANIMAL:	SA022	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA027	G3G4	S3	N	PT
SPECIAL PLANT:	SP012	G5	S3	N	PT
SPECIAL PLANT:	SP013	G5	S3	N	PT
SPECIAL PLANT:	SP020	G5	S3	N	PT
SPECIAL PLANT:	SP021	G5	S3	N	PT
SPECIAL PLANT:	SP022	G5	S3	N	PT
SPECIAL PLANT:	SP023	G5	S3	N	PT
SPECIAL PLANT:	SP025	G5	S3	N	PT
SPECIAL PLANT:	SP026	G5	S3	N	PR
POWDERMILL RUN SOUTH BDA	*Exceptional Significance*				
SPECIAL ANIMAL:	SA011	G5T5	S3	N	N
SPECIAL ANIMAL:	SA012a	G5T5	S3	N	N
SPECIAL ANIMAL:	SA022	G3G4	S3	N	PT
SPECIAL PLANT:	SP005	G5	S3	N	TU
SPECIAL PLANT:	SP017	G5	S3	N	PR
INDIAN CREEK/LITTLE RUN BDA	*High Significance*				
NATURAL COMMUNITY:	NC012	G?	S1S2	N	N
NATURAL COMMUNITY:	NC013	G?	S1S2	N	N
SPECIAL PLANT:	SP001	G5	S3	N	PR
SPECIAL PLANT:	SP011	G5	S3	N	PR
SPECIAL PLANT:	SP024	G5	S3	N	PR
SPECIAL PLANT:	SP012	G5	S3	N	TU

SPECIAL PLANT:	SP013	G5	S3	N	TU

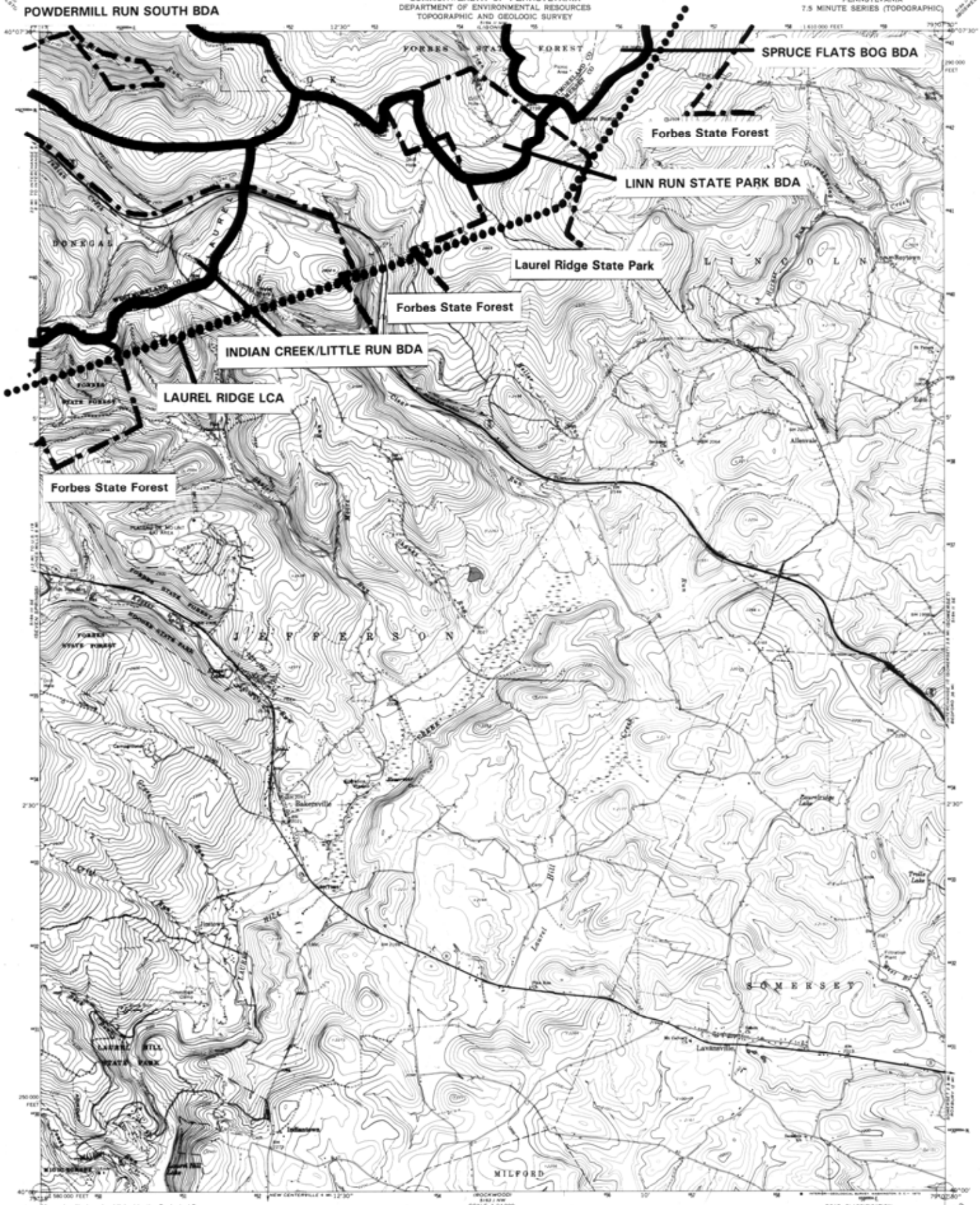
MANAGED LANDS: Forbes State Forest
Laurel Ridge State Park

UNITED STATES

POWDERMILL RUN SOUTH BDA

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY

BAKERSVILLE QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography by photogrammetric methods from aerial photographs taken 1967. Field checked 1967

Polyconic projection. 1927 North American datum
10,000-foot grid based on Pennsylvania coordinate system, south zone
1000-meter Universal Transverse Mercator grid ticks,
zone 17, shown in blue

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

Revisions shown in purple compiled in cooperation with State of Pennsylvania agencies from aerial photographs taken 1973. This information not field checked

SCALE 1:24000

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

UTM GRID AND 1975 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

ROAD CLASSIFICATION

Primary highway, all weather, hard surface — Light-duty road, all weather, improved surface

Unimproved road, fair or dry weather

Interstate Route — State Route

PENNSYLVANIA
QUADRANGLE LOCATION

Map photoinspected 1977
No major culture or drainage changes observed

BAKERSVILLE, PA.

N4000—W7907.5/7.5
PHOTOINSPECTED 1977
1967
PHOTOREVISED 1973
AMS 5164 II SW—SERIES V831

BAKERSVILLE QUADRANGLE

The summit of Laurel Ridge cuts across the northwestern corner of this quadrangle and delineates the southeastern boundary of Westmoreland County. The extreme headwaters areas of the Indian Creek, Little Run, Powdermill Run and Linn Run make up this corner of the county. The general character of the landscape for this part of county is largely contiguous forest. Five Natural Heritage Areas and two Managed Lands are covered by this quadrangle.

Laurel Ridge LCA

This Natural Heritage Area is discussed as part of the New Florence quadrangle.

Spruce Flats Bog BDA

This 28-acre Non-Glacial Bog is located at an elevation of 2,720 feet on the summit of Laurel Ridge within the Forbes State Forest. The DCNR-Bureau of Forestry recognizes this wetland as a natural community that resulted from the clearing of an original Conifer Swamp community dominated by eastern hemlock (*Tsuga canadensis*) at the turn of the century. When the eastern hemlock was removed, water levels increased making conditions unsuitable for the reestablishment of woody vegetation. The general character of this high elevation wetland is open with white beak-rush (*Rhynchospora alba*) and tawny cotton-grass (*Eriophorum virginicum*) dominating a central open area on a substrate of Sphagnum moss. Scattered hummocks of cranberry (*Vaccinium macrocarpon*), purple chokeberry (*Aronia prunifolia*) and pitcher-plant (*Sarracenia purpurea*) surrounded by an outer edge of younger red pine (Pinus resinosa), red spruce (Picea rubens), larch (Larix sp.), black gum (Nyssa sylvatica), red maple (Acer rubrum), rhododendron (Rhododendron maximum) and white pine (Pinus strobus) all of which is situated in a large, contiguous Dry-Mesic Acidic Central Forest. Pitcher plant, as well as other plants found in the bog, were introduced by members of the Westmoreland County Botanical Society. A linear open area associated with a small utility R.O.W. and adjacent to the bog openings in the southern section of the site is the location of a Pennsylvania Threatened species, **SP016**. This plant grows in patches along the edges of the maintained opening.

The Spruce Flats Bog is managed as a 305-acre Bureau of Forestry Wildlife Area. Timber may be removed or trees and other vegetation planted when it is desirable to create openings or habitat for wildlife. A recently constructed boardwalk is located on the southern edge of the bog opening and is used for general wildlife observation and education.

Threats and Stresses

SP016 requires open habitat and saturated soil conditions for its survival. These requirements are met at this site. However, the recognized population is situated on a maintained pipeline

R.O.W. that within the depression of the bog. Activities related to maintenance of this R.O.W. should consider impact to the plants. Application of herbicides to control vegetation on the R.O.W., for example, would negatively impact this plant population, as well as the ecosystem on which it depends. Activities that have the potential to result in impacts to hydrology or vegetation structure within the site stand to impact SP016 and the bog community. Drainage ditches created during attempts to regain the original composition of the bog are still in place in the forest surrounding the bog.

Recommendations

Continued management of this Wildlife Area under the guidelines set forth by the Bureau of Forestry will help to ensure the protection of this site. Working with the Bureau of Forestry to incorporate the location of the species of special concern and other information presented above into the management plan for this site would help to guide recreation and resource management activities that are planned in the future. Furthermore, efforts to work with the utility company responsible for maintenance of the R.O.W. to develop appropriate management strategies would also aid in the protection of the plant population. Additional survey and monitoring of natural communities and species of special concern at the site would allow for a more thorough understanding of ecosystem function. Careful consideration given to continued plantings at the site would help in avoiding the introduction of undesirable, non-native species for the site.

Linn Run State Park BDA

This Natural Heritage Area is discussed as part of the Ligonier quadrangle.

Powdermill Run South BDA

This Natural Heritage Area is discussed as part of the Stahlstown quadrangle.

Indian Creek/Little Run BDA

This Natural Heritage Area is discussed as part of the Seven Springs quadrangle.

Forbes State Forest

These Managed Lands are discussed as part of the Bolivar quadrangle.

Laurel Ridge State Park

These Managed Lands are discussed as part of the New Florence quadrangle.

SEVEN SPRINGS QUADRANGLE

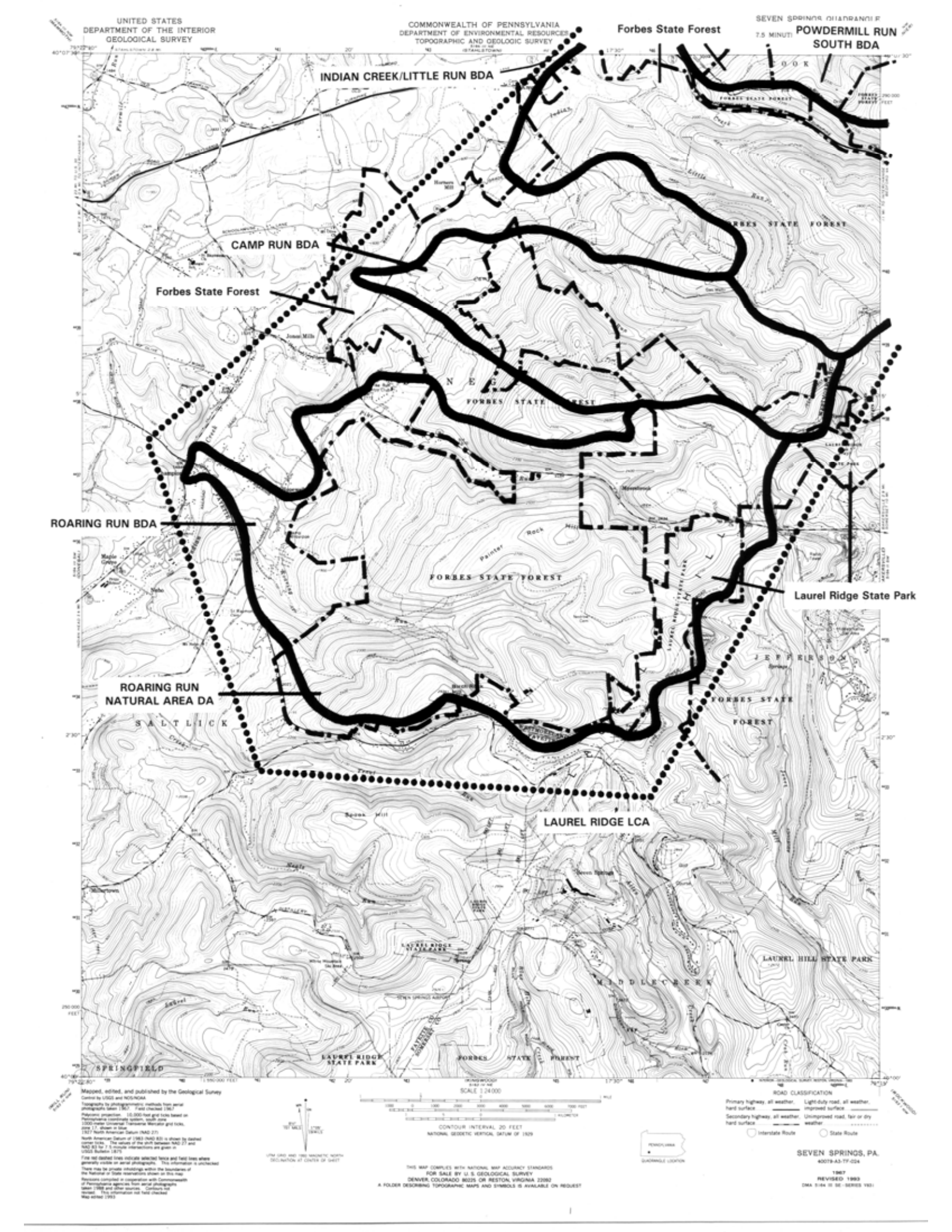
		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
LAUREL RIDGE LCA *Exceptional Significance*					
POWDERMILL RUN SOUTH BDA *Exceptional Significance*					
SPECIAL ANIMAL:	SA011	G5T5	S3	N	N
SPECIAL ANIMAL:	SA012a	G5T5	S3	N	N
SPECIAL ANIMAL:	SA022	G3G4	S3	N	PT
SPECIAL PLANT:	SP005	G5	S3	N	TU
SPECIAL PLANT:	SP017	G5	S3	N	PR
INDIAN CREEK/LITTLE RUN BDA *High Significance*					
NATURAL COMMUNITY:	NC012	G?	S1S2	N	N
NATURAL COMMUNITY:	NC013	G?	S1S2	N	N
SPECIAL PLANT:	SP001	G5	S3	N	PR
SPECIAL PLANT:	SP011	G5	S3	N	PR
SPECIAL PLANT:	SP024	G5	S3	N	PR
SPECIAL PLANT:	SP012	G5	S3	N	TU
SPECIAL PLANT:	SP013	G5	S3	N	TU
CAMP RUN BDA *High Significance*					
NATURAL COMMUNITY:	NC010	G?	S	N	N
NATURAL COMMUNITY:	NC018	G?	S1S2	N	N
NATURAL COMMUNITY:	NC019	G?	S1S2	N	N
SPECIAL PLANT:	SP022	G5	S3	N	PR
SPECIAL PLANT:	SP023	G5	S3	N	PR
SPECIAL PLANT:	SP021	G5	S3	N	PT
SPECIAL PLANT:	SP018	G5	S3	N	PR
SPECIAL PLANT:	SP019	G5	S3	N	PR
SPECIAL PLANT:	SP020	G5	S3S4	N	TU
ROARING RUN BDA *Exceptional Significance*					
NATURAL COMMUNITY:	NC014	G?	S1S2	N	N

NATURAL COMMUNITY:	NC015	G?	S1S2	N	N
SPECIAL PLANT:	SP016a	G5	S3	N	PR
SPECIAL PLANT:	SP016b	G5	S3	N	PT
SPECIAL PLANT:	SP017	G5	S3	N	PT
SPECIAL PLANT:	SP014	G5	S3	N	PR
SPECIAL PLANT:	SP015	G5	S3	N	PR
SPECIAL ANIMAL:	SA026	G5T5	S3	N	N

ROARING RUN NATURAL AREA DA *Exceptional Significance*

NATURAL COMMUNITY:	NC014	G?	S1S2	N	N
NATURAL COMMUNITY:	NC015	G?	S1S2	N	N
SPECIAL PLANT:	SP016a	G5	S3	N	PR
SPECIAL PLANT:	SP016b	G5	S3	N	PT
SPECIAL PLANT:	SP017	G5	S3	N	PT
SPECIAL PLANT:	SP014	G5	S3	N	PR
SPECIAL PLANT:	SP015	G5	S3	N	PR
SPECIAL ANIMAL:	SA026	G5T5	S3	N	N

MANAGED LANDS: Forbes State Forest
Laurel Ridge State Park


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY
SEVEN SPRINGS QUADRANGLE
7.5 MINUTE
Forbes State Forest
POWDERMILL RUN
SOUTH BDA
INDIAN CREEK/LITTLE RUN BDA
CAMP RUN BDA
Forbes State Forest
ROARING RUN BDA
ROARING RUN
NATURAL AREA DA
LAUREL RIDGE LCA
Laurel Ridge State Park
FORBES STATE FOREST
SALTLICK
SPRINGFIELD
LAUREL RIDGE
STATE PARK
LAUREL HILL STATE PARK
MIDDLECREEK
JEFFERSON
Mapped, edited, and published by the Geological Survey
SCALE 1:24000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
ROAD CLASSIFICATION
SEVEN SPRINGS, PA.
1967
REVISED 1993

SEVEN SPRINGS QUADRANGLE

Westmoreland, Somerset and Fayette Counties converge at the summit of Laurel Ridge on this quadrangle. Lands that extend across the east and west slopes of Laurel Ridge and extend into the intermountain valley between Laurel and Chestnut Ridges are largely part of the Forbes State Forest. The southern terminus of the Laurel Ridge LCA which includes the watersheds of Powdermill Run, Indian Creek, Little Run, Camp Run, Pike Run and Roaring Run appears on this quadrangle. Two striking features on this landscape are the Seven Springs and Hidden Valley Ski Resorts. There are six Natural Heritage Areas and two Managed Lands identified on this quadrangle.

Laurel Ridge LCA

This Natural Heritage Area is discussed as part of the New Florence quadrangle.

Powdermill Run South BDA

This Natural Heritage Area is discussed as part of the Stahlstown quadrangle.

Indian Creek/Little Run BDA

The Indian Creek/Little Run BDA represents a third watershed within the Laurel Ridge LCA represented in this quadrangle. Little Run is a tributary to the larger Indian Creek. Indian Creek drains the western slope of Laurel Ridge from its headwaters here to its confluence with the Youghiogheny River in Fayette County. The majority of the Indian Creek/Little Run BDA is situated within the Forbes State Forest. Purchase of a large portion of this BDA by the Western Pennsylvania Conservancy in 1994 added over 1,707 acres of land to the Forbes State Forest.

Like many of the other watersheds recognized on the west slope of Laurel Ridge, this BDA is characterized by two high gradient streams that originate from numerous springs and flow through a largely forested landscape. The forest cover is generally second and third growth reflecting a history of land use common on the ridge. The Dry-Mesic Acidic Central Forest community changes in elevation from largely red oak (*Quercus rubra*), chestnut oak (*Q. prinus*), red maple (*Acer rubrum*), black cherry (*Prunus serotina*) and dense greenbriar (*Smilax rotundifolia*) on the ridgetop and at higher elevations to additions of white oak (*Q. alba*), tulip poplar (*Liriodendron tulipifera*), sugar maple (*A. saccharum*), beech (*Fagus grandifolia*), witch hazel (*Hammamelis virginiana*) and spicebush (*Lindera benzoin*) on the mid and lower slopes. Richer soils and more mesic conditions create habitat for a diversity of ferns and herbaceous species in the understory. The western portion of the site where the stream valley begins to widen is where one of the species of special concern is located. Situated in the shrub layer in the riparian forest along the stream edge, this Pennsylvania Rare plant (**SP001**, **SP011** and **SP024**) is parasitic on the roots of deciduous trees and shrubs.

The lower reaches of Little Run are characterized by an abundance of Spring and Spring Run communities (**NC012** and **NC013**) within the riparian area along the stream. The Spring Run communities are recognized as supporting a diversity of plant and animal species, one of which is a species of special concern, and as some of the highest quality examples of High Gradient Clearwater streams in the region. Among species such as Pennsylvania bitter-cress (*Cardamine pensylvanica*), jewelweed (*Impatiens* sp.), golden ragwort (Senecio aureus), common wood-sorrel (*Oxalis acetosella*), common blue violet (*Viola papilionaceae*), skunk cabbage (*Symplocarpus foetidus*), false hellebore (*Veratrum viride*), bugleweed (*Lycopus virginicus*), a sedge (*Carex stipata*), bee-balm (*Monarda* sp.), water star-wort (*Callitriche palustrus*), various mosses and liverworts, are an abundance of amphibians, small fish, dragonflies and other aquatic invertebrates. A Pennsylvania Rare wildflower (**SP012** and **SP013**) grows in great abundance in many of these Spring Run communities all along Little Run.

Threats and Stresses

The most important threats to the natural communities and rare plants include the loss of canopy to areas where these features are found because of shading requirements and nutrients provided by the roots of overhead trees for SP001, SP011 and SP024. Further fragmentation of the habitat and surrounding areas that support the elements and any direct disturbance to the plants or natural community would also be detrimental. Any activity that would cause a changes in the hydrology or water quality of the watershed could negatively impact the Spring Run communities that support the stream.

Recommendations

Recognizing the importance of this site and incorporating any additional information into an existing management plan for the state forest by the Bureau of Forestry would be a good first step in assuring the protection of the plant species and natural communities at the site. Activities such as road or trail construction or timber harvesting planned for this area would take into consideration the location of these features. Designation of a portion of the area as a Natural Area or Public Plant Sanctuary would also provide a high degree of protection for these special features.

Camp Run BDA

The Camp Run BDA is another watershed within the Laurel Ridge LCA that is recognized for the high quality of its stream and for the habitat provided for four species of special concern. Camp Run represents a High Gradient Clearwater Creek Community (**NC010**) that has been designated Exceptional Value (EV) by the PA – Department of Environmental Protection. The stream originates from a series of springs and spring runs that extend its entire length from its uppermost reaches near the summit of Laurel Ridge to its lower reaches where it flows into Indian Creek. The watershed is largely forested and is under the ownership of the Bureau of Forestry and private landowners. A young to medium aged Dry-Mesic Acidic

Central Forest community dominates most of the watershed with red oak (*Quercus rubra*), black cherry (*Prunus serotina*), black birch (*Betula lenta*) and red maple (*Acer rubrum*) dominating the ridgetop and higher elevations. White oak (*Q. alba*), sugar maple (*A. saccharum*) beech (*Fagus grandifolia*), tulip poplar (*Liriodendron tulipifera*) and other more mesic species are found in the lower slopes and bottomlands. The understory is generally characterized by a dense layer of greenbrier (*Smilax* sp.), witch hazel (*Hammamelis virginiana*), spicebush (*Lindera benzoin*) and hay-scented fern (*Dennstaedtia punctilobula*).

This forest community and the associated Spring Run communities (**NC018** and **NC019**) that line Camp Run's riparian area harbor four plant species of special concern. **SP022** and **SP023** represent two location for a Pennsylvania Rare plant which is found in the understory of the bottomland forest or riparian area in this watershed. Sharing this habitat and the rich, mesic slopes in the lower valley is a healthy population of a Pennsylvania Threatened plant (**SP021**). The Spring Run communities and seepage areas at the bottom of slopes in the downstream reaches of the valley represent high quality, relatively undisturbed habitats for a number of species. Among these are a variety of sedges (*Carex scabrata* and *C. crinita*), several grass species, watercress (*Rorripa officinale*), foamflower (*Tiarella cordifolia*) and a number of herbs including bugleweed (*Lycopus* sp.), violet (*Viola* sp.), mad-dog skullcap (*Scutellaria lateriflora*) all of which are situated on and between moss and liverwort covered rocks in both the main stream and some of the spring runs. **SP018** and **SP019** represent two locations for a Pennsylvania Rare plant found in great abundance in this habitat. **SP020** is found in smaller number along the edge of one of the seepage areas in the upper part of the watershed.

Threats and Stresses

Requirements of the natural communities and plant species of special concern at this site include high water quality, intact soils and forest canopy and maintenance of hydrological conditions present within the watershed. Activities that stand to affect water quality and immediate habitats for species are of most concern. Loss of soil and subsequent siltation of any water course, runoff of pesticides or herbicides, input of nutrients, changes in waters temperature due to loss of shading or ponding, and alterations to hydrology would all be detrimental to the stream and associated spring run and seepage communities. Loss of canopy in areas where species of special concern are located and any direct disturbance to the plants or natural communities are also activities that are of concern. Fragmentation of the forest in the watershed could result in loss of species habitat, favorable conditions for non-native exotic species which outcompete native species for resources, and overall loss of ecological integrity of the forest.

Recommendations

This watershed is under partial ownership and management of the Bureau of Forestry. Ongoing conservation efforts by the agency and special designation of the stream as Exceptional Value have provided this watershed significant protection. EV status of this stream carries with it the provision allowing for no degradation of water quality. An erosion

and sedimentation plan must be in place for all earth moving activities over a minimum acreage and must provide for the goal of no degradation of water quality. Some special and general permits are also required for certain activities potentially affecting waterways (e.g. stream crossings) and wetlands. However, many activities receive no review or guidance under EV or any water quality designation [e.g. agriculture, small scale building or earth moving, timber harvesting (excluding road building or stream encroachment)]. Working with landowners to develop comprehensive management agreements would complement and bolster the protection framework already in place in this EV watershed.

Roaring Run BDA/Roaring Run Natural Area DA

The Roaring Run Natural Area forms part of the southern boundary for the county along County Line Road. Located on the western slope of Laurel Ridge and included within the Laurel Ridge LCA, this 3,593 acre Natural Area was purchased by the Western Pennsylvania Conservancy in the 1970's. The Western Pennsylvania Conservancy transferred the land to the Commonwealth of Pennsylvania and is part of the Forbes State Forest. This managed area encompasses nearly the entire watershed of Roaring Run and is a State Forest Natural Area dedicated to the protection of the ecological system and biological resources present in this watershed. The Roaring Run Natural Area DA is encompassed by the Roaring Run BDA which includes the entire watershed of Roaring Run.

Roaring Run, like many of the other recognized watersheds to the north, is considered a High Gradient Clearwater Creek community that is formed by the convergence of numerous springs that originate near the summit of Laurel Ridge and along the lower reaches of the stream. Shortly before the stream's confluence with Indian Creek at Champion, the large tributary of Pike Run where Route 31 is situated enters Roaring Run. Like many of the Laurel Mountain watershed previously described, Roaring Run is characterized by a Dry-Mesic Acidic Central Forest Community that transitions from a dry, acidic forest of red oak (*Quercus rubra*), chestnut oak (*Q. prinus*), black birch (*Betula lenta*), black cherry (*Prunus serotina*) and red maple (*Acer saccharum*) on the ridgeline and upper watershed to a more mesic, diverse forest with tulip poplar (*Liriodendron tulipifera*), sugar maple (*Acer saccharum*), beech (*Fagus grandifolia*), basswood (*Tilia* sp.), witch hazel (*Hammamelis virginiana*), striped maple (*Acer pensylvanica*), and spicebush (*Lindera benzoin*) at lower elevations and in the bottomlands. Ericaceous shrubs such as blueberry (Vaccinium sp.) and huckleberry (Gaylusaccia sp.), greenbriar (Smilax sp.) and blackberry briar (Rubus sp.) create a dense ground layer on the uplands and high elevations. Dense stands of hayscented fern and more rich areas of herbaceous flora occur on the lower slopes and bottomlands. It is in this area where three plant species of special concern are found. **SP016A** is a Pennsylvania Rare plant that grows in the less disturbed sections of the forest along Roaring Run. The lower slopes that have rich, mesic soils are where two locations for a Pennsylvania Threatened plant (**SP016B** and **SP017**) grows. Associated with this same part of the watershed are many of the Spring Run communities (**NC014** and **NC015**) that provide habitat for a large population of a Pennsylvania Rare plant (**SP014** and **SP015**). Springs and the associated Spring Run communities are numerous along the entire Roaring Run valley. These areas are significant in that they are generally the source of high quality water that serves to recharge the stream

system. Some of the vegetation associated with SP014 and SP015 in these communities includes a dense growth of mosses (Bryophytes), golden saxifrage (*Chrysosplenium americanum*), grasses and sedges (*Carex* spp.), and numerous herbs including turtlehead (*Chelone glabra*), bugleweed (*Lycopus* sp.) and common wood sorrel (*Oxalis montana*), as well as a variety of aquatic invertebrates and amphibians. All three of the plant species of special concern are represented in a number of other similar watersheds within the Laurel Ridge LCA. The forest of this watershed also provides habitat for a small animal of special concern, **SA026** which has been found in the Pike Run portion of the watershed.

Threats and Stresses

Natural Area designation and the management that has been set forth for this site has largely reduced the number of potential threats or stresses to this ecosystem that might be human induced. Requirements for the natural communities and special plants and animals within the BDA generally include high water quality, an intact forest canopy for adequate lighting and underground nutrients derived from roots of overhead trees, intact soils and limited disturbance in immediate habitat areas. Possible activities that stand to affect the Spring Run communities and immediate habitats for species include direct impact to plants caused by illegal or incompatible uses of the natural area by recreational vehicles or unplanned trail or activities outside of the DA that have the potential to alter hydrology of the watershed.

Recommendations

Continued management of this Natural Area under the guidelines set forth by the Bureau of Forestry will help to ensure the protection of this site. Working with the Bureau of Forestry to incorporate the location of species of special concern and other information presented above into the management plan for this site would help to guide recreation or resource management activities that are planned in the future. Acquisition and designation of the entire watershed by the Bureau of Forestry would be an important step towards full protection of the Roaring Run watershed and its associated features. Additional survey and monitoring of natural communities and species of special concern at the site would allow for a more thorough understanding of ecosystem function and what is needed for continued protection of this site.

Forbes State Forest

These Managed Lands are discussed as part of the Bolivar quadrangle.

Laurel Ridge State Park

These Managed Lands are discussed as part of the New Florence quadrangle.

DONEGAL QUADRANGLE

	PNDI Rank		Legal Status	
	Global	State	Fed.	State

NATURAL HERITAGE AREAS: None

MANAGED LANDS: None

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY

DONEGAL QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)

Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1967. Field checked 1967

Polyconic projection. 10,000-foot grid ticks based on Pennsylvania coordinate system, south zone
1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue
1927 North American Datum (NAD 27)

North American Datum of 1983 (NAD 83) is shown by dashed corner ticks. The values of the shift between NAD 27 and NAD 83 for 7.5-minute intersections are given in USGS Bulletin 1875.

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

Revisions compiled in cooperation with Commonwealth of Pennsylvania agencies from aerial photographs taken 1988 and other sources. Contours not revised. This information not field checked
Map edited 1993

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

UTM GRID AND 1990 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225 OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

ROAD CLASSIFICATION
Primary highway, hard surface
Secondary highway, hard surface
Light-duty road, hard or improved surface
Unimproved road
Interstate Route
U. S. Route
State Route
County Route

DONEGAL, PA.
40079-A6-TF-024

1967
REVISED 1993
DMA 5144 II SW-SERIES V831

DONEGAL QUADRANGLE

Chestnut Ridge is a large land form found on this quadrangle. Small southern sections of both Mount Pleasant and Donegal Townships in Westmoreland County at the eastern base of the Ridge are covered by this quadrangle. A once forested landscape, this area is largely agricultural land. The town of Donegal through which the Pennsylvania Turnpike runs is the most prominent feature in this part of the county. There are no Natural Heritage Areas or Managed Lands identified in this quadrangle.

CONNELLSVILLE QUADRANGLE

	PNDI Rank		Legal Status	
	Global	State	Fed.	State

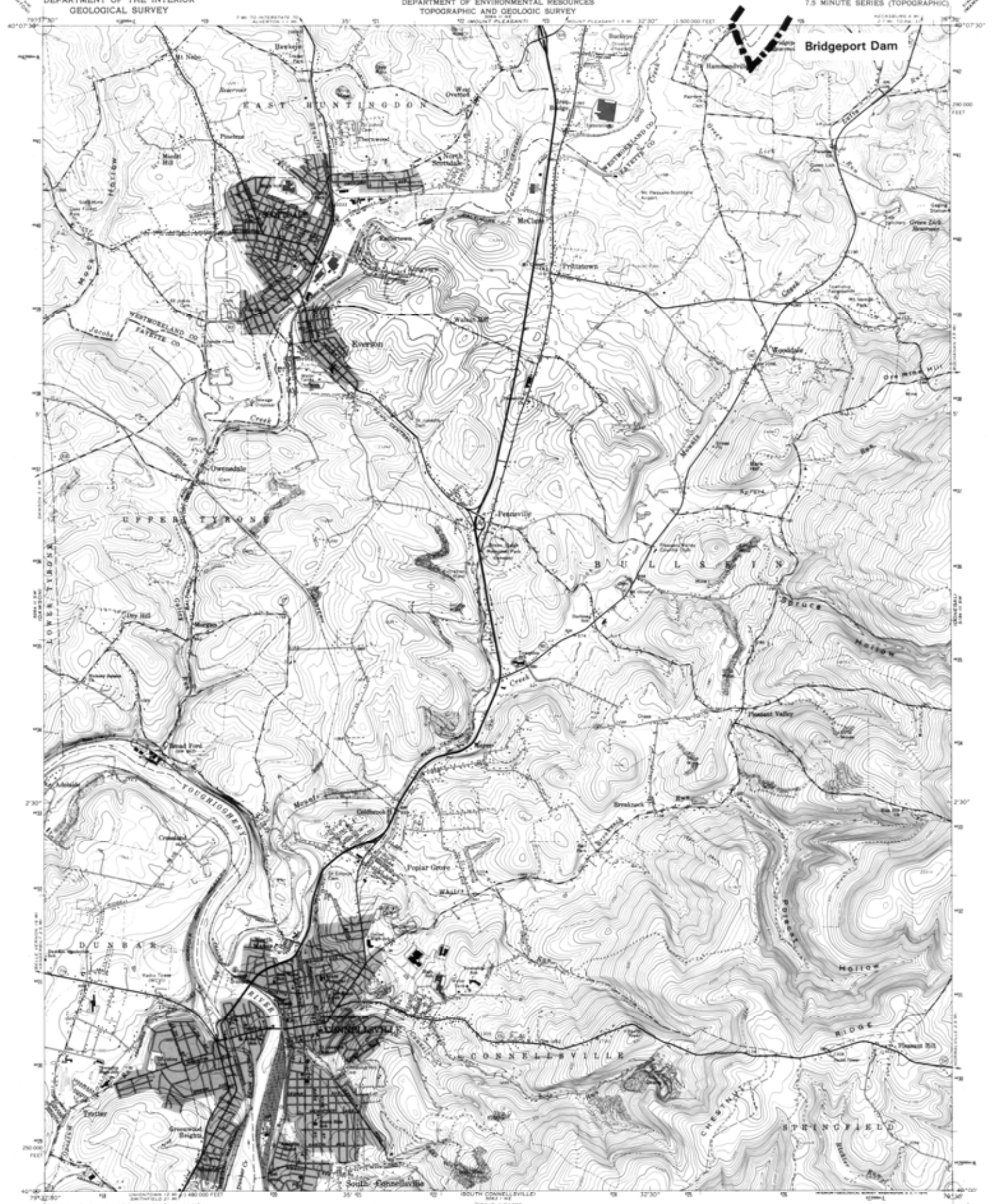
NATURAL HERITAGE AREAS: None

MANAGED LANDS: Bridgeport Dam

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY

CONNELLSVILLE QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography by photogrammetric methods from aerial photographs taken 1962. Field checked 1964

Polyconic projection. 1927 North American datum
10,000-foot grid based on Pennsylvania coordinate system, south zone
1000-meter Universal Transverse Mercator grid ticks,
zone 17, shown in blue

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

Red tint indicates areas in which only landmark buildings are shown

Revisions shown in purple compiled in cooperation with State of Pennsylvania agencies from aerial photographs taken 1973. This information not field checked

Map photoinspected 1977
No major culture or drainage changes observed

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION

Heavy-duty — Light-duty —
Medium-duty — Unimproved dirt .....
U.S. Route ◯ State Route

QUADRANGLE LOCATION

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
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A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

CONNELLSVILLE, PA.

N4000—W7930/7.5
PHOTOINSPECTED 1977
1964
PHOTOREVISED 1973
AMS 5064 II SE—SERIES V851

CONNELLSVILLE QUADRANGLE

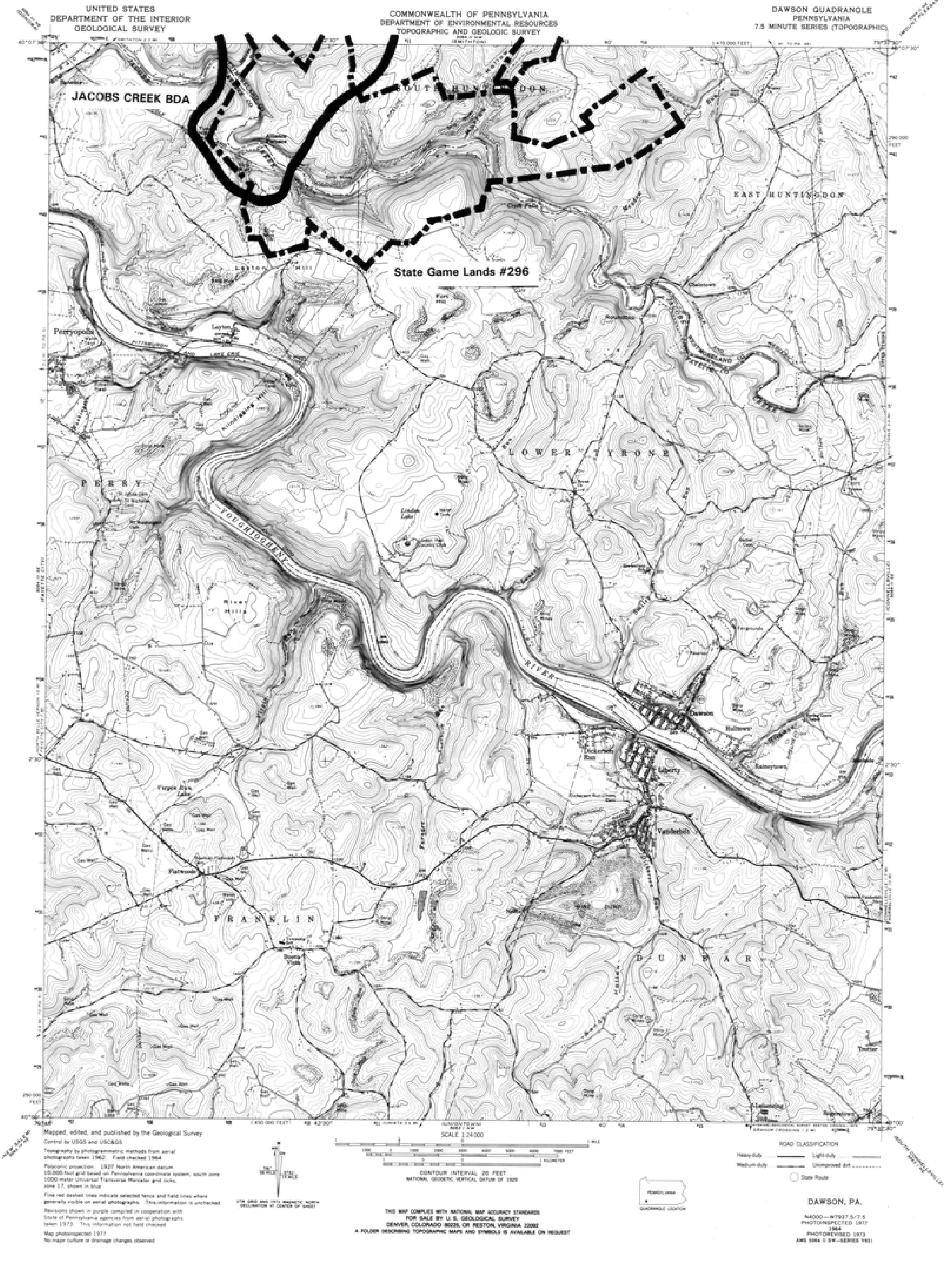
The southern most extension of Westmoreland County is located in the northwestern corner of this quadrangle. Jacobs Creek forms the border between Westmoreland and Fayette Counties and is a distinctive natural feature on this quadrangle. The town of Scottsdale is located along Jacobs Creek and is a prominent cultural feature in this area at the base of Chestnut Ridge. One Managed Land is identified on this quadrangle while no Natural Heritage Areas are recognized.

Bridgeport Dam

These Managed Lands are discussed as part of the Mt. Pleasant quadrangle.

DAWSON QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
JACOBS CREEK BDA	*Exceptional Significance*				
SPECIAL PLANT:	SP001	G3G4	S2S3	N	TU
SPECIAL PLANT:	SP002	G3G4	S2S3	N	TU
SPECIAL PLANT:	SP013	G3G4	S2S3	N	TU
MANAGED LANDS:	State Game Lands #296				


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY
DAWSON QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
JACOBS CREEK BDA
SOUTH HUNTINGDON
State Game Lands #296
EAST HUNTINGDON
Perryopolis
LOWER TYRONE
PERRY
YOUGHIOGHENY
RIVER
River Hills
Dawson
Liberty
Vanderbilt
FRANKLIN
DUNBAR
Flatwoods
Mapped, edited, and published by the Geological Survey
SCALE 1:24 000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
ROAD CLASSIFICATION
DAWSON, PA.
PHOTOINSPECTED 1977
1964
PHOTOREVISED 1973

DAWSON QUADRANGLE

Jacobs Creek and the Youghiogheny River parallel one another as they flow from east to west across the Dawson quadrangle to their confluence at the town of Jacobs Creek. Steep forested slopes have formed along the meandering Jacobs Creek which forms the boundary between Westmoreland County and Fayette County in the northern quarter of this map. A portion of this valley is recognized as both a Natural Heritage Area and a Managed Lands.

Jacobs Creek BDA

The section of the Jacob's Creek valley, just upstream from the confluence with the Youghiogheny River, includes part of the Barren Run watershed and the immediate watershed to Jacob's Creek. It is largely encompassed by State Game Lands #296 and includes the site of Alliance Furnace. With the exception of a transmission line R.O.W. and a railroad R.O.W., this section of the valley is characterized by a Mesic Central Forest with patches of mature growth. Sugar maple (*Acer saccharum*) and beech (*Fagus grandifolia*) dominate the forest. Scattered sycamore (*Platanus occidentalis*) and willow (*Salix* sp.) along with patches of dense Japanese knotweed (*Polygonum cuspidatum*) demarcate this riparian area from the lower slope forest. Hemlock (*Tsuga canadensis*) and yellow birch (*Betula alleghaniensis*) exist in patches on some of the lower slopes. The diversity of flora is high in this valley and a large population of Pennsylvania Endangered plant represented by three locations (**SP001, SP002** and **SP013**) blankets sections of the lower west facing slopes. The Barren Run valley and the adjacent northern slopes of Jacob's Creek (upstream) stand as the least disturbed and most mature sections of the site. Large beech and sugar maple along with sizable white ash (*Fraxinus americana*) and tulip poplar (*Liriodendron tulipifera*) cover the slopes. The understory is dominated by spicebush (*Lindera benzoin*), sugar maple, beech and white ash saplings and numerous other shrubs. The ground layer varies from dense to fairly sparse with jewelweed (*Impatiens* sp.), ferns, sugar maple, white ash and hickory (*Carya* sp.) seedlings and numerous herbaceous species. The upland forest is of a younger age, perhaps once pastured or thinned. Several large rock outcrops (sandstone and mixed strata) are situated along the lower Barren Run tributary and along Jacob's Creek. These outcrops may have provided nesting sites for the Peregrine Falcon (*Falco peregrinus*) once reported in the area.

Threats and Stresses

Overall, those activities that stand to further fragment the natural forest community and result in changes in light level and in possible increase in aggressive non-native species pose the largest threat to the plant population and its forest habitat. Other disturbances that threaten the site include changes in surface water flow or direct disturbance to the slope habitat or the plants directly. With the exception of the spread of Japanese knotweed and multiflora rose at the site and possible changes in light level as a result of canopy removal, no other threats seem imminent and the population appears to be viable.

Recommendations

If not already in place, incorporation of the species and site information into the Pennsylvania

Game Commission's management plan for SGL #296 would be an important first step in assuring that the plant and its habitat continue securely in this location. Efforts could also be made to work with private landowners at the site to inform them of the sites significance and to work towards reducing threats to the site. Careful monitoring of invasive species and overall health of the plant population would aid it's survival.

State Game Lands #296

Straddling the Westmoreland-Fayette County line along Jacobs Creek, this 2,106 acre State Game Lands is owned and managed by the Pennsylvania Game Commission. A general description of the lower Jacob's Creek valley encompassed by these State Game Lands is given in the description for the Jacob's Creek BDA.

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APPENDIX I

SIGNIFICANCE RANKS

The Natural Heritage Areas that have qualified for inclusion in this report are ranked according to their significance as areas of importance to the biological diversity and ecological integrity of Westmoreland County. The three significance ranks are: **Excellent**, **High**, and **Notable** significance. These ranks have been used to prioritize all identified sites and suggest the relative attention that sites should receive for the amount, degree and rate of protection.

Significance Rank	Explanation
EXCEPTIONAL	Exceptional significance Sites that of exceptional importance for the biological diversity and ecological integrity of the county or region. Sites in this category contain one or more occurrences of state or national species of special concern or a rare natural community type that are of a good size and extent and are in a relatively undisturbed condition. Sites of exceptional significance merit quick, strong and complete protection.
HIGH	High significance Sites that are of high importance for the biological diversity and ecological integrity of the county or region. These sites contain species of special concern or natural communities that are highly ranked, and because of their size or extent, relatively undisturbed setting, or a combination of these factors, rate as areas with high potential for protecting ecological resources in the county. Sites of high significance merit strong protection in the future.
NOTABLE	Notable significance Sites that are important for the biological diversity and ecological integrity of the county or region. Sites in this category contain occurrences of species of special concern or natural communities that are either of lower rank (G and S rank) or smaller size and extent than exceptional or high ranked areas, or are compromised in quality by activity or disturbance. Sites of notable significance merit protection within the context of their quality and degree of disturbance.
COUNTY	County significance Sites that have great potential for protecting biodiversity in the county but are not, as yet, known to contain species of special concern or state significant natural communities. Often recognized because of their size, undisturbed character, or proximity to areas of known significance, these sites invite further survey and investigation. In some cases, these sites could be revealed as high or exceptional sites

APPENDIX II

PENNSYLVANIA NATURAL DIVERSITY INVENTORY (PNDI)

The Pennsylvania Natural Diversity Inventory (PNDI) was established in 1982 as a joint effort of the Western Pennsylvania Conservancy, the Pennsylvania Department of Conservation and Natural Resources, formerly the Pennsylvania Department of Environmental Resources (D.E.R.),-Bureau of Forestry, and the Pennsylvania Science Office of The Nature Conservancy. PNDI is part of a network of "Natural Heritage Programs" that utilize methodology developed and constantly refined by The Nature Conservancy. Heritage Programs have been established in each of the 50 United States, as well as in Canada and Latin America.

This computer indexed data base contains location and baseline ecological information about rare plants, rare animals, unique plant communities, significant habitats and geologic features in Pennsylvania. Presently, PNDI is Pennsylvania's chief storehouse of such information with approximately 9,000 detailed occurrence records that are stored in computer files and denoted on 7.5-minute United States Geologic Survey (USGS) topographic maps. Additional data are stored in extensive manual files covering over 150 natural community types, over 800 plant and animal species, and about 1100 managed areas. Separate files are maintained for each of Pennsylvania's 881 7.5-minute USGS quadrangle maps.

As part of the information maintained by PNDI, a system of "global ranks" and "state ranks" is used to describe the relative degree of rarity for species and natural communities. This system is especially useful in understanding how imperiled a resource is throughout its range, as well as understanding the state rarity for resources that do not have official state status such as invertebrate animals and natural communities of organisms. A summary of global and state ranks can be found in Appendix V. Note that the ranking system operates at global (range-wide) and state levels and does not provide insight as to the county significance of biotic resources. A separate ranking system is provided to accomplish this in Appendix I.

PNDI is valuable for its ability to supply technically sound data that can be applied in making natural resource decisions, thereby streamlining the decision making process. Information on the occurrences of elements (species and natural communities) of special concern has been gathered from museums, universities, colleges, and recent field work by professionals throughout the state. This approach has also been used by the Western PA Conservancy to identify the areas of highest natural integrity and significance in Westmoreland County.

APPENDIX III

WESTMORELAND COUNTY NATURAL HERITAGE INVENTORY
SITE SURVEY FORM

Site Name:_____

County:_____Municipality:_____

Quad Name:_____ Quad Code:_____ 10,10:_____

Reference:_____

Land Owners (include best method of contact, date contacted, and method of permission):

_____

_____

Directions to Site:_____

_____

Site Elevation: _____ Site Size:_____ Aspect:_____

Aerial Photo Int. Air Photo #: _____ Photo Type:_____

Comments from Aerial Photo Interpretation _____

_____

Aerial Reconnaissance Date:_____ Team:_____

Comments from Aerial Survey_____

_____

Ground Survey Date:_____ Team:_____

Community(s) Type:_____

Setting of Community(s):_____

Conditions_____

Description of site (quality, vegetation, significant species, aquatic features, notable landforms, natural hazards, age, etc:_____

_____

APPENDIX III (CONT.)

Evidence of Disturbance (logging, grazing, mining, past agriculture, erosion, sedimentation, filling, draining, exotic flora, etc.):

Recovery Potential:_____

Surrounding Land Use:_____

Threats to Site and Management/Protection:_____

Previously Identified EO's:_____

Species:_____

****

Accepted for inclusion in report: _____ Rejected: _____ Date:
Reason:

APPENDIX IV

CLASSIFICATION OF NATURAL COMMUNITIES
IN PENNSYLVANIA
(DRAFT)

COMMUNITY NAME	GLOBAL RANK	STATE RANK
ESTUARINE COMMUNITIES		
Deepwater Subtidal Community	G?	S1
Shallow-Water Subtidal Community	G?	S1
Freshwater Intertidal Mudflat	G3G4	S1
Freshwater Intertidal Marsh	G3G4	S1
RIVERINE COMMUNITIES		
Low-Gradient Ephemeral/Intermittent Creek	G?	S5
Low-Gradient Clearwater Creek	G?	S3S4
Low-Gradient Clearwater River	G?	S2S3
Low-Gradient Brownwater Creek	G?	S2S3
Medium-Gradient Ephemeral/Intermittent Creek	G?	S5
Medium-Gradient Clearwater Creek	G?	S3
Medium-Gradient Clearwater River	G?	S?
Medium-Gradient Brownwater Creek	G?	S3
High-Gradient Ephemeral /Intermittent Creek	G?	S5
High-Gradient Clearwater Creek	G?	S3
High-Gradient Clearwater River	G?	S?
High-Gradient Brownwater Creek	G?	S?
Waterfall and Plungepool	G?	S3S4
Spring Community	G?	S1S2
Spring Run Community	G?	S1S2
LACUSTRINE COMMUNITIES		
Acidic Glacial Lake	G?	S2S3
Cacareous Glacial Lake	G?	S1
Nonglacial Lake	G?	S2
Artificial Lake	G?	S?
Natural Pond	G?	S2S3
Artificial Pond	G?	S?

APPENDIX IV (CONT.)

COMMUNITY NAME	GLOBAL RANK	STATE RANK
Stable Natural Pool	G?	S?
Ephemeral/Fluctuating Natural Pool	G?	S1
Artificial Pool	G?	S?
Ephemeral/Fluctuating Limestone Sinkhole	G?	S1
PALUSTRINE COMMUNITIES		
Acidic Broadleaf Swamp	G5	S1S2
Circumneutral Broadleaf Swamp	G?	S2S3
Boreal Conifer Swamp	G?	S2
Northern Conifer Swamp	G?	S3S4
Broadleaf-Conifer Swamp	G?	S3S4
Floodplain Swamp	G?	S1
Calcareous Seepage Swamp	G?	S1
Acidic Shrub Swamp	G5	S3
Circumneutral Shrub Swamp	G?	S3
Graminoid Marsh	G?	S3
Robust Emergent Marsh	G?	S2
Mixed Graminoid-Robust Emergent Marsh	G?	S2S3
Calcareous Marsh	G?	S1
Glacial Bog	G?	S2S3
Nonglacial Bog	G?	S3
Reconstituted Bog	G?	S?
Shrub Fen	G2G3	S1
Basin Graminoid-Forb Fen	G?	S1
Hillside Graminoid-Forb Fen	G?	S1
Circumneutral Seep Community	G?	S3?
Calcareous Seep Community	G?	S1
Acidic Seep Community	G?	S3?
Riverside Seep Community	G?	S2?

APPENDIX IV (CONT.)

COMMUNITY NAME	GLOBAL RANK	STATE RANK
TERRESTRIAL COMMUNITIES		
Boreal Forest	G?	S?
Northern Conifer Forest	G5	S3S4
Northern Hardwood Forest	G?	S3S4
Northern Hardwood-Conifer Forest	G?	S3
Xeric Central Hardwood Forest	G?	S5
Xeric Central Conifer Forest	G?	S3S4
Xeric Central Hardwood-Conifer Forest	G?	S3
Pitch Pine-Scrub Oak Barrens	G2G3	S1S2
Dry-Mesic Acidic Central Forest	G?	S5
Dry-Mesic Calcareous Central Forest	G?	S2S3
Mesic Central Forest	G?	S2
Talus Slope Forest	G?	S2?
Coastal Plain Forest	G?	S1
Floodplain Forest	G?	S2
River Gravel Community	G?	S4S5
Eastern Serpentine Barrens	G2	S1
Central Appalachian Shale Barren	G?	S1
Northern Appalachian Shale Barren	G?	S1
Appalachian Sand Barren	G?	S?
Boulder Field	G?	S5
Calcareous Cliff Community	G?	S2
Acidic Cliff Community	G?	S5
Shale Cliff Community	G?	S2
Riverside Outcrop Community	G?	S2S2
Calcareous Riverside Outcrop Community	G?	S1
Acidic Rocky Summit Community	G?	S1S2
Calcareous Rocky Summit Community	G?	S1
SUBTERRANEAN COMMUNITIES		
Solution Cave Terrestrial Community	G?	S3
Solution Cave Aquatic Community	G?	S3
Tectonic Cave Community	G?	S3S4
Talus Cave Community	G?	S2S4

APPENDIX IV (CONT.)

COMMUNITY NAME	GLOBAL RANK	STATE RANK
DISTURBED COMMUNITIES		
Bare Soil	G?	S?
Meadow/Pastureland	G?	S?
Cultivated Land	G?	S?
Successional Field	G?	S?
Young Miscellaneous Forest	G?	S?
Conifer Plantation	G?	S?

APPENDIX Va

FEDERAL AND STATE ENDANGERED SPECIES CATEGORIES,
GLOBAL AND STATE ELEMENT RANKS

Several federal and state legislative acts have provided the authority and means for the designation of endangered, threatened, rare, etc. species lists. Those acts and status summaries follow. However, not all of the species or natural communities considered by conservation biologists (e.g., Pennsylvania Biological Survey) as "special concern resources" are included on the state or federal lists. In this county inventory report, "N" denotes those special concern species that are not officially recognized by state or federal agencies. Therefore: N = No current legal status, but is considered to be of special concern in Pennsylvania, or is under review for such consideration, by conservation biologists. Contact the Pennsylvania Natural Diversity Inventory for more information.

FEDERAL STATUS

All Plants and Animals: Legislative Authority: U.S. Endangered Species Act (1973), U.S. Fish and Wildlife Service, February 21, 1990, Federal Register.

LE = Listed Endangered - Taxa in danger of extinction throughout all or a significant portion of their ranges.

LT = Listed Threatened - Taxa that are likely to become endangered within the foreseeable future throughout all or a significant portion of their ranges.

PE = Proposed Endangered - Taxa already proposed to be listed as endangered.

PT = Proposed Threatened - Taxa already proposed to be listed as threatened.

C1 = Candidate 1 - Taxa for which the Service has on file enough substantial information on biological vulnerability and threat(s) to support proposals to list them as endangered or threatened species. Taxa of known vulnerable status in the recent past that may already have become extinct.

C2 = Candidate 2 - Taxa for which there is some evidence of vulnerability but for which there are not enough data to support listing proposals at this time.

APPENDIX Va (CONT.)

C3 = Candidate 3 (See 3A, 3B, 3C below) - Taxa that once were considered for listing as threatened or endangered but are no longer under such consideration. Such taxa are further divided into three subcategories, to indicate the reason(s) for their removal from consideration.

3A = Taxa for which the Service has persuasive evidence of extinction.

3B = Names that, on the basis of current taxonomic understanding (usually as represented in published revisions and monographs) do not represent distinct taxa meeting the Act's definition of "species".

3C = Taxa that have proven to be more abundant or widespread than was previously believed and/or those that are not subject to any identifiable threat.

{N = No current legal status, but is considered to be of special concern in Pennsylvania, or is under review for such consideration, by conservation biologists. Contact the Pennsylvania Natural Diversity Inventory for more information.}

APPENDIX Vb

PENNSYLVANIA STATUS

Native Plant Species: Legislative Authority: Title 25 Chapter 82, Conservation of Native Wild Plants, January 1, 1988; Pennsylvania Department of Environmental Resources.

PE = Pennsylvania Endangered - Plant species which are in danger of extinction throughout most or all of their natural range within this Commonwealth, if critical habitat is not maintained or if the species is greatly exploited by man. This classification shall also include any populations of plant species that have been classified as Pennsylvania Extirpated, but which subsequently are found to exist in this Commonwealth.

PT = Pennsylvania Threatened - Plant species which may become endangered throughout most or all of their natural range within this Commonwealth, if critical habitat is not maintained to prevent their future decline, or if the species is greatly exploited by man.

PR = Pennsylvania Rare - Plant species which are uncommon within this Commonwealth because they may be found in restricted geographic areas or in low numbers throughout this Commonwealth.

PX = Pennsylvania Extirpated - Plant species believed by the Department to be extinct within this Commonwealth. These plants may or may not be in existence outside the Commonwealth.

PV = Pennsylvania Vulnerable - Plant species which are in danger of population decline within this Commonwealth because of their beauty, economic value, use as a cultivar, or other factors which indicate that persons may seek to remove these species from their native habitats.

TU = Tentatively Undetermined - A classification of plant species which are believed to be in danger of population decline, but which cannot presently be included within another classification due to taxonomic uncertainties, limited evidence within historical records, or insufficient data.

{N = No current legal status, but is considered to be of special concern in Pennsylvania, or is under review for such consideration, by conservation biologists. Contact the Pennsylvania Natural Diversity Inventory for more information.}

APPENDIX Vb (CONT.)

Wild Birds and Mammals - Legislative Authority: Title 34 Chapter 133, Game and Wildlife Code, revised Dec. 1, 1990 Pennsylvania Game Commission.

PE = Pennsylvania Endangered - Species in imminent danger of extinction or extirpation throughout their range in Pennsylvania if the deleterious factors affecting them continue to operate. These are: 1) species whose numbers have already been reduced to a critically low level or whose habitat has been so drastically reduced or degraded that immediate action is required to prevent their extirpation from the Commonwealth; or 2) species whose extreme rarity or peripherality places them in potential danger of precipitous declines or sudden extirpation throughout their range in Pennsylvania; or 3) species that have been classified as "Pennsylvania Extirpated", but which are subsequently found to exist in Pennsylvania as long as the above conditions 1 or 2 are met; or 4) species determined to be "Endangered" pursuant to the Endangered Species Act of 1973, Public Law 93-205 (87 Stat. 884), as amended.

PT = Pennsylvania Threatened - Species that may become endangered within the foreseeable future throughout their range in Pennsylvania unless the casual factors affecting the organism are abated. These are: 1) species whose population within the Commonwealth are decreasing or have been heavily depleted by adverse factors and while not actually endangered, are still in critical condition; 2) species whose populations may be relatively abundant in the Commonwealth but are under severe threat from serious adverse factors that have been identified and documented; or 3) species whose populations are rare or peripheral and in possible danger of severe decline throughout their range in Pennsylvania; or 4) species determined to be "Threatened" pursuant to the Endangered Species Act of 1973, Public Law 93-205 (87 Stat. 884), as amended, that are not listed as "Pennsylvania Endangered".

{N = No current legal status, but is considered to be of special concern in Pennsylvania, or is under review for such consideration, by conservation biologists. Contact the Pennsylvania Natural Diversity Inventory for more information.}

APPENDIX Vb (CONT.)

Fish, Amphibians, Reptiles, and Aquatic Organisms - Legislative Authority: Title 30 Chapter 75, Fish and Boat Code, revised February 9, 1991; Pennsylvania Fish and Boat Commission

PE = Pennsylvania Endangered - All species declared by: 1) the Secretary of the United States Department of the Interior to be threatened with extinction and appear on the Endangered Species List or the Native Endangered Species List published in the Federal Register; or 2) have been declared by the Pennsylvania Fish and Boat Commission, Executive Director to be threatened with extinction and appear on the Pennsylvania Endangered Species List published by the Pennsylvania Bulletin.

PT = Pennsylvania Threatened - All species declared by: 1) the Secretary of the United States Department of the Interior to be in such small numbers throughout their range that they may become endangered if their environment worsens, and appear on a Threatened Species List published in the Federal Register; or 2) have been declared by the Pennsylvania Fish and Boat Commission Executive Director to be in such small numbers throughout their range that they may become endangered if their environment worsens and appear on the Pennsylvania Threatened Species List published in the Pennsylvania Bulletin.

Internal Fish and Boat Commission Status Category:

PC = Pennsylvania Candidate - Species that exhibit the potential to become Endangered or Threatened in the future. Pennsylvania populations of these taxa are: 1) "rare" due to their decline, distribution, restricted habitat, etc.; 2) are "at risk" due to aspects of their biology, certain types of human exploitation, or environmental modification; or, 3) are considered "undetermined" because adequate data is not available to assign an accurate status.

This category is unofficial and has no basis in any law (i. e., Chapter 75, Fish and Boat Code), as do the Endangered and Threatened categories.

{N = No current legal status, but is considered to be of special concern in Pennsylvania, or is under review for such consideration, by conservation biologists. Contact the Pennsylvania Natural Diversity Inventory for more information.}

APPENDIX Vb (CONT.)

Invertebrates - Pennsylvania Status: No state agency has been assigned to develop regulations to protect terrestrial invertebrates, although a federal status may exist for some species. Aquatic invertebrates are regulated by the Pennsylvania Fish Commission, but have not been listed to date.

Although no invertebrate species are presently state listed, numerous state status and/or state rank designations have been unofficially assigned by conservation biologists. NOTE: Invertebrate species are regularly considered under the U.S. Endangered Species Act for federal status assignments.

{N = No current legal status, but is considered to be of special concern in Pennsylvania, or is under review for such consideration, by conservation biologists. Contact the Pennsylvania Natural Diversity Inventory for more information.}

APPENDIX Vc

GLOBAL AND STATE RANKING

Global and State Ranking is a system utilized by the network of 50 state natural heritage programs in the United States. Although similar to the federal and state status designations, the ranking scheme allows the use of one comparative system to "rank" all species in a relative format. Unlike state or federal status designation guidelines, the heritage ranking procedures are also applied to natural community resources. Global ranks consider the imperilment of a species or community throughout its range, while state ranks provide the same assessment within each state. Although there is only one global rank used by the heritage network, state ranks are developed by each state and allow a "one-system" comparison of a species or communities imperilment state by state. For more information, contact the Pennsylvania Natural Diversity Inventory.

Global Element Ranks

G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.

G2 = Imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals or acres)or because of some factor(s) making it very vulnerable to extinction throughout its range.

G3 = Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range or because of other factors making it vulnerable to extinction throughout its range; in terms of occurrences, in the range of 21 to 100.

G4 = Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.

G5 = Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.

GH = Of historical occurrence throughout its range, i.e., formerly part of the established biota, with the expectation that it may be rediscovered (e.g., Bachman's Warbler).

GU = Possibly in peril range-wide but status uncertain; need more information.

GX = Believed to be extinct throughout its range (e.g., Passenger Pigeon) with virtually

APPENDIX Vc (CONT.)

no likelihood that it will be rediscovered.

G? = Not ranked to date.

NOTE: The study of naturally occurring biological communities is complex and natural community classification is unresolved both regionally and within Pennsylvania. The Global and State Ranking of natural communities also remains difficult and incomplete. Although many natural community types are clearly identifiable and have been ranked, others are still under review and appear as G? and/or S?.

APPENDIX Vd

State Element Ranks

S1 = Critically imperiled in state because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extirpation from the state.

S2 = Imperiled in state because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it vulnerable to extirpation from the state.

S3 = Rare or uncommon in state (on the order of 21 to 100 occurrences).

S4 = Apparently secure in state, with many occurrences.

S5 = Demonstrably secure in state and essentially ineradicable under present conditions.

SA = Accidental (occurring only once or a few times) or casual (occurring more regularly But not every year) in state, including species which only sporadically breed in the state.

SE = An exotic established in state; may be native elsewhere in North America (e.g., house finch or catalpa in eastern states).

SH = Of historical occurrence in the state, perhaps having not been verified in the past 20 years, and suspected to be still extant.

SN = Regularly occurring, usually migratory and typically nonbreeding species for which non significant or effective habitat conservation measures can be taken in the state.

SR = Reported from the state, but without persuasive documentation which would provide a basis for either accepting or rejecting (e.g., misidentified specimen) the report.

SU = Possibly in peril in state but status uncertain; need more information.

SX = Apparently extirpated from the state.

SZ = Not of significant conservation concern in the state, invariably because there are no (zero) definable element occurrences in the state, although the taxon is native and appears regularly in the state.

S? = Not ranked to date.

APPENDIX Vd (cont.)

NOTE: The study of naturally occurring biological communities is complex and natural community classification is unresolved both regionally and within Pennsylvania. The Global and State Ranking of natural communities also remains difficult and incomplete. Although many natural community types are clearly identifiable and have been ranked, others are still under review and appear as G? and/or S?.