FAYETTE COUNTY
NATURAL HERITAGE INVENTORY

Prepared for:

Fayette County Office of Community and Economic Development
Fayette County Courthouse, 61 East Main Street
Uniontown, PA 15401

Prepared by:

Western Pennsylvania Conservancy
209 Fourth Avenue
Pittsburgh, Pennsylvania 15222

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This project was funded by the Department of Conservation and Natural Resources, Bureau of Recreation and Conservation under the Grant Agreement #Key-Tag-3-63 and by the McKenna Foundation.

PREFACE

The Fayette County Natural Heritage Inventory identifies and maps Fayette County's most significant natural places by investigating plant and animal species and natural communities that are unique or uncommon in the county. Areas important for wildlife habitat and scientific study are also included.

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

The inventory is best viewed as a preliminary report of Fayette County's natural heritage. Further investigations could potentially uncover previously unidentified Natural Heritage Areas. In addition, in-depth investigations of sites listed in this report could reveal features of further or greater significance than have been documented. Some areas are privately owned, which means anyone wishing to visit these areas should obtain permission from the property owner(s) prior to visitation.

Western Pennsylvania Conservancy served as the principal investigator for the study using tested and proven methodology. WPC prepared the report and maps as the products of the study. WPC is a private, non-profit conservation organization with the mission of enriching the human relationship with the natural world by saving the places we care about. WPC protects natural lands, promotes healthy communities, and preserves Fallingwater. Questions concerning recognized areas or updates to the inventory should be addressed to: Western Pennsylvania Conservancy, 209 Fourth Avenue, Pittsburgh, PA 15222; phone: (412) 288-2777.

The Fayette County Office of Community and Economic Development administered this study. Requests for copies of the inventory can be addressed to the Fayette County Office of Community and Economic Development, Fayette County Courthouse, 61 East Main Street, Uniontown, PA 15401. Phone: (724) 430-1210.

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 preparation of this inventory. We also like to thank those who granted permission to access land. We especially thank Art Cappella of the Fayette County Office of Community and Economic Development, Kevin McKercher of the County Tax Office, Joe Pfohl of Commercial Stone Inc., Pat Trimble, Mayor of the Borough of Dawson, Gary Sheridan of the Municipal Authority of Westmoreland County, Lynda Waggoner, Western Pennsylvania Conservancy's Director of Fallingwater, Connie Ranson from the National Park Service and Carol Loeffler from Dickinson College. Also I would like to thank the members of the advisory committee: Ed Rinkhoff, Jr., Virginia Tressler, Pat Trimble, William Bosley, Dan Visnauskas, Jo Lofstead, Robert Butler, Don Fretts, Paul Whipkey, Chris Buckelew, Ron Desalvo, Louis Diamond, Jerry Bukovitz, Eric Martin and Rosemary Martinelli. It is impossible to name and thank all individual contributers, but without their help, the inventory would not have been completed.

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EXECUTIVE SUMMARY

This study was commissioned by Fayette County and administered by the Fayette County Office of Planning and Economic Development. The Department of Conservation and Natural Resources, Bureau of Recreation and Conservation and the McKenna Foundation funded this study. The Western Pennsylvania Conservancy served as the principal investigator and prepared the report and maps as the products of the study.

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INTRODUCTION

The first steps in ensuring protection of environmentally sensitive/ecologically important areas are identifying them and determining their importance. This information helps county, state, and municipal government, the public, and business interests plan development with the preservation of these environmentally important sites in mind. The Fayette County Natural Heritage Inventory is designed to identify and map important biotic (living) and ecological resources present in Fayette 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) areas important for general wildlife habitat, open space, education, scientific study, and recreation.

This Natural Heritage Inventory focuses on areas that are the best examples of living *ecological resources* in Fayette County. Although agricultural lands and open space may be included as part of inventory areas, the emphasis of the designation and delineation of the areas are the ecological values present. 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 homogeneity 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. There are many important resources in Fayette County not addressed in this inventory. Historic, cultural, geological, educational, water supply, agricultural and scenic resources are among many the county will address through other projects and programs.

NATURAL HERITAGE INVENTORY METHODS

Presently, nine County Natural Heritage Inventories have been completed for Western Pennsylvania. These include the 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), the Washington County Natural Heritage Inventory (Wagner et al., 1994), and the Westmoreland County Inventory (Smith et al., 1998). 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 tenth in this series, Fayette County Natural Heritage Inventory was conducted using the same methodologies which proceeded in the following stages:

I. Gathering Existing Information

A review of the Pennsylvania Natural Diversity Inventory (PNDI) database (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 Fayette County. Members of local land trusts and conservancies, environmental advisory councils and other conservation oriented citizen groups were contacted, as well as other individuals that were able to contribute information to the inventory. Individuals from the Pennsylvania Department of Conservation and Natural Resources-Bureau of Forestry were contacted for existing site information.

II. Aerial Photo and Map Interpretation

The Southwest Pennsylvania Planning Commission made available the most recent aerial photos of Fayette County (1992). 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).

III. Ground Survey

Areas identified on maps, aerial photographs and from the air as potential sites were scheduled for ground surveys. Landowners were contacted and the sites were examined to evaluate the condition and quality of the habitat and to classify the communities present. 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 or when enough information was available from other sources, sites were not ground surveyed.

IV. Data Analysis

The sites visited were ranked by relative significance. 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 the locations were transcribed to clear, polyester sheets. These sheets serve as overlays for each of the 7 ½ minute U.S.G.S. quadrangle maps found in Figure 3.

NATURAL HERITAGE AREA CLASSIFICATION

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

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

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. This is usually done 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, important because of its size, open space, habitats, and/or inclusion of one or more Biological Diversity Areas. Although an LCA includes a variety of land uses, it typically has not been heavily disturbed and thus retains much of its natural character.

Managed Lands

Managed Lands are owned or leased properties with importance, or potential importance, to the overall maintenance and protection of ecological resources of Fayette County. Managed Lands are of two types:

- Public properties established and managed to a large extent for natural resources. These properties 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 to be among the most ecologically valuable of public properties. Examples include state game lands, state forests, state parks, national historic sites, and county or municipal park lands.

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

RESULTS

The Fayette County Natural Heritage Inventory recognized 79 areas of significance – 76 Biological Diversity Areas (BDA's) and three Landscape Conservation Areas (LCA's). Natural Heritage Areas are contained in 23 out of the 40 municipalities in the county and are represented on 20 of the 29 U.S.G.S. quadrangles that cover the county. The Youghiogheny River and watershed were considered the most significant areas in the county and were included as part of both the Youghiogheny River BDA and the Youghiogheny Watershed LCA. Laurel Ridge LCA sits predominately in Westmoreland County and is included in the Westmoreland County Natural Heritage Inventory completed in 1998.

Below are the areas identified for the Natural Heritage Inventory for Fayette County and the U.S.G.S. quadrangles on which they are found. The areas are listed in order of their significance to the protection of the biological diversity and ecological integrity of the region.

LANDSCAPE CONSERVATION AREAS	U.S.G.S. QUADRANGLE
EXCEPTIONAL Significance	
1. Youghiogheny River LCA	Ohiopyle
2. Laurel Ridge LCA	Seven Springs
3. Dunbar Creek LCA	South Connellsville

BIOLOGICAL DIVERSITY AREAS

EXCEPTIONAL Significance	
4. Youghiogheny River BDA	Ohiopyle
5. Friendship Hill Slopes BDA	Masontown
6. Lower Indian Creek BDA	Mill Run

7.	Bear Run Watershed BDA	Mill Run
8.	Rubles Run BDA	Lake Lynn
9.	Big Sandy Creek BDA	Bruceton Mills
10.	The Glades BDA	Brandonville
11.	Wallace Run BDA	Carmichaels
12.	Upper Indian Creek BDA	Mill Run
13.	Upper Glade Run BDA	Fort Necessity
14.	Simpson Hill BDA	Carmichaels

HIGH Significance

15.	Laurel Run Valley BDA	Bruceton Mills
16.	Upper Quebec Run Watershed BDA	Brownfield
17.	Brownfield Hollow BDA	Smithfield
18.	Askon Hollow BDA	Brownfield
19.	Little Sandy Creek BDA	Brandonville
20.	Markleysburg Bog BDA	Ohiopyle
21.	Layton Fire Clay Mines BDA	Dawson
22.	Perryopolis Islands BDA	Dawson
23.	Greenlick Run BDA	Donegal
24.	Laurel Caverns BDA	Brownfield
25.	Casparis Mines BDA	South Connellsville
26.	Spook Hill BDA	Seven Springs
27.	Beaver Creek BDA	Ohiopyle
28.	Deer Lake BDA	Fort Necessity
29.	Jacobs Creek BDA	Dawson
30.	Bartons/Victor Hollow BDA	Brownfield
31.	Roaring Run BDA	Seven Springs
32.	Fort Necessity National Battlefield BDA	Fort Necessity
33.	Camp Carmel Slopes BDA	South Connellsville
34.	Limestone Run BDA	South Connellsville
35.	Furnace Hill Slopes BDA	South Connellsville
36.	Bates Run BDA	Mather
37.	Dunbar Creek Confluence BDA	Connellsville

NOTABLE Significance

38.	Little Sandy Creek Headwaters BDA	Fort Necessity
39.	Laurel Run Slopes BDA	South Connellsville
40.	Stoney Fork BDA	Fort Necessity
41.	Lick Run Slopes BDA	Brownfield
42.	Roundbottom Bend BDA	Dawson
43.	Deadman Run Divide Wetland BDA	Fort Necessity
44.	Laurel Run BDA	Kingwood
45.	Upper Middle Fork BDA	Kingwood
46.	War Branch/Georges Creek BDA	Masontown
47.	Broad Ford Shores BDA	Connellsville
48.	Mt. Sterling Slopes BDA	Masontown
49.	Rush Run BDA	California

50. Browneller Run Confluence BDA	Fayette City
51. Dragoo Hollow BDA	Lake Lynn
52. Connell Run Slopes BDA	Connellsville
53. Jacobs Creek Slope BDA	Dawson
54. Furnace Run Confluence BDA	Dawson
55. Hardin Hollow BDA	Brownfield
56. Coolspring Run BDA	Uniontown
57. Middle Morgan Run Slope BDA	South Connellsville
58. Cheat River Confluence BDA	Morgantown North
59. Sitka Slope BDA	South Connellsville
60. Upper Lick Run BDA	Ohiopyle
61. Tub Run Headwaters BDA	Ohiopyle
62. White Rock Hollow BDA	Brownfield
63. Middle Run Slopes BDA	Carmichaels
64. Point Marion Riverside BDA	Morgantown North
65. McIntire Run Slope BDA	Brownfield
66. Reservoir Slopes North BDA	Brownfield
67. Long Run BDA	Brownfield
68. Johns Hollow BDA	South Connellsville
69. Reservoir Slopes South BDA	Brownfield
70. Braddock Grave BDA	Fort Necessity
71. Woodcock Hill BDA	Ohiopyle
72. Newmeyer Run BDA	Donegal
73. Stony Run Tributary BDA	Donegal
74. Upper Mill Run BDA	Mill Run
75. Upper Laurel Run BDA	Ohiopyle
76. Wash Run BDA	Donegal

COUNTY Significance

77. Grindstone Slopes BDA	Fayette City
78. Ronco Slopes BDA	Masontown
79. Upper Little Sandy Creek Valley BDA	Brandonville

Managed Lands

Bear Run Nature Reserve
Brownfield Hollow
Forbes State Forest
Fort Necessity National Battlefield
Friendship Hill National Historical Site
Laurel Ridge State Park
Ohiopyle State Park
State Game Lands #51
State Game Lands #111
State Game Lands #138
State Game Lands #265

State Game Lands #296
Youghiogheny Lake

RESULTS

This section presents the results of the Natural Heritage Inventory for Fayette County summarized in tabular form. Table 1 lists Natural Heritage Areas in order of their significance to the protection of the biological diversity and ecological integrity of the region and provides an important features summary 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 within a particular municipality, the U.S.G.S. quadrangle where the areas are discussed in the report accompany the Natural Heritage Area names. Fig. 1 precedes this table and identifies the municipalities in Fayette County. Table 3 (Dedicated Areas) supplies a list and description of areas 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 Fayette County. Areas that are state significant due to the presence of a plant or animal species of special concern or significant natural community are given priority. County significant sites which do not have any rare species but contain a mature plant community follow. Significance ranks are **Exceptional**, **High**, **Notable,** and **County**. Significance ranks have been used to prioritize all identified sites and suggest the relative attention 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 protection of these areas. For example, an opportunity may come available in the county to create or advise 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 areas listed as "Exceptional". If after evaluating various possibilities, Natural Heritage Areas number 2 and 12 appear to be possibilities, number 2 is the best choice to protect biodiversity given its numerical priority.

SITE	**QUADRANGLE**	**DESCRIPTION**
EXCEPTIONAL		
1. Youghiogheny River LCA	Ohiopyle	Area of contiguous forest, rugged topography and high natural diversity featuring the Youghiogheny River gorge within the Allegheny Mountains.
2. Youghiogheny River BDA	Ohiopyle	Scour zones, shores and floodplains of the Youghiogheny River. Includes the most diverse areas in the county.
3. Laurel Ridge LCA	Seven Springs	Recognized in the Westmoreland County Natural Heritage Inventory for the large, contiguous forested section of Laurel Ridge containing a density of important BDA's and landscapes. Includes a small portion of Fayette County.
4. Dunbar Creek LCA	South Connellsville	The large, contiguous forested Watershed of Dunbar Creek above the Borough of Dunbar. Includes numerous BDA's and rare species and also part of State Game Lands #51.

SITE	QUADRANGLE	DESCRIPTION
EXCEPTIONAL		
5. Friendship Hill Slopes BDA	Masontown	Slopes and shore of the Monongahela River and part of the Friendship Hill National Historic Site. Supports a significant natural community and three plants of special concern.
6.Lower Indian Creek BDA	Mill Run	Forested slopes, floodplains and scour zones of Indian Creek downstream of Mill Run that provide habitat for four plant species of special concern.
7. Bear Run Watershed BDA	Mill Run	Western Pennsylvania Conservancy owned property protecting the Bear Run watershed. The location of two plant species of special concern.
8. Rubles Run BDA	Lake Lynn	Western slope of Chestnut Ridge of rich forests that support two animal and one plant species of special concern.
9. Big Sandy Creek BDA	Bruceton Mills	Rich and remote forested stream corridor and slopes that is the home to three plants species of special concern.
10.The Glades BDA	Brandonville	Extensive wetland complex with prominent beaver influences that supports a natural community and a plant species of special concern.
11. Wallace Run BDA	Carmichaels	Forested stream valley within a heavily mined watershed that is the location of two plant species of special concern.
12. Upper Indian Creek BDA	Mill Run	Complex of swamps and marshes along Indian Creek upstream of Mill Run Reservoir. Home to two natural communities and one plant species of special concern.
13. Upper Glade Run BDA	Fort Necessity	Complex of low areas and wetlands supporting two natural communities, one animal and one plant species of special concern.
14. Simpson Hill BDA	Carmichaels	Unique natural community supporting two plant species of special concern, one of global conservation significance.

SITE	QUADRANGLE	DESCRIPTION
HIGH		
15. Laurel Run Valley BDA	Bruceton Mills	Rich, forested slope that is the location of a plant species of special concern.
16. Upper Quebec Run Watershed BDA	Brownfield	Forest within a Bureau of Forestry Wild Area containing a limestone solutional cave and an animal species of special concern.
17. Brownfield Hollow BDA	Smithfield	Forested watershed on Chestnut Ridge owned in part by Western Pennsylvania Conservancy. The location of a plant and two animal species of special concern.
18. Askon Hollow BDA	Brownfield	Forested watershed containing large sandstone outcrops and a limestone solutional cave that supports two animal species of special concern.
19. Little Sandy Creek BDA	Brandonville	Moist slopes and valley wetlands, home of three plant species of special concern.
20. Markleysburg Bog BDA	Ohiopyle	Non-glacial bog that is the location of one animal and three plant species of special concern and numerous historic occurrences of rare plants.
21. Layton Fire Clay Mines BDA	Dawson	Old mines that furnish habitat for an animal species of special concern.
22. Perryopolis Islands BDA	Dawson	Youghiogheny River islands with diverse habitat and floodplain forest. These islands are the location of two plant species of special concern.
23. Greenlick Run BDA	Donegal	Stream valley and rich woods that support a population of an animal and two plant species of special concern.
24. Laurel Caverns BDA	Brownfield	Limestone solutional cave community and the location of two animal species of special concern.
25. Casparis Mines BDA	South Connellsville	Massive limestone mine providing habitat for two animal species of special concern.

SITE	QUADRANGLE	DESCRIPTION
HIGH		
26. Spook Hill BDA	Seven Springs	Adjacent forested watersheds of Neals and Trout Run each of which are the homes of two plant species of special concern.
27. Beaver Creek BDA	Ohiopyle	Seepage areas and valley forest supporting populations of two plant species of special concern.
28. Deer Lake BDA	Fort Necessity	Impounded lake and adjacent wetlands that support two plant species of special concern.
29. Jacobs Creek BDA	Dawson	Forested slopes along Jacobs Creek that provide habitat for a plant species of special concern.
30. Bartons/Victor Hollow BDA	Brownfield	Mature forested watersheds containing sandstone outcrops that are the home to an animal species of special concern.
31. 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.
32. Fort Necessity National Battlefield BDA	Fort Necessity	Wetland complex and low areas that provide habitat for two plant species of special concern.
33. Camp Carmel Slopes BDA	South Connellsville	Steep, forested slopes above the Youghiogheny River that are the locations of two animal and two plant species of special concern.
34. Limestone Run BDA	South Connellsville	Forested tributary to Limestone Run supporting an animal species of special concern.
35. Bates Run BDA	Mather	Dry, limestone-based slopes and natural community that is the location of a plant species of special concern.

SITE	QUADRANGLE	DESCRIPTION
HIGH		
36. Dunbar Creek Confluence BDA	Connellsville	Forested floodplain that is the location of a plant species of special concern.
NOTABLE		
37. Little Sandy Creek Headwaters BDA	Fort Necessity	Natural wetland community in the headwaters of Little Sandy Creek and the location of a plant species of special concern.
38. Laurel Run Slopes BDA	South Connellsville	Rich woods and sandstone outcrops that provide habitat for a population of a special concern animal species.
39. Stoney Fork BDA	Fort Necessity	Slopes and valley of the Stoney Fork of Big Sandy Creek that hold a significant natural community, wetlands, and two plant species of special concern.
40. Lick Run Slopes BDA	Brownfield	Steep, forested slopes containing sandstone outcrops supporting two animal species of special concern.
41. Roundbottom Bend BDA	Dawson	Large bend in the Youghiogheny River and associated slopes that are the location for three plant species of special concern.
42. Deadman Run Divide Wetland BDA	Fort Necessity	Wetland community at the headwaters of Deadman Run that supports a population of a special concern plant species.
43. Laurel Run BDA	Kingwood	Forested valley containing numerous seepage areas/spring runs and two plant species of special concern.
44. Upper Middle Fork BDA	Kingwood	Forested Seepage areas and rich woods that are the home to two plant species of special concern.
45. War Branch/Georges Creek BDA	Masontown	Exceptional example of an old growth forest.

46. Broad Ford Shores BDA	Connellsville	Lower slopes and island of the Youghiogheny River that is the location of a plant species of special concern.

SITE	**QUADRANGLE**	**DESCRIPTION**
NOTABLE		
47. Mt. Sterling Slopes BDA	Masontown	Limestone underlain slopes that are the location of a plant species of special concern.
48. Rush Run BDA	California	Limestone underlain slopes and river shore that is the home to two plant species of special concern.
49. Browneller Run Confluence BDA	Fayette City	Floodplain of the Youghiogheny River that is the home to a plant species of species concern.
50. Dragoo Hollow BDA	Lake Lynn	Rich forested valley that is the home to an animal and plant species of special concern.
51. Connell Run Slopes BDA	Connellsville	Rich woods and sandstone outcrops that are the location of an animal species of special concern.
52. Jacobs Creek Slope BDA	Dawson	Rich slope next to Jacobs Creek that is the location of a plant species of special concern.
53. Furnace Run Confluence BDA	Dawson	Floodplain scour zone along the Youghiogheny River that is the location of a plant species of special concern.
54. Hardin Hollow BDA	Brownfield	Sandstone outcrops and rich woods that is the location of an animal species of special concern.
55. Coolspring Run BDA	Uniontown	Rich slopes and sandstone outcrops that are the location of an animal species of special concern.
56. Middle Morgan Run Slope BDA	South Connellsville	Rich slopes and sandstone outcrops that support an animal species of special concern.
57. Cheat River Confluence BDA	Morgantown North	Shallow sandbars in the Cheat River that supplies habitat for a plant species of special concern.

58. Sitka Slope BDA	South Connellsville	Roadside area that is the location of a plant species of special concern.

SITE	**QUADRANGLE**	**DESCRIPTION**
NOTABLE		
59. Upper Lick Run BDA	Ohiopyle	Seepage areas and overhanging stream banks providing habitat for a plant and animal species of special concern.
60. Tub Run Headwaters BDA	Ohiopyle	Seepage wetland that is the location of two plant species of special concern.
61. White Rock Hollow BDA	Brownfield	Recovering forest community that is the location of a plant and animal species of special concern.
62. Middle Run Slopes BDA	Carmichaels	Rich floodplain of Middle Run that is the location of plant species of special concern.
63. Point Marion Riverside BDA	Morgantown North	Shore of the Monongahela River providing habitat for a plant species of special concern.
64. McIntire Run Slope BDA	Brownfield	Rich slopes that are the location of a plants species of special concern.
65. Reservoir Slopes North BDA	Brownfield	Rich slope and sandstone outcrops that are the location of an animal species of special concern.
66. Long Run BDA	Brownfield	Rich woods and sandstone outcrops that are the location of an animal species of special concern.
67. Johns Hollow BDA	South Connellsville	Seepage area and slope within a small tributary to the Youghiogheny that is the location of an animal and plants species of special concern.
68. Reservoir Slopes South BDA	Brownfield	Rich slope and sandstone outcrops that are the location of an animal species of special concern.
69. Braddock Grave BDA	Fort Necessity	Location of a plant species of special concern.

70. Woodcock Hill BDA	Ohiopyle	Sandstone outcrop that is the location of an animal species of special concern.
71. Newmeyer Run BDA	Donegal	Seepage community that is the location of a plant species of special concern.
SITE	**QUADRANGLE**	**DESCRIPTION**
NOTABLE		
72. Stony Run Tributary BDA	Donegal	Seepage community that is the location of a plant species of special concern.
73. Upper Mill Run BDA	Mill Run	Seepage community that is the location of a plant species of special concern.
74. Upper Laurel Run BDA	Ohiopyle	Seepage community that is the location of a plant species of special concern.
75. Wash Run BDA	Donegal	Seepage community that is the location of a plant species of special concern.
COUNTY		
76. Grindstone Slopes BDA	Fayette City	Rich slopes and waterfalls on a tributary to Redstone Creek.
77. Ronco Slopes BDA	Masontown	Rich limestone-based slopes with Pawpaw understory on Browns Run.
78. Upper Little Sandy Creek Valley BDA	Brandonville	Forested rich stream valley on Little Sandy Creek upstream of Gibbon Glade.

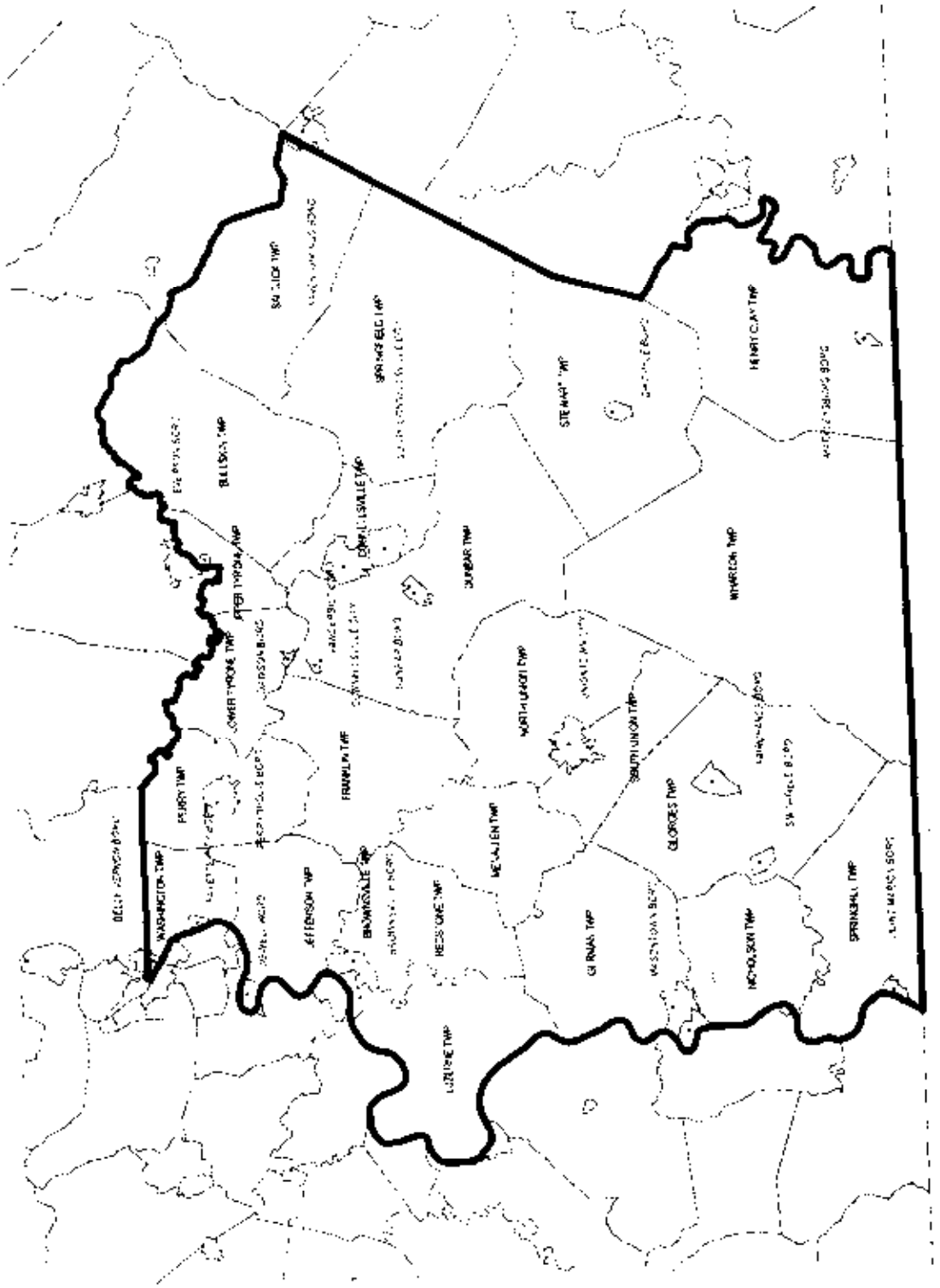


Figure 1: Municipalities of Fayette County

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

Municipality	**Site Names & *Managed Lands***	**U.S.G.S. Quadrangle**
Belle Vernon Borough	None	
Brownsville Borough	None	
Brownsville Township	None	
Bullskin Township	Greenlick Run BDA	Donegal
City of Connellsville	None	
Connellsville Township	Casparis Mines BDA	South Connellsville
	Connell Run BDA	Connellsville
	Furnace Hill Slopes BDA	South Connellsville
	Laurel Run Slopes BDA	South Connellsville
	Youghiogheny River BDA	South Connellsville
	Youghiogheny River LCA	South Connellsville
	State Game Lands #51	South Connellsville
Dawson Borough	None	
Dunbar Township	Broad Ford Shores BDA	Connellsville
	Camp Carmel Slopes BDA	South Connellsville
	Dunbar Creek LCA	South Connellsville Uniontown
	Dunbar Creek Confluence BDA	Connellsville South Connellsville
	Limestone Run BDA	South Connellsville
	Middle Morgan Run Slope BDA	South Connellsville
	Sitka Slope BDA	South Connellsville
	State Game Lands #51	South Connellsville
Everson Borough	None	
Fairchance Borough	None	
Fayette City Borough	None	
Franklin Township	Furnace Run Confluence BDA	Dawson

Table 2 (cont.)

Municipality	Site Names & *Managed Lands*	U.S.G.S. Quadrangle
Georges Township	Askon Hollow BDA	Brownfield
	Bartons/Victor Hollow BDA	Brownfield
	Brownfield Hollow DA	Smithfield
	Brownfield Hollow BDA	Smithfield
	Hardin Hollow BDA	Brownfield
	Laurel Caverns BDA	Brownfield
	Rubles Run BDA	Lake Lynn
		Smithfield
	White Rock Hollow BDA	Brownfield
		Brownfield
	State Game Lands #138	Smithfield
German Township	Middle Run Slopes BDA	Carmichaels
		Carmichaels
	Ronco Slopes BDA	Masontown
	State Game Lands #238	Carmichaels
Henry Clay Township	Beaver Creek BDA	Ohiopyle
	Little Sandy Creek Headwaters BDA	Fort Necessity
	Markleysburg Bog BDA	Ohiopyle
	The Glades BDA	Brandonville
	Tub Run Headwaters BDA	Ohiopyle
	Upper Laurel Run BDA	Ohiopyle
	Woodcock Hill BDA	Ohiopyle
	Youghiogheny River BDA	Confluence
		Ohiopyle
	Youghiogheny River LCA	Confluence
		Ohiopyle
	Ohiopyle State Park	Ohiopyle
	State Game Lands #265	Ohiopyle
	Youghiogheny Lake (USACOE)	Confluence
		Friendsville
		Ohiopyle
Jefferson Township	Grindstone Slopes BDA	Fayette City

Table 2 (cont.)

Municipality	Site Names & *Managed Lands*	U.S.G.S. Quadrangle
Lower Tyrone Township	Jacobs Creek Slope BDA	Dawson
	Roundbottom Bend BDA	Dawson
	State Game Lands #296	Dawson
Luzerne Township	Bates Run BDA	Carmichaels
		Mather
	Rush Run BDA	Carmichaels
	Simpson Hill/Cox Run BDA	California
		Carmichaels
	Wallace Run BDA	Carmichaels
Markleysburg Borough	None	
Masontown Borough	None	
Menallen Township	None	
Newell Borough	None	
Nicholson Township	War Branch/Georges Creek BDA	Masontown
		Smithfield
	Mt. Sterling Slopes BDA	Masontown
North Union Township	Coolspring Run BDA	Uniontown
	Dunbar Creek LCA	Uniontown
	Lick Run Slopes BDA	Brownfield
	Upper Glade Run BDA	Fort Necessity
		South Connellsville
	Forbes State Forest	Brownfield
	State Game Lands #51	Fort Necessity
		South Connellsville
Ohiopyle Borough	Youghiogheny River BDA	Ohiopyle
	Youghiogheny River LCA	Ohiopyle

Table 2 (cont.)

Municipality	Site Names & *Managed Lands*	U.S.G.S. Quadrangle
Perry Township	Browneller Run Confluence BDA	Fayette City
	Jacobs Creek BDA	Dawson
	Layton Fire Clay Mines BDA	Dawson
	Perryopolis Islands BDA	Dawson
	Roundbottom Bend BDA	Dawson
Perryopolis Borough	None	
Point Marion Borough	Cheat River Confluence BDA	Morgantown North
	Point Marion Riverside BDA	Morgantown North
Redstone Township	Simpson Hill/Cox Run BDA	Carmichaels
Saltlick Township	Laurel Ridge LCA	Seven Springs
	Newmeyer Run BDA	Donegal
	Roaring Run BDA	Seven Springs
	Spook Hill BDA	Seven Springs
	Wash Run BDA	Donegal
	Laurel Ridge State Park	Seven Springs Kingwood
South Connellsville Borough	Laurel Run Slopes BDA	South Connellsville
	Youghiogheny River BDA	South Connellsville
	Youghiogheny River LCA	South Connellsville
South Union Township	Lick Run Slopes BDA	Brownfield
	Reservoir Slopes North BDA	Brownfield
	Reservoir Slopes South BDA	Brownfield
	Forbes State Forest	Brownfield
	State Game Lands #138	Brownfield
Springhill Township	Cheat River Confluence BDA	Morgantown North
	Dragoo Hollow BDA	Lake Lynn
	Friendship Hill Slopes BDA	Masontown
	Rubles Run BDA	Lake Lynn Smithfield
	War Branch/Georges Creek BDA	Masontown Smithfield

Table 2 (cont.)

Municipality	Site Names & *Managed Lands*	U.S.G.S. Quadrangle
Springfield Township	Indian Creek DA	Mill Run
		South Connellsville
	Johns Hollow BDA	South Connellsville
	Laurel Run BDA	Kingwood
		Mill Run
		Seven Springs
		Donegal
	Lower Indian Creek BDA	Mill Run
		South Connellsville
	Newmeyer Run BDA	Donegal
	Stony Run Tributary BDA	Donegal
	Upper Indian Creek BDA	Mill Run
	Upper Middle Fork BDA	Kingwood
	Upper Mill Run BDA	Mill Run
	Laurel Ridge State Park	Mill Run
Stewart Township	Bear Run Watershed BDA	Mill Run
	Bear Run DA	Mill Run
	Dunbar Creek LCA	South Connellsville
	Ferncliff Peninsula DA	Fort Necessity
		Ohiopyle
	Upper Lick Run BDA	Mill Run
		Ohiopyle
	Youghiogheny River BDA	Fort Necessity
		Mill Run
		Ohiopyle
		South Connellsville
	Youghiogheny River LCA	Fort Necessity
		Mill Run
		Ohiopyle
		South Connellsville
	Ohiopyle State Park	Fort Necessity
		Mill Run
		Ohiopyle
		South Connellsville
	State Game Lands #51	South Connellsville
	State Game Lands #111	Ohiopyle

City of Uniontown	None	
Table 2 (cont.)		
Municipality	**Site Names & *Managed Lands***	**U.S.G.S. Quadrangle**
Upper Tyrone Township	None	
Vanderbilt Borough	None	
Washington Township	None	Fayette City
Wharton Township	Big Sandy Creek BDA	Brownfield
		Bruceton Mills
	Braddock Grave BDA	Fort Necessity
	Deadman Run Divide Wetland BDA	Fort Necessity
	Deer Lake BDA	Fort Necessity
	Dunbar Creek LCA	Fort Necessity
		South Connellsville
	Fort Necessity National Battlefield BDA	Fort Necessity
	Laurel Run Valley BDA	Bruceton Mills
	Little Sandy Creek BDA	Brandonville
		Bruceton Mills
	Little Sandy Creek Headwaters BDA	Fort Necessity
	McIntire Run Slope BDA	Brownfield
	Stoney Fork BDA	Brandonville
		Fort Necessity
	The Glades BDA	Brandonville
	Upper Glade Run BDA	South Connellsville
	Upper Little Sandy Creek Valley BDA	Brandonville
	Upper Long Run BDA	Brownfield
	Upper Quebec Run Watershed BDA	Brownfield
		Bruceton Mills
	Fort Necessity National Battlefield	Fort Necessity
	Forbes State Forest	Brownfield
		Fort Necessity
	State Game Lands #51	Fort Necessity

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

The objective of the Fayette 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 depends, in part, upon the establishment of specific areas and management plans dedicated to protection of these resources. A definition and description of Dedicated Areas, used in this study, can be found in the "Natural Heritage Areas Classification" section of the report.

Fayette County contains four areas that qualify as dedicated areas:

1) **Bear Run Nature Reserve DA**
2) **Beaver Creek DA**
3) **Brownfield Hollow DA**
4) **Ferncliff Peninsula Natural Area DA**

Bear Run Nature Reserve DA is a Western Pennsylvania Conservancy reserve adjacent to Ohiopyle State Park providing for the preservation of Fallingwater and protection of the Bear Run watershed. This reserve is found on the Mill Run quadrangle.

Beaver Creek DA is a Western Pennsylvania Conservancy property on Beaver Creek. Located on the Ohiopyle quadrangle, this property contains rich slopes supporting species of special concern in the county.

Brownfield Hollow DA is a Western Pennsylvania Conservancy reserve located in Brownfield Hollow. This property is located on the Smithfield quadrangle and has sandstone outcrops providing habitat for an animal of special concern.

Ferncliff Peninsula Natural Area DA is part of Ohiopyle State Park and has the highest and is one of the most studied areas in the county. Ferncliff supports ten species of special concern. It is located on the Ohiopyle and Fort Necessity quadrangles and is part of a bend in the Youghiogheny River.

Several other places in the county may one day meet the definition we have provided for dedicated areas. For instance, the Westmoreland County Municipal Authority property that includes a large portion of the Indian Creek Watershed could be considered a dedicated area if the intention to manage the area for its ecological resources was made explicit through municipal policy or plans.

Numerous 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 helps county, state, and municipal government, the public, and business interests plan development with the preservation of these environmentally important sites in mind. The Fayette County Natural Heritage Inventory is designed to identify and map important biotic (living) and ecological resources present in Fayette 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 Fayette County not addressed in this inventory. Historic, cultural, geological, educational, water supply, agricultural and scenic resources are among many the county will address through other projects and programs. This Natural Heritage Inventory focuses on areas that are the best examples of living *ecological resources* in Fayette County. Although agricultural lands and open space may be included as part of inventory areas, the emphasis of the designation and delineation of the areas are the ecological values present. 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 that are believed to be of sufficient size and quality (i.e., the natural systems are relatively intact) to continue as viable communities in the foreseeable future.

The inventory identifies ecologically important sites that are of significance in Fayette County. These are sites that are unique or uncommon in this county, but are not necessarily uncommon in the region or the state. State significant sites are also included in the inventory and are by definition, locally significant. For example, a 50-acre mature hemlock-swamp is common in many places around Pennsylvania; however, a forest community of this type and size is uncommon in Fayette 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; 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" 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 Fayette 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 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 held by private organizations concerned with the management and protection of natural resources, and which upon evaluation have been selected 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 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.

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 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), the Washington County Natural Heritage Inventory (Wagner et al., 1994), and the Westmoreland County Inventory (Smith et al., 1998). 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 Fayette 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) database (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 Fayette 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 Southwest Pennsylvania Planning Commission made available the most recent aerial photos of Fayette County (1992). 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, non-conservation timber harvesting, 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

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 FAYETTE COUNTY NATURAL FEATURES

Fayette County covers 790 square miles of the Allegheny Mountain Section and the Pittsburgh Low Plateau Section of the Appalachian Plateau Physiographic province. The base of the western slope of Chestnut Ridge forms the boundary between these two sections. 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 northeast to southwest trending Laurel Ridge and Chestnut Ridge. The low hills and valley 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 many steep-sided stream valleys cut down from the uplands 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 2,990 feet on Laurel Ridge near Seven Springs Resort to a low of 738 feet on the Monongahela River where it flows northward out of Fayette County. 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 varies from the Shenango, Burgoon, Mauch Chunk, Catskill, Pottsville, and the Allegheny Group. Sections of sandy crossbedded limestone, referred to as Loyalhanna limestone, outcrop in places along the ridgeline. These bedrock strata formed between the Devonian, Mississippian, and Pennsylvanian periods ranging from 280 to 400 million years ago. Between these ridges and within the intermontane valley, the strata are 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 Plateau Section. The younger Pennsylvanian Waynesburg and the Permian Washington Formations also underlie Western Fayette County. These formations are composed of cyclic sequences of sandstone, shale, limestone, and coal.

Soils on both Laurel Ridge and Chestnut Ridge are comprised of the Upshur-Albrights association, the Dekalb-Hazleton-Cookport association, and the Monongahela-Philo-Atkins association. These soils are generally deep to moderately deep and well drained to somewhat poorly drained. The valley between Laurel Ridge and Chestnut Ridge is largely characterized by soils of the Gilpin-Wharton-Ernest association in low parts of the valley and the Dekalb-Hazelton-Cookport association in high parts of the valley. The Pittsburgh Plateau is of the Gilpin-Wharton-Ernest association and the Guernsey-Westmoreland-Clarksburg association. In place where there is a major river such as the Youghiogheny River or the Monongahela River the Monongahela-Philo-Atkins association is encountered. Otherwise these watercourses flow through the other associations.

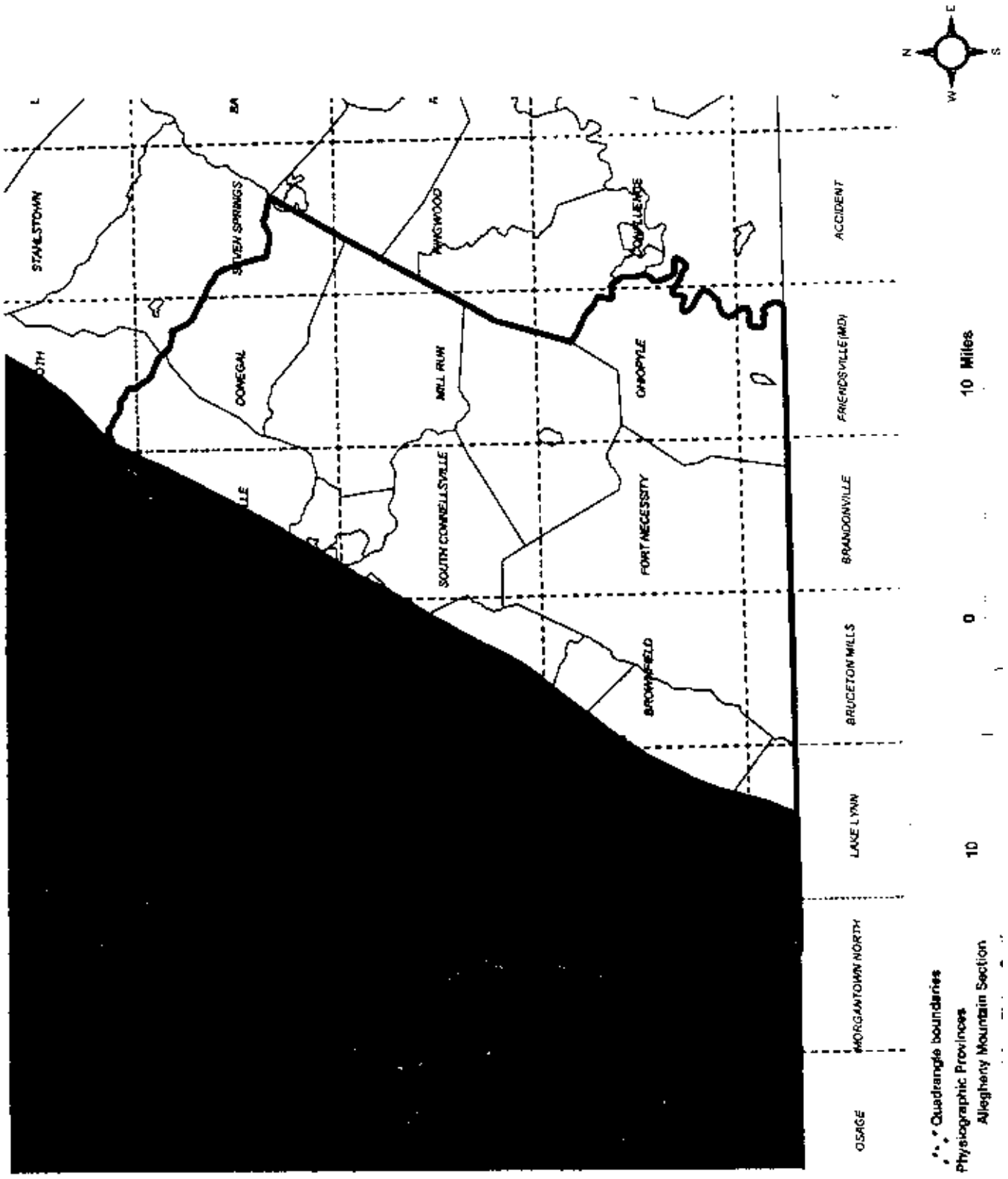


Figure 2: Physiographic Provinces of Fayette County

The landscape of Fayette 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 valleys 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, forests on the ridges are again changing. Dominant trees found on the ridge and high elevation forest communities include chestnut oak (*Quercus prinus*), black oak (*Quercus velutina*), white oak (*Quercus alba*) and red oak (*Quercus rubra*); with these occur red maple (*Acer rubrum*), black birch (*Betula lenta*), black cherry (*Prunus serotina*), sassafras (*Sassafras albidum*), and tulip tree (*Liriodendron tulipifera*). Ericaceous shrubs, as mountain laurel (*Kalmia latifolia*), rosebay rhododendron (*Rhododendron maximum*) and species of blueberry (*Vaccinium* spp.) are abundant in these rocky woods (Braun, 1950 and 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 greenbrier (*Smilax* sp.) and/or hay-scented fern (*Dennsteadtia 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 (*Carya* spp.) (shagbark, pignut, bitternut), black cherry, red maple, sugar maple (*Acer saccharum*), tulip tree, witch hazel (*Hamamelis virginiana*), and spicebush (*Lindera benzion*) becomes more prominent. The heath layer thins at lower elevations and is replaced by ferns and herbaceous species. Loyalhanna limestone outcrops on the slope producing richer and more alkaline soils.

On the lower slopes, the dry, more acidic forest communities are replaced by mesic forest communities of red and white oak, sugar maple, beech, black birch, slippery elm, basswood, white ash, tulip tree, and cucumber tree. On the northern slopes or along the lower sections of the deeply cut stream valleys, hemlock (*Tsuga canadensis*), yellow birch (*Betula allegheniensis*), and beech (*Fagus grandifolia*) along with Rhododendron will mix with the deciduous species in response to the cooler, moister 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 Monongahela and Youghiogheny watersheds roughly split Fayette County with the northern eastern sections draining into the Youghiogheny and the southern and southwestern sections draining via Big Sandy Creek, Little Sandy Creek, the Cheat River, and other smaller drainages into the Monongahela River. Where 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, the rich forests of white oak (*Quercus alba*), basswood (*Tilia americana*), sycamore (*Platanus occidentalis*), red maple, slippery elm (*Ulmus rubra*), hickory and sometimes, swamp white oak (*Quercus bicolor*) underlain by a dense, diverse herbaceous layer comprise these communities. A unique feature of the Dunlap Creek drainage is a 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, residential, commercial development, and industry. Streams running off the flanks of Laurel Ridge and Chestnut Ridge have remained very high in quality. These springs not only serve to recharge streams, 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

Twenty-nine 7.5-minute U.S.G.S. quadrangle maps cover the study area (Figure 3). Maps are arranged in numerical order according to the index depicted on Figure 3. Biological Diversity Areas, Dedicated Areas, and Landscape Conservation Areas 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.

Each topographic map has Natural Heritage Areas mapped by 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 **large dotted lines** (• • • • •).
- Dedicated Areas and Managed Lands are a **dashed line** (▬▬ ▬ ▬▬ ▬).
- Focus Areas are indicated by **small dotted lines** (• • • • •).

A summary table of sites precedes each map and lists 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 sites by significance rank and Appendix I defines the four ranks. Listed under each site name are 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). Also included for each community and species is a P.N.D.I. (Pennsylvania Natural Diversity Inventory) 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) in order to avoid the possible consequences that heavy visitation, collection or intentional disturbance might have to the plant or animal populations. Specific communities are identified in the text. 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 descriptions. The figure shows the approximate locations and extents of the LCA's contained within Fayette 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's within the county and provide a quick reference for finding other quadrangles containing the LCA's of interest.

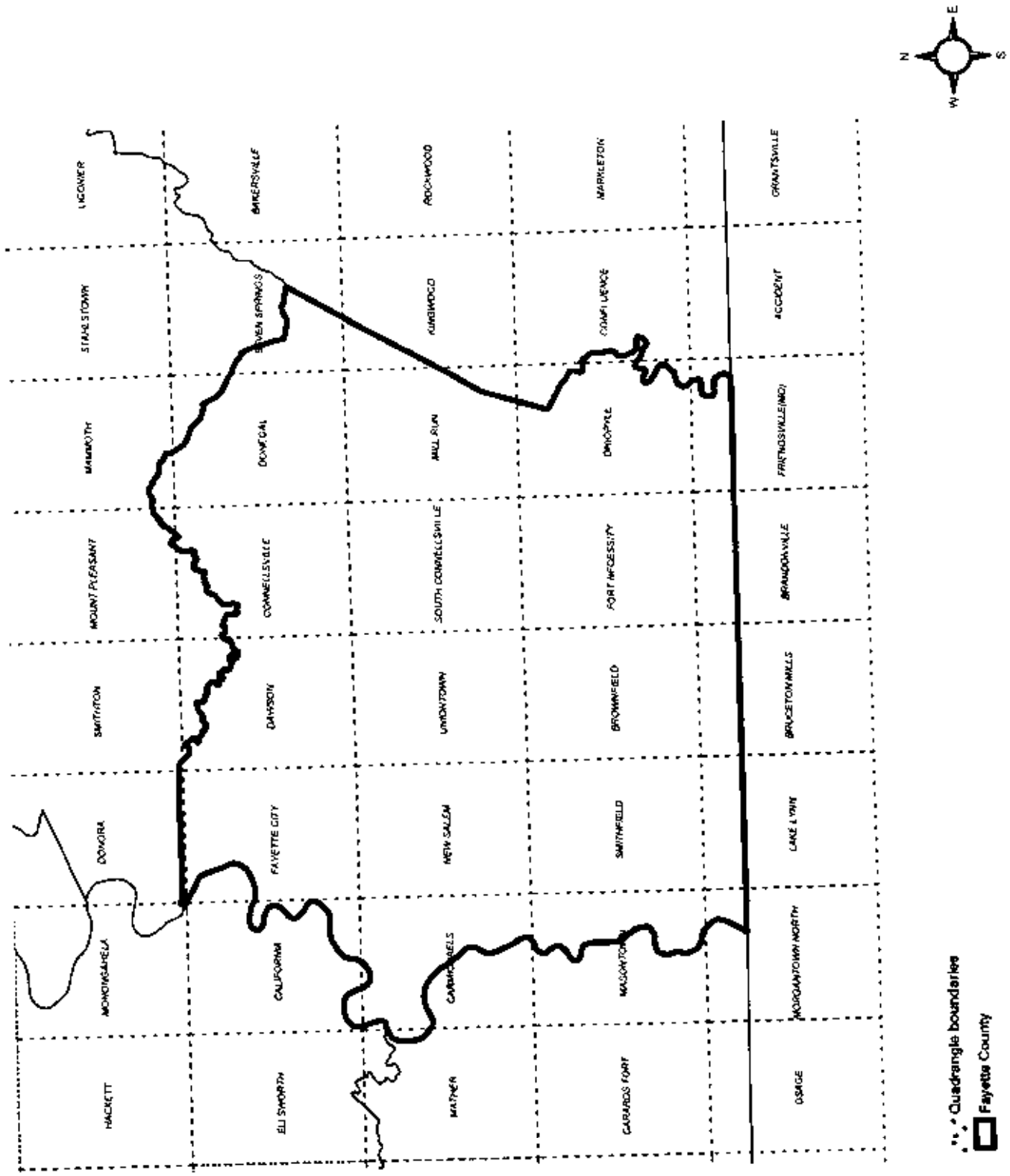


Figure 3: U.S.G.S. quadrangle map index of Fayette County

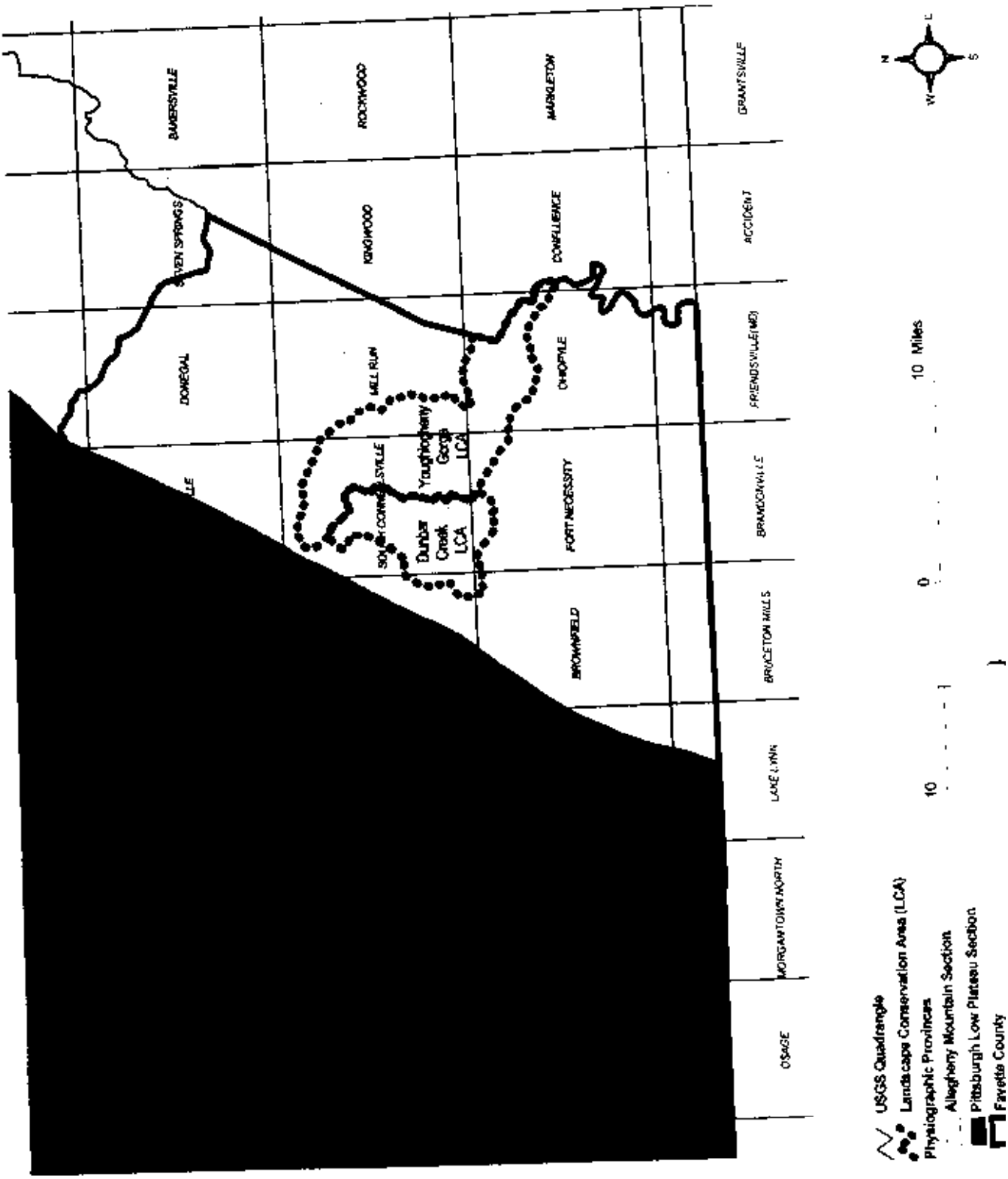
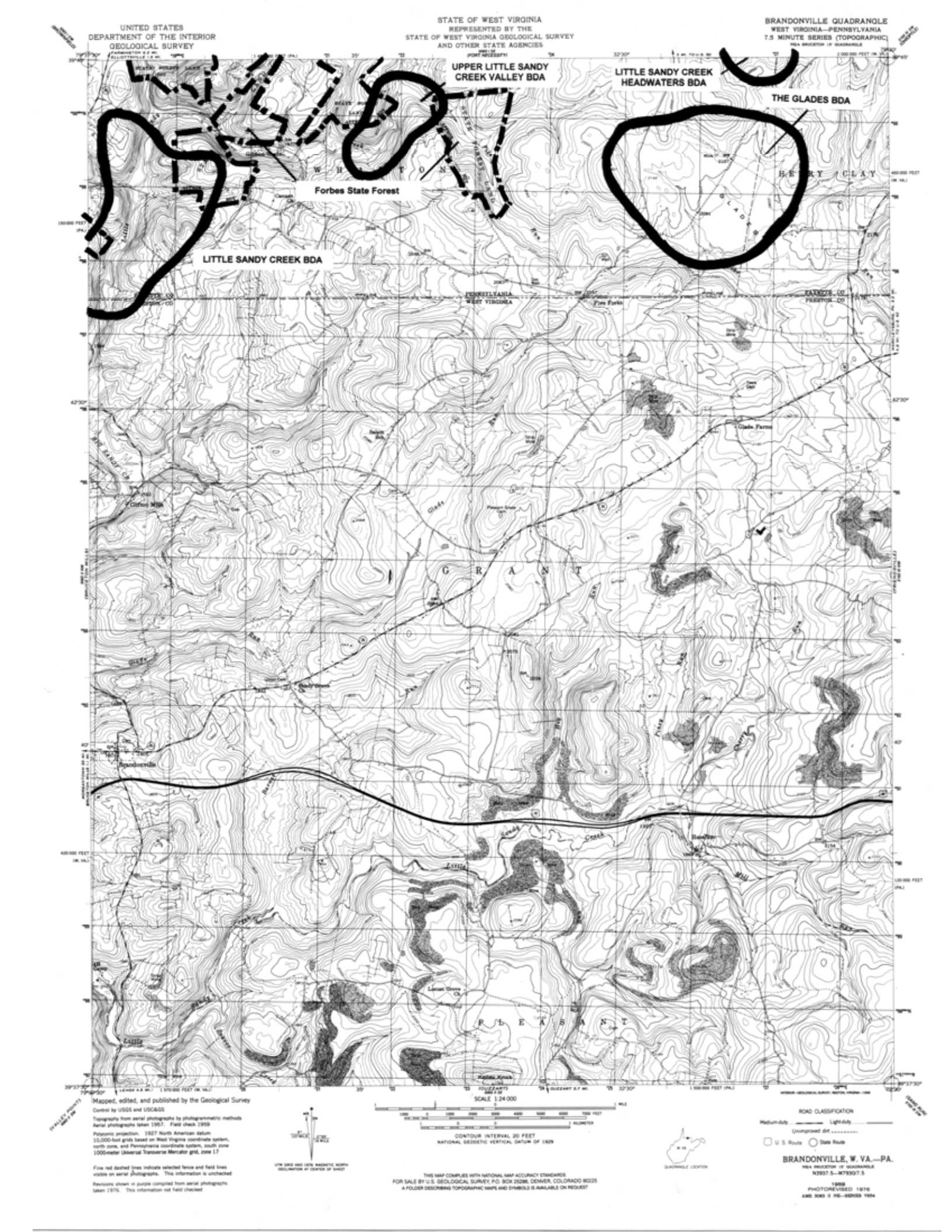


Figure 4: Landscape Conservation Areas of Fayette County

BRANDONVILLE QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
LITTLE SANDY CREEK BDA		*High Significance*			
NATURAL COMMUNITY:	NC008				
SPECIAL PLANT:	SP008	G5	S2	PT	PT
SPECIAL PLANT:	SP009	G5	S3	PT	PR
SPECIAL PLANT:	SP011	G5	S3	PT	PR
SPECIAL PLANT:	SP012	G5	S3	PT	PR
THE GLADES BDA		*Exceptional Significance*			
SPECIAL PLANT:	SP005	G5	S2	PT	PT
SPECIAL PLANT:	SP006	G5	S2	PT	PT
SPECIAL PLANT:	SP007	G5	S2	PT	PT
UPPER LITTLE SANDY CREEK VALLEY BDA		*County Significance*			

MANAGED LANDS: Forbes State Forest


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF WEST VIRGINIA
REPRESENTED BY THE
STATE OF WEST VIRGINIA GEOLOGICAL SURVEY
AND OTHER STATE AGENCIES
BRANDONVILLE QUADRANGLE
WEST VIRGINIA—PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
UPPER LITTLE SANDY CREEK VALLEY BDA
LITTLE SANDY CREEK HEADWATERS BDA
THE GLADES BDA
LITTLE SANDY CREEK BDA
Forbes State Forest
WHITPEN
HENRY CLAY
GRANT
PLEASANT
PENNSYLVANIA
WEST VIRGINIA
Five Forks
Glade Farms
Brandonville
Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS
Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1957. Field check 1959
Polyconic projection. 1927 North American datum
10,000-foot grids based on West Virginia coordinate system,
north zone, and Pennsylvania coordinate system, south zone
1000-meter Universal Transverse Mercator grid, zone 17
Fine red dashed lines indicate selected fence and field lines
visible on aerial photographs. This information is unchecked
Revisions shown in purple compiled from aerial photographs
taken 1976. This information not field checked
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, P.O. BOX 25286, DENVER, COLORADO 80225
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
ROAD CLASSIFICATION
Medium-duty
Light-duty
Unimproved dirt
U.S. Route
State Route
BRANDONVILLE, W. VA.—PA.
N3937.5—W7930/7.5
1959
PHOTOREVISED 1976

BRANDONVILLE QUADRANGLE

Fayette County covers the northern one-fourth of this quadrangle north of Preston County West Virginia. A prominent feature is "The Glades", a complex of wetlands within the low relief eastern section of the quadrangle. The main drainages in this part of the county are Fike Run and Little Sandy Creek. Forbes State Forest is in the western section. The quadrangle's only settlement, Gibbon Glade, sits along Little Sandy creek. This quadrangle includes three Natural Heritage areas and one managed land – **Forbes State Forest**.

Little Sandy Creek BDA

Little Sandy Creek as it flows south out of Pennsylvania is the main feature of this BDA. Little Sandy Creek forms in the headwater swamps of the Little Sandy Headwaters BDA described on the Ohiopyle quadrangle and The Glades BDA described below. Tannic acid from the swamps and marshes give Little Sandy Creek an acidic chemistry not found in other Fayette County streams. Recently the upper portion of the creek was impounded and is now part of a Boy Scout camp.

Wirsing Road bisects the upper part of the BDA. Above the Wirsing Road bridge, at a tributary confluence and bend in Little Sandy Creek, lies a tussock sedge marsh (**NC008**) that provides habitat for a plant species of special concern (**SP008**). Associated with this species are tussock sedge (*Carex stricta*), cottongrass (*Scirpus cyperinus*) and Virginia marsh St. John's wort (*Triadenum virginicum*). Dense areas of shrub including winterberry (*Ilex verticillata*), hazel alder (*Alnus serrulata*) and silky dogwood (*Cornus ammomum*), grow within this wetland.

Below the bridge, the creek flows past steep slopes and occasional sections of more developed floodplain. Three locations of a Pennsylvania plant species of special concern are found on these slopes (**SP009**, **SP011**, and **SP012**). The canopy of the forest surrounding the creek are dominated by tuliptree (*Liriodendron tulipifera*), red maple (*Acer rubrum*), black cherry (*Prunus serotina*), yellow birch (*Betula allegheniensis*), sweet birch (*Betula lenta*), white oak (*Quercus alba*) and red oak (*Quercus rubra*). Prominent understory species are spicebush (*Lindera benzoin*) and American hornbeam (*Carpinus caroliniana*). Herbs present include black cohosh (*Cimicifuga racemosa*), northern maidenhair fern (*Adiantum pedatum*), liverwort (*Hepatica americana*), christmas fern (*Polystichum acrostichioides*), wild geranium (*Geranium maculatum*) and foamflower (*Tiarella cordifolia*).

Threats and Stresses

SP008 typically grows in the open, unshaded edges of wetlands often associated with beaver impoundments. Changes in hydrology that would decrease soil moisture levels, lead to succession of the wetland or lead to the establishment of significant tree cover could negatively impact this plant.

SP009, SP011 and SP012 are found on the lower slopes of rich forests generally under full tree canopies. Loss of canopy, direct disturbances to the soils, or other changes in the

microhabitat could adversely affect this plant. Deer browsing is a problem for this plant at other sites but was not noted at this site. This is not to say that it will not become a problem in the future.

Invasive species such as purple loosestrife (*Lythrum salicaria*) are considered to be a threat in most any wetland within the Allegheny Mountain Physiographic Province of Fayette County. A large population has established nearby to this site. Given the right conditions this plant could take over the entire wetland.

Recommendations

Informing the landowner of the significance and of the plant species would be a good first step in the protection of the significant features of this area. The effects of instream flow on hydrology of this wetland is unclear particularly as it relates to upstream influences. Recently the headwaters of Little Sandy Creek were impounded to form a lake at a Boy Scout Camp. How the impoundment has affected the natural flow regime of the creek is not known. The land uses within the BDA stand to have the largest impacts on the wetland. Higher intensity land uses whether residential or agricultural should be evaluated to assure that the hydrology of the site and the watershed in general is not altered.

Effects of deer browsing on (SP009, SP011 and SP012) and the forest community in general should be monitored and programs or approaches instituted to maintain deer populations at levels compatible with the ecological health of the forest and the plants of special concern.

Along with monitoring of the plant populations of special concern, presence of invasive exotic species should be noted, especially purple loosestrife and measures taken to remove these plants before they become established.

The Glades BDA

The Glades encompasses a low relief area containing numerous wetlands influenced by beaver activity. An unnamed tributary to Fike Run flows through an Alder-ninebark wetland and Tussock Sedge marsh, two natural communities associated with wetlands in this part of the county. Dominant species in the Alder-ninebark wetland include brookside alder (*Alnus serrulata*), arrowwood (*Viburnum dentatum*), common winterberry (*Ilex verticillata*), maleberry (*Lyonia lugustrina*), speckled alder (*Alnus incana* ssp. *rugosa*), and bristly dewberry (*Rubus hispidus*). Scattered red maple (*Acer rubrum*) and on slightly higher ground, pitch pine (*Pinus rigida*) grow above the shrubs. The Tussock Sedge marsh is dominated by tussock sedge (*Carex stricta*) and is the remains of an old beaver pond as evidenced by the standing dead timber present in the meadow. Fike Run meanders through the meadow where sallow sedge (*Carex lurida*), rattlesnake manna grass (*Glyceria canadensis*), lamp rush (*Juncus effusus*), cottongrass (*Scirpus cyperinus*), blue vervain (*Verbena hastata*), and Virginia marsh St. John's wort (*Triadenum virginica*) grow. The edges of the wetlands provide a suitable habitat for a Pennsylvania Threatened species (**SP005, SP006 and SP007**). This species is found in multiple locations in the wetland complex.

Threats and Stresses

These communities and species of special concern depend on the high water table creating wetlands along Fike Run. Changes of the water table level could affect the wetlands making them less suitable to the present flora. Due to the high amount of available moisture, these communities are highly susceptible to invasive wetland plant species such as purple loosestrife (*Lythrum salicaria*). Given the right conditions this plant could take over the entire wetland.

Plants (**SP005**, **SP006**, and **SP007**) grow in the transition zone between the saturated and moist ground. Dependent on open situations, this plant relies upon the unique beaver influenced wetlands that exist across the larger landscape in this section of the county. As abandoned beaver ponds dry down, they furnish new habitat for a number plant and animal species including the plant of special concern discussed here. Therefore maintaining these successional communities across the landscape best assures their continued existence and that of the plants associated with them.

Recommendations

Activities that lead to changes in hydrology of wetlands including ditching, draining or upstream development should be carefully evaluated. Impacts of upstream development projects on the hydrology and nutrient loads of these sensitive communities should be analyzed and tied together with the land use plans for this area.

Additionally, checking any invasion by aggressive exotics would be an important component of stewardship at this site. Invasive species need to be monitored. It is easier to control an invasive plant before establishment rather than trying to eradicate it after it has become widespread and well established.

Upper Little Sandy Creek Valley BDA

This BDA is located along Little Sandy Creek upstream of Gibbon Glade and is recognized for the maturity and integrity of the forest community. Two forest types are predominant in this area: Dry oak-heath forest and the Hemlock-tuliptree-birch forest. Most of the forests are in good condition except for one section on the east side near Gibbon Glade that has been clearcut. There are few invasive exotic species present here.

The Dry oak-heath forest occurs on upper and middle slopes are has a canopy of red oak (*Quercus rubra*), white oak (*Q. alba*), red maple (*Acer rubrum*), black birch (*Betula lenta*), chestnut oak (*Quercus prinus*), black cherry (*Prunus serotina*), and beech (*Fagus grandifolia*). Understory species include witchazel (*Hamamelis virginiana*), mountain laurel (*Kalmia latifolia*), Sassafras (*Sassafras albidum*), and some birch (*Betula* spp. and cherry (*Prunus* spp.) seedlings.

The Hemlock-tuliptree-birch forest is located in the immediate stream valley along the lower slopes. Common canopy species are hemlock (*Tsuga canadensis*), black birch (*Betula lenta*), yellow birch (*Betula allegheniensis*), and tuliptree (*Liriodendron tulipifera*). Understory associates include rosebay rhododendron (*Rhododendron maximum*), alder (*Alnus rugosa*), black gum (*Nyssa sylvatica*), and serviceberry (*Amelanchier arborea*).

Threats and Stresses

The main threats here include loss of overstory from timbering and development, competition by invasive species such as multiflora rose (*Rosa multiflora*), direct disturbance and natural senescence without regeneration caused by over browsing by deer. In the case of Upper Little Sandy Creek Valley logging would change the microenvironment sufficiently to alter the habitat in which these plants are surviving. This would also allow multiflora rose, which is already present at the site, to gain even more of a foothold in the area. Direct disturbances such as altering the stream course or dumping would impact the environment here.

Recommendations

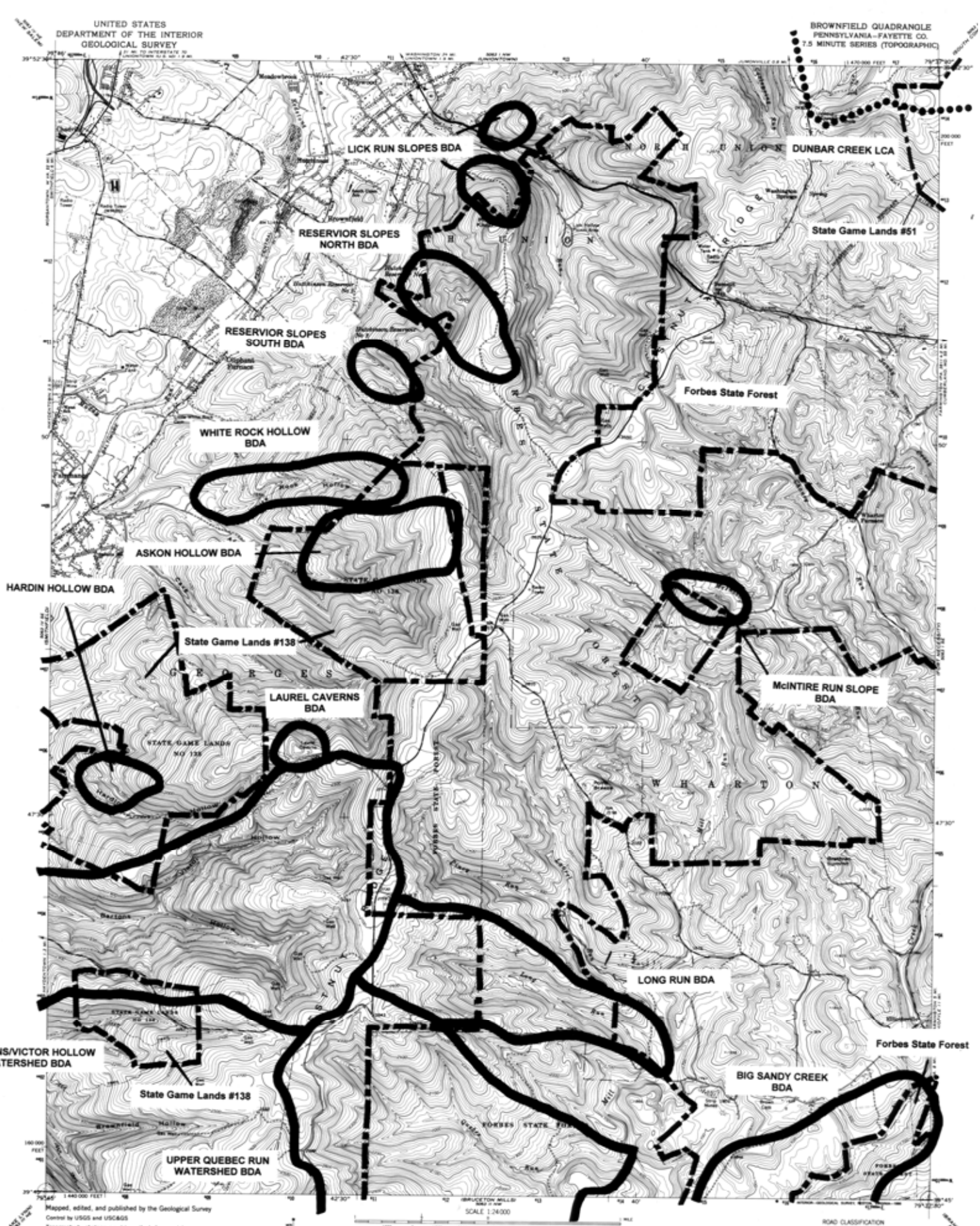
Informing the landowners of the significance of the site would help protect this stream valley and natural communities present. If the landowner is interested, a management plan could be developed for this site. Direct disturbances, such as soil removal or canopy removal should be avoided. Further inventory of the site should be conducted to better describe the community and survey for unique plants and animals that may exist here. Management of deer populations to keep them in balance with the overall ecological health of the forest community would benefit this BDA.

BROWNFIELD QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
ASKON HOLLOW BDA		*High Significance*			
NATURAL COMMUNITY:	NC003				
SPECIAL ANIMAL:	SA004a	G4	S3B,S3	N	CR
SPECIAL ANIMAL:	SA004b	G4	S3	PT	PT
BARTONS/VICTOR HOLLOW WATERSHED BDA		*Notable Significance*			
SPECIAL ANIMAL:	SA009	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA022	G3G4	S3	N	PT
DUNBAR CREEK LCA		*Exceptional Significance*			
HARDIN HOLLOW BDA		*Notable Significance*			
SPECIAL ANIMAL:	SA008	G3G4	S3	N	PT
LAUREL CAVERNS BDA		*High Significance*			
NATURAL COMMUNITY:	NC003				
SPECIAL ANIMAL:	SA003a	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA003c	G4	S3B,S3	N	CR
SPECIAL ANIMAL:	SA003b	G3	S1B,S1N	PT	PT
LICK RUN SLOPES BDA		*Notable Significance*			
SPECIAL ANIMAL:	SA012	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA018	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA019	G3G4	S1	N	PT

LONG RUN BDA		*Notable Significance*			
SPECIAL ANIMAL:	SA011	G3G4	S3	N	PT
McINTIRE RUN SLOPE BDA		*Notable Significance*			
SPECIAL PLANT:	SP030	G5	S3	PT	PR
RESERVOIR SLOPES NORTH BDA		*Notable Significance*			
SPECIAL ANIMAL:	SA005	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA006	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA015	G3G4	S3	N	PT
RESERVOIR SLOPES SOUTH BDA		*Notable Significance*			
SPECIAL ANIMAL:	SA024	G3G4	S3	N	PT
UPPER QUEBEC RUN WATERSHED BDA		*Exceptional Significance*			
SPECIAL ANIMAL:	SA007	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA021	G3G4	S3	N	PT
WHITE ROCK HOLLOW BDA		*Notable Significance*			
SPECIAL ANIMAL:	SA017	G3G4	S1	N	PT
SPECIAL ANIMAL:	SA023	G3G4	S3	N	PT
SPECIAL PLANT:	SP020	G5	S3S4	N	TU

MANAGED LANDS: Forbes State Forest
State Game Lands #138


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
BROWNFIELD QUADRANGLE
PENNSYLVANIA—FAYETTE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
LICK RUN SLOPES BDA
DUNBAR CREEK LCA
RESERVIOR SLOPES NORTH BDA
State Game Lands #51
RESERVIOR SLOPES SOUTH BDA
Forbes State Forest
WHITE ROCK HOLLOW BDA
ASKON HOLLOW BDA
HARDIN HOLLOW BDA
State Game Lands #138
LAUREL CAVERNS BDA
McINTIRE RUN SLOPE BDA
LONG RUN BDA
RTONS/VICTOR HOLLOW WATERSHED BDA
State Game Lands #138
Forbes State Forest
BIG SANDY CREEK BDA
UPPER QUEBEC RUN WATERSHED BDA
Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS
Topography by photogrammetric methods from aerial photographs taken 1962 and 1963. 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
To place on the predicted North American Datum 1983 move the projection lines 5 meters south and 19 meters west as shown by dashed corner ticks
SCALE 1:24000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
ROAD CLASSIFICATION
Heavy-duty
Light-duty
Medium-duty
Unimproved dirt
U.S. Route
State Route
BROWNFIELD, PA.
39086-A2-TF-024
1964
PHOTOREVISED 1973
DMA 5963 I SW—SERIES V851
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
Revisions shown in purple compiled in cooperation with State of Pennsylvania agencies from aerial photographs taken 1973. This information not field checked

BROWNFIELD QUADRANGLE

The Brownfield quadrangle sits entirely within Fayette County. Chestnut Ridge is a prominent natural feature and is the origin of numerous headwater streams flowing to the Cheat and Monongahela rivers. The drainages on the east side of Chestnut Ridge, such as Quebec Run, McIntire Run, and Chaney Run, flow east to Big Sandy Creek and into West Virginia. On the west side, the tributaries flow west into Georges Creek, Grassy Run, and Redstone Creek. Forbes State Forest accounts for a large portion of the quadrangle. The boroughs of Hopwood and Fairchance are found here. This quadrangle has eleven Natural Heritage Areas and three managed lands – **State Game Lands #138**, **State Game Lands #51**, and **Forbes State Forest**. State Game Lands #138 is entirely on the Brownfield quadrangle while the others are represented in part.

Askon Hollow BDA

Askon Hollow BDA is the watershed for the Borough of Fairchance water supply and is approximately due east of the borough. The geologic features of this area make it particularly unique. At the upper end is a limestone solutional cave (**NC003**) that is habitat for a Pennsylvania animal species of special concern (**SA004a**). This species relies on this habitat, particularly for quarters during the winter months. A series of large sandstone outcrops extend along the upper slopes of the hollow. These outcrops are home to another animal species of special concern – **SA004b.** This species utilizes the outcrops for denning and nesting and forages vegetation from the surrounding forest.

The forests of Askon Hollow, especially on the upper slopes, are dominated by chestnut oak (*Quercus prinus*), red oak (*Quercus rubra*), Sassafras (*Sassafras albidum*), black gum (*Nyssa sylvatica*) and red maple (*Acer rubrum*). The shrub layer is dominated by mountain laurel (*Kalmia latifolia*) and huckleberry (*Gaylussacia baccata*). Herbs in this forest are sparse, although the area immediately upslope of the cave has a dense cover of round-leaves ragwort (Senecio obovatus). The surrounding forest has been damaged by gypsy moth and many trees are now standing dead or down.

Threats and Stresses

The species and natural communities at this site share similar requirements: an intact, undisturbed immediate habitat that includes geologic formations and surrounding forest. Removal of the forest canopy either above or by the entrance of the cave could change the microclimate and airflow in the cave. Increased human activity on rock outcrops and caves on the site poses a potential threat to the special animal species that reside on the site.

Recommendations

The Pennsylvania Game Commission has taken steps to ensure the protection of the habitat for the animals of special concern in Askon Hollow. Assuring that the Game Commission

receives any additional data and observations about the site would be of help in their protection efforts. Continued monitoring of species of special concern, as well as additional inventory, will help insure the continued existence and health of the species and natural communities present at the site. Also, monitoring of usage and access to the site will help in future planning and management for the species and habitats present.

Bartons/Victor Hollow BDA

Bartons Hollow is between Hardin and Brownfield hollow on the west slope of Chestnut Ridge. Both hollows are composed of steep north-facing and south-facing slopes with more moderate westerly slopes. Interspersed throughout the hollows are rock outcrops, especially on the steeper slopes. A section of the southern area of the BDA is part of State Game Lands #138. The rock outcrops in this BDA are the living quarters for two locations of a Pennsylvania threatened animal species (**SA009** and **SA022**).

Threats and Stresses

SA009 and SA022 require specific geological features within relatively remote forest communities. Activities resulting in a change in light levels and/or direct impact to the immediate habitat and associated outcrops stand to affect this species negatively. Noise related to trail or road construction within the BDA and increased access could negatively impact the populations of these animals.

Recommendations

Working with the landowner to make them aware of the presence and requirements of the animals would be a good first step in protecting the species here. More studies to get a better understanding of the species ecology and distribution will help in furthering their survival over the long term. Activities that alter the habitat, particularly the geologic formations and natural plant communities should be avoided.

Big Sandy Creek BDA

Big Sandy Creek BDA is discussed on the Bruceton Mills quadrangle.

Dunbar Creek LCA

Dunbar Creek LCA is discussed on the South Connellsville quadrangle.

Hardin Hollow BDA

On the west slope of Chestnut Ridge between Bartons Hollow and Cave Hollow an unnamed tributary forms Hardin Hollow. This stream flows to Mountain Creek, which then flows into Georges Creek. All of the land within the BDA slopes to the southwest. Rock outcrops within the hollow provide habitat for an animal species of special concern (**SA008**). This watershed is owned in part by the PA Game Commission as part of State Game Lands #138. The BDA lies entirely on the State Game Lands.

Threats and Stresses

This species requires specific geological features within relatively remote forest communities. Activities that result in a change to the light levels or directly impact the rock outcrop or habitat around the rocks will disrupt the life of the animals here. Any increase in noise or access due to trail or road construction would result in negative impacts to the animals. Possible activities that might affect immediate habitat include those that would result in a change in light levels.

Recommendations

Working with the PA Game Commission to assure that all information collected about the species of special concern, natural communities and landscape features is incorporated into a management plan for this site would help guide recreation or resource management activities for the future. 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 the needs for ultimate protection of this site.

Laurel Caverns BDA

Laurel Caverns BDA is confined to the area surrounding Laurel Caverns on the west side of Chestnut Ridge near the Pondfield #2 lookout tower. Historically called Dulany's Cave, these caverns are considered to be the second largest and the deepest in the state (Opatka-Metzger, 1996) and are now operated as a commercial cave. Currently it provides habitat (**NC003**) for three animals of special concern (**SA003a**, **SA003b** and **SA003c**) and is the historic location of a Pennsylvania rare species of animal.

Threats and Stresses

The natural communities and species of special concern within Laurel Caverns BDA depend upon the undisturbed geology of this site. Threats mainly center on human visitation to the cave and the noise, light and movement that comes with visitation. 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. Loss of canopy and/or direct manipulation of habitat such as restriction or sealing of cave accesses are threats for the animals dwelling in the cave.

Recommendations

The landowner is aware of the natural community that the cave supports. A new entrance has been made for the animals living here so they can enter and exit the cave and not be disturbed. Making available expertise and tools that may help the owner make decisions and accommodate the cave community within the context of his business would be a critical step in the protection of the site. Assisting in the development of a conservation strategy could benefit the long-term interest of the natural community and the business by protecting a common resource.

Lick Run Slopes BDA

Lick Run Slopes BDA is located on the west side of Chestnut Ridge and is downstream of the Lick Hollow Picnic area of Forbes State Forest. This area is dominated by tuliptree (*Liriodendron tulipifera*), American beech (*Fagus grandifolia*), white oak (*Quercus alba*), black cherry (*Prunus serotina*) and red maple (*Acer rubrum*). Understory associates include spicebush (*Lindera benzoin*), witchazel (*Hamamelis virginiana*), and cucumber tree (*Magnolia accuminata*). Common herbaceous species include false solomon's seal (*Smilacina racemosa*), white wood aster (*Aster divaricatus*), New York fern (*Thelypteris novaboracensis*), foamflower (*Tiarella cordifolia*) and round- leaved violet (*Viola rotundifolia*). Within these forests are found two animal species of special concern (**SA012**, **SA018** and **SA019**).

Threats and Stresses

Requirements for SA012 and SA018 include specific geological features within relatively remote forest communities. Possible activities that might affect the immediate habitat and associated rock outcrops include those that would result in a change in light levels and direct impact to habitat. In addition road and/or trail construction would have a negative impact by disturbing the animals.

SA019 is restricted to moist sandstone outcrops within relatively undisturbed forests. This species is confined to very few locations in southwestern Pennsylvania all within Fayette County. Any disturbance to the outcrops or the crevices in which this animal lives could adversely affect this species. Additionally changes in microhabitat that affect the hydrology or loss of canopy may negatively impact the animals.

Recommendations

Working with the landowner to make them aware of the presence and requirements of the animals would be a good first step in protecting the species present. More studies to get a better understanding of the species' ecology and distribution will help in furthering their survival over the long term. Activities within the BDA that could alter the microhabitat, directly impact the rock outcrops, or increase access to the site should be carefully evaluated to reduce potential impacts to this species.

Long Run BDA

Long Run drains the east side of Chestnut Ridge and flows into Mill Run; a tributary to Big Sandy Creek. The waters of Long Run have been designated Exceptional Value (EV) by the Pennsylvania Department of Environmental Protection. The rock outcrops in the rich forests here support a Pennsylvania animal species of special concern (**SA011**).

Threats and Stresses

SA011 requires a specific habitat in relatively undisturbed, forested areas. Activities resulting in a change in light or moisture levels and/or direct impact to the immediate habitat and associated outcrops stand to affect this species negatively. Noise related to trail or road construction and the resultant increased access could negatively impact the animals.

Recommendations

Working with the Pennsylvania Bureau of Forestry to assure that all information collected about the species of special concern, natural communities and landscape features is incorporated into a forest management plan for this site would help guide recreation or resource management activities for the future. 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 the needs for ultimate protection of this site.

McIntire Run Slope BDA

McIntire Run is a tributary to Big Sandy Creek that flows through mixed hardwood forests with scattered, dense areas of rosebay rhododendron (*Rhododendron maximum*). Dominant canopy species along McIntire Run include white oak (*Quercus alba*), black cherry (*Prunus serotina*) and red maple (*Acer rubrum*). Understory associates include winterberry (*Ilex verticillata*) and rosebay rhododendron (*Rhododendron maximum*). Herbaceous species present include intermediate shield fern (*Dryopteris intermedia*), New York fern (*Thelypteris novaboracensis*), northern maidenhair fern (*Adiantum pedatum*), christmas fern (*Polystichum acrostichioides*) and foamflower (*Tiarella cordifolia*). On rich slopes in this forest is found a Pennsylvania plant species of special concern (**SP030**).

Threats and Stresses

Loss of canopy, direct disturbance to the soils and other changes to the habitat of the plant species of special concern could negatively affect its population within the BDA. Deer browsing has impacted plants within this area with most of the plants having been browsed to almost ground level.

Recommendations

Browsing by deer is the most pressing threat to the species of special concern at this site. Management of the deer population to reduce browse pressure on this species and on more common species would benefit the entire forest community. Effects of deer browsing on these plants and the community in general should be monitored and programs and approaches instituted to maintain deer populations at levels compatible with the ecological health of the forest and the plants of special concern.

Reservoir Slopes North BDA

Southeast of Hopwood, Pennsylvania is a series of reservoirs with adjacent rich slopes. Two BDA's encompass large sections of these slopes: Reservoir Slopes North BDA and Reservoir Slopes South BDA. Reservoir Slopes South is described below. Reservoir Slopes North is the habitat for a Pennsylvania animal species of special concern (**SA005**, **SA006** and **SA015**). The structure and species composition of the surrounding forest provides shelter and forage opportunities to these animals and helps to regulate the microenvironments that are important to this animal.

Threats and Stresses

SA005, SA006 and SA015 require a fairly specific habitat. Activities resulting in a change in light levels and/or direct impact to the immediate habitat and associated outcrops stand to affect this species negatively. Noise related to trail or road construction and the resultant increased access could negatively impact these animals.

Recommendations

Working with the PA Game Commission to assure that all information collected about the species of special concern, natural communities and landscape features is incorporated into a management plan for this site would help guide recreation or resource management activities for the future. 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 the needs for ultimate protection of this site.

Reservoir Slopes South BDA

Reservoir Slopes South BDA is south of the BDA described above and includes the hollow of the tributary that feeds into the reservoirs. The rock outcrops in the forest provide habitat for a Pennsylvania animal species of special concern (**SA024**).

Threats and Stresses

SA024 requires a specific habitat within relatively undisturbed forested areas. Activities resulting in a change in light or moisture levels and/or direct impact to the immediate habitat and associated outcrops stand to affect this species negatively. Noise related to trail construction and the resultant increased access could negatively impact these animals.

Recommendations

Working with the landowner to make them aware of the presence and requirements of the animals would be a good first step in protecting the species here. More studies to get a better understanding of the species' ecology and distribution will help in furthering their survival over the long term.

Upper Quebec Run Watershed BDA

This BDA encompasses the Quebec Run Watershed, much of which is within the Bureau of Forestry's Quebec Run Wild Area. Quebec Run itself is an exceptional value (EV) stream and flows almost its entire length through the Wild Area of Forbes State Forest. The headwaters section of the stream is the location for two sites of a Pennsylvania animal species of special concern (**SA007** and **SA021**).

The rich woods in this watershed are composed of red oak (*Quercus rubra*), chestnut oak (*Quercus prinus*), red maple (*Acer rubrum*), and black cherry (*Prunus serotina*). Understory species include cucumber tree (*Magnolia accuminata*) and sweet birch (*Betula lenta*). Herbaceous species are few and include wood nettle (*Laportea canadensis*), black cohosh (*Cimicifuga racemosa*), northern maidenhair fern (*Adiantum pedatum*) and blue cohosh (*Caulophyllum thalictrioides*). Some moist, seepage areas contain waterleaf (*Hydrophyllum* ssp.) and clearweed (*Pilea pumila*). In the upper reaches of the watershed still within the Quebec Run Wild Area lies Barton's Cave – a limestone solutional cave. This cave is a bat hibernacula and is often visited by spelunkers.

The Pennsylvania Bureau of Forestry has proposed the lower sections of this BDA as a "wild area". Since 1972, the area has been managed as a wild area and within this next year it should be officially a "wild area". A wild area is "an extensive area which the general public will be permitted to see, use and enjoy for such activities as hiking, hunting, fishing, and the pursuit of peace and solitude." No development of a permanent nature is permitted so as to retain the undeveloped character of the area. These lands are essentially managed as wilderness areas, keeping in mind that there is no true wilderness left in Pennsylvania as defined in the Federal Wilderness Act. Recent policy changes have suspended any timber management within Bureau of Forestry Wild Areas and as the new state-wide forest management plan is finalized, these areas may be managed differently than in the past.

Threats and Stresses

SA007/SA021 require rock outcrops and shelves in a relatively undisturbed, forested community. An intact forest canopy helps to maintain microclimate and the complex of plants that provide forage for the animals of concern.

Possible activities that might affect immediate habitat include those that would result in a change in moisture or light levels and/or direct impact to the habitat. Increased access due to unplanned trail construction would likely degrade the habitat.

Recommendations

For those sections of the BDA within private ownership, working with the landowner to make them aware of the presence and requirements of the animals would be a good first step in protecting the species here. In general, avoiding direct impacts to the outcrops that are utilized as habitat and minimizing disturbances to the forest community would help to assure the viability of this species population. More studies to get a better understanding of the species' habits will help in furthering their survival over the long term.

For those sections on public land, working with the Pennsylvania Bureau of Forestry to assure that all information collected about the species of special concern, natural communities and landscape features is incorporated into a forest management plan for this site would help guide recreation or resource management activities for the future. 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 the needs for ultimate protection of this site.

White Rock Hollow BDA

White Rock Hollow BDA is the next hollow north of Askon Hollow and is owned by the Borough of Fairchance. Where not heavily timbered, the canopy is dominated by tuliptree (*Liriodendron tulipifera*), chestnut oak (*Quercus prinus*), red maple (*Acer rubrum*), sassafras (*Sassafras albidum*), and black gum (*Nyssa sylvatica*). The understory is composed of Allegheny blackberry (*Rubus allegheniensis*), green brier (*Smilax rotundifolia*) and cat brier (*Smilax glauca*). Herbaceous species present include rough-leaved goldenrod (*Solidago rugosa*) and rattlesnake weed (*Hieracium venosum*). A plant species of special concern (**SP020**) is located in the lower part of this hollow in an area that was heavily timbered and is currently in regeneration.

Threats and Stresses

SP020 is threatened primarily by the after-affects of timbering, such as erosion, runoff, and soil compaction and loss of the natural forest community of which this species is a part.

Although this plant may survive in a variety of environments, it is normally found as a component of the understory of southern forests. SP020's ability to reproduce and remain as a component in this forest is not known.

Erosion continues on previous logging roads, exacerbated by use of ATV's and other off-road vehicles. Lack of awareness of the presence of this species will prevent the inclusion of a protection strategy in current or future timber management plans.

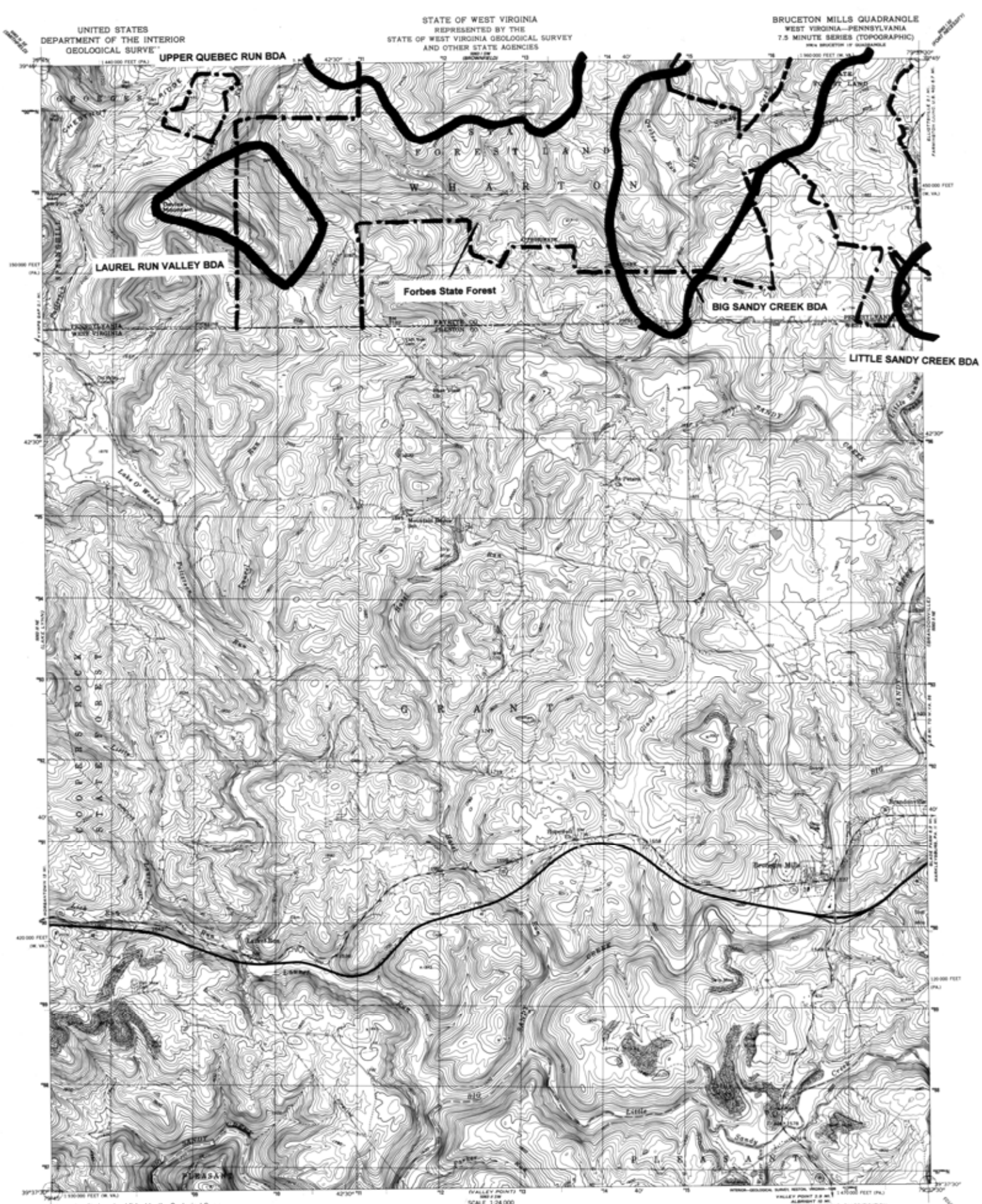
Recommendations

The protection of this species should be a part of the timber management plan(s) for this area and the forester of the property should be made aware of the presence of the species of concern. Additionally the species of concern population should be monitored for overall health as the forest succeeds. Erosion control measures including restriction of unauthorized off-road vehicles and revegetation of old logging roads should be undertaken. Ultimately, the health of the forest community and the long-term health of the special concern species will depend upon the efforts made to restore the site to forest.

BRUCETON MILLS QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
BIG SANDY CREEK BDA		*Exceptional Significance*			
SPECIAL PLANT:	SP006	G4	S1	N	PE
SPECIAL PLANT:	SP007	G5	S3	N	PT
SPECIAL PLANT:	SP010	G4	S1	N	PE
SPECIAL PLANT:	SP029	G4	S2	N	PT
LAUREL RUN VALLEY BDA		*Exceptional Significance*			
SPECIAL PLANT:	SP001	G3	S1	N	PE

MANAGED LANDS: Forbes State Forest


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF WEST VIRGINIA
REPRESENTED BY THE
STATE OF WEST VIRGINIA GEOLOGICAL SURVEY
AND OTHER STATE AGENCIES
BRUCETON MILLS QUADRANGLE
WEST VIRGINIA—PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
UPPER QUEBEC RUN BDA
LAUREL RUN VALLEY BDA
Forbes State Forest
BIG SANDY CREEK BDA
LITTLE SANDY CREEK BDA
W H A R T O N
F O R E S T L A N D
G R A N T
P L E A S A N T
Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS
Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1956. Field check 1960
Polyconic projection. 1927 North American datum
10,000-foot grids based on West Virginia coordinate system,
north zone and Pennsylvania coordinate system, south zone
1000-meter Universal Transverse Mercator grid, zone 17
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 from aerial photographs
taken 1976. This information not field checked
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, P.O. BOX 25286, DENVER, COLORADO 80225
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
ROAD CLASSIFICATION
Medium duty
Light duty
Unimproved dirt
State Route
U. S. Route
BRUCETON MILLS, W. VA.—PA.
N3937.5—W7937.5/7.5
1960
PHOTOREVISED 1976

BRUCETON MILLS

Fayette County covers the northern one-fourth of this quadrangle north of Preston County, West Virginia. This entire quadrangle lies within the Big Sandy Creek watershed except for a small tributary flowing west into Ruble's Run in the northwest corner. Laurel Run and its tributary, Patterson Run, drain the western section of the quadrangle with the main stem of Big Sandy and its' tributary Quebec Run draining the eastern section. Big Sandy Creek flows south into West Virginia. This quadrangle has four Natural Heritage areas and one managed land – **Forbes State Forest**.

Big Sandy Creek BDA

Big Sandy Creek BDA encompasses most of the lower part of the Quebec Run Wild Area of Forbes State Forest. Sandstone boulders and outcrops line the bank(s) of Big Sandy Creek before it flows south into West Virginia. A dense thicket of shrubs lines the shoreline in many sections. These shrubs include rosebay rhododendron (*Rhododendron maximum*), winterberry (*Ilex verticillata*), smooth alder (*Alnus serrulata*) and eastern ninebark (*Physocarpus opulifolius*). American hornbeam (*Carpinus caroliniana*) is common along the banks and lower slopes, forming a subcanopy above the shrubs. Common canopy species in the surrounding forest include white oak (*Quercus alba*), red oak (*Quercus rubra*), red maple (*Acer rubrum*) and black cherry (*Prunus serotina*). Herbaceous species in the forested floodplains include hayscented fern (*Dennsteadtia punctilobula*) and New York fern (*Thelypteris novaboracensis*). Herbaceous vegetation on the shoreline includes false nettle (*Boehmeria cylindrica*), twisted sedge (*Carex torta*), sensitive fern (*Onoclea sensibilis*), cardinal flower (*Lobelia cardinalis*) and rough-leaved goldenrod (*Solidago rugosa*). Along the rocky banks of the creek grows a Pennsylvania plant species of special concern (**SP006** and **SP010**). This plant thrives along streams and rivers where naturally open and occasionally flooded habitats are present.

This natural heritage area also includes a plant species of special concern (**SP007**) that grows on moist, lower slopes, often under a closed canopy and in association with other rich site flora. Associates here include American hornbeam (*Carpinus caroliniana*), black cherry (*Prunus serotina*), white oak (*Quercus alba*), white ash (*Fraxinus americana*), christmas fern (*Polystichum acrostichioides*) and spicebush (*Lindera benzoin*).

Threats and Stresses

While still proposed as a "Wild Area", Quebec Run has been managed as one since 1972. In another year or so from this writing, the wild area status should be official. Wild Area status confers a good deal of protection for this natural heritage area. However, trail usage and maintenance of trails in the vicinity of the special concern plant could impact the population. Trail access to through the area could pose some threat to the plants if used particularly heavily. Monitoring of usage to determine if any impacts occur would be useful. Deer browsing is of particular concern to the health of the SP038 population. As in other locations in the county, browsing by deer may prevent the plants from reproducing successfully and may lead to the inability of the population to maintain itself over time.

Recommendations

Recommendations for Big Sandy Creek BDA include maintaining the present habitat and more effectively managing deer populations. Reducing the browse pressure of deer on SP038 will help this species in the long run. Effects of deer browsing on the forest community in general should be monitored and programs or approaches instituted to maintain deer populations at levels compatible with the ecological health of the forest and the plants of special concern.

Trail maintenance programs should consider the populations of these special concern species and avoid routing choices and maintenance activities that would directly impact the plants or their immediate habitat.

Laurel Run Valley BDA

Laurel Run Valley includes a mesic floodplain dominated by hemlock (*Tsuga canadensis*) and co-dominated by yellow birch (*Betula allegheniensis*). There is no understory and herbs are few being predominately intermediate shield fern (*Dryopteris intermedia*). The floodplain and adjacent areas are located in the Bureau of Forestry's Quebec Run Wild Area. On the rich slopes just above the Hemlock forest grows a plant species of special concern – **SP001**. This species typically grows on moist, moderately rich slopes and is known from only two other sites in the state.

Threats and Stresses

Browsing by deer poses the most serious threat to SP001. Deer browse the plants before they have a chance to flower or set seed and this may lead to an eventual decline in the population as older plants succumb and are not replaced. The Bureau of Forestry has placed an exclosure around one portion of the population in order to limit deer browsing and observe response to removal of that pressure. The response has been dramatic both for the special concern plant and for the other ground-layer flora in the forest.

Recommendations

Maintaining the exclosure will assure that at least a portion of the population is capable of reproduction and establishment. In the long term, deer management issues need to be addressed in order to keep the browse pressure on the plants and the forest community in general to a minimum. Programs need to be instituted to maintain deer populations at levels compatible with the ecological health of the forest.

Little Sandy Creek BDA

This Natural Heritage area is discussed on the Brandonville quadrangle.

Upper Quebec Run Watershed BDA

This Natural Heritage area is discussed on the Brownfield quadrangle.

CALIFORNIA QUADRANGLE

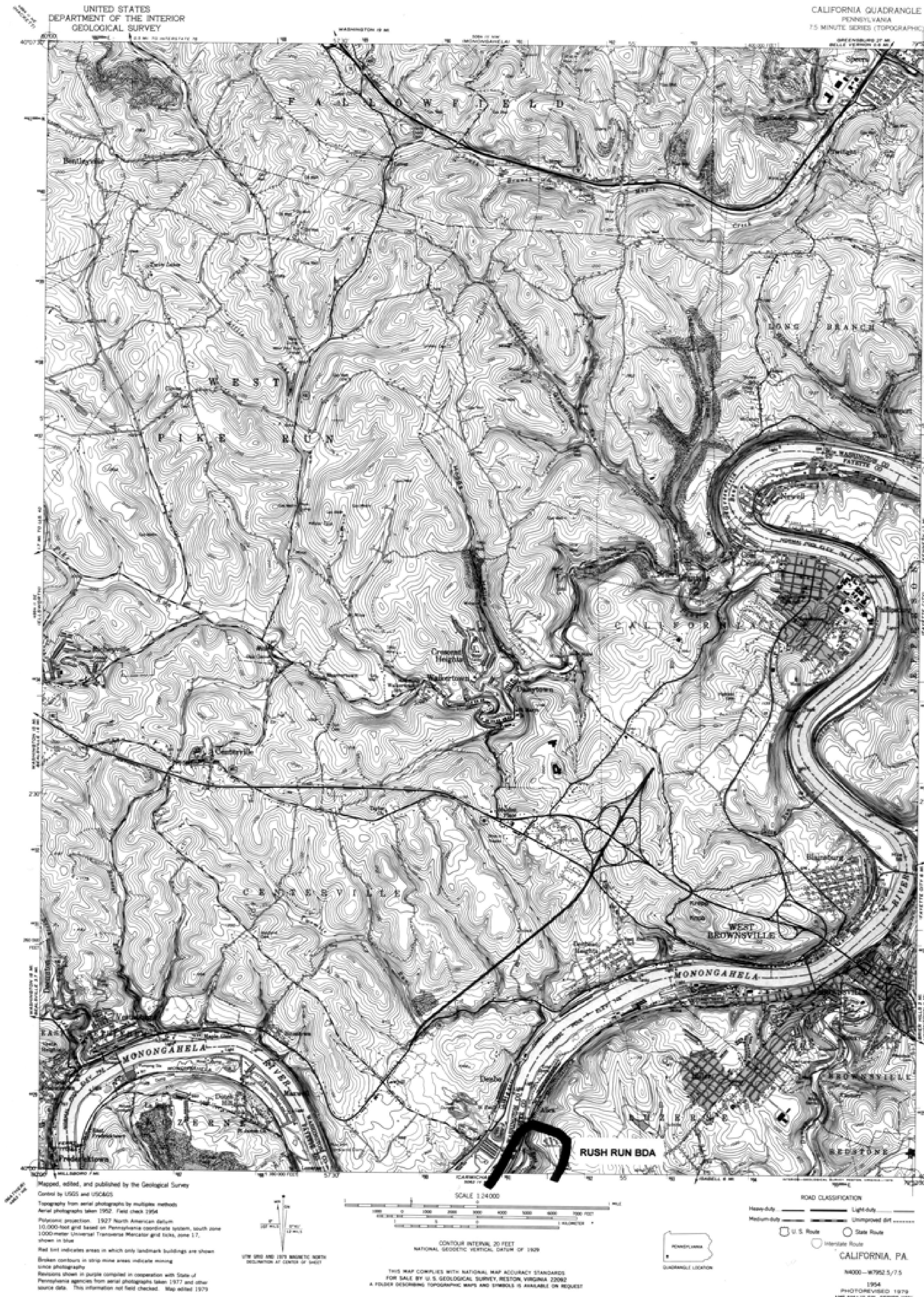
		PNDI Rank		Legal Status	
		Global	State	Fed.	State

NATURAL HERITAGE AREAS:

RUSH RUN BDA *Notable Significance*

SPECIAL PLANT:	SP001a	G4	S3	N	PE
SPECIAL PLANT:	SP001b	G5	SR	N	TU
SPECIAL PLANT:	SP004	G4	S3	N	PE

MANAGED LANDS: None


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
CALIFORNIA QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
F A L L O W F I E L D
Bentleyville
Speers
LONG BRANCH
W E S T
P I K E   R U N
C A L I F O R N I A
Crescent Heights
Walkertown
Centerville
C E N T E R V I L L E
Blainsburg
WEST BROWNSVILLE
MONONGAHELA
MONONGAHELA
RIVER
BROWNSVILLE
REDSTONE
RUSH RUN BDA
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 areas in which only landmark buildings are shown
Broken contours in strip mine areas indicate mining since photography
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, 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
CALIFORNIA, PA.
1954
PHOTOREVISED 1979

CALIFORNIA QUADRANGLE

Fayette County comprises all of the land east of the Monongahela River in this quadrangle. Dunlap Creek joins the Monongahela at Brownsville – the historic river port and former shipbuilding capital of the interior United States – and drains most of the section of Fayette County included on this quadrangle. There is one recognized Natural Heritage area and no managed lands present on this quadrangle.

Rush Run BDA

Rush Run BDA is located along the Monongahela River upstream of Brownsville and near the town of Alicia. The vegetation within the lower valley is scrubby and disturbed and dominated by sycamore (*Platanus occidentalis*), black willow (*Salix nigra*) and silky dogwood (*Cornus amomum*). Along the banks of the river the vegetation is dominated by herbaceous plants such as lady's thumb (*Polygonum persicaria*) and Beggars tick (*Bidens spp*.). Included here is a plant species of concern (**SP001b**). This plant grows along streams, moist woods and wet meadows. It requires moist, open conditions to compete effectively with other vegetation.

On forested slopes of Rush Run grows a Pennsylvania plant species of special concern (**SP001a** and **SP004**). This species thrives on limestone based soils and often occurs in open forests in association with numerous other plants common to these limestone-based natural communities.

Threats and Stresses

SP001a and SP004 rely on limestone-based, open habitat where competition from other plant species is relatively low. Direct disturbance to the soils, competition from aggressive (exotic) plants and other changes to the habitat could negatively affect the special concern plant here.

The special concern species growing within the rivershore community (SP001b) could be negatively impacted by significant direct disturbance such as placement of dredge spoils along the river, maintenance activities associated with the railroad ROW or township road, or by competition from aggressive species such as Japanese knotweed (*Polygonum cuspidatum*).

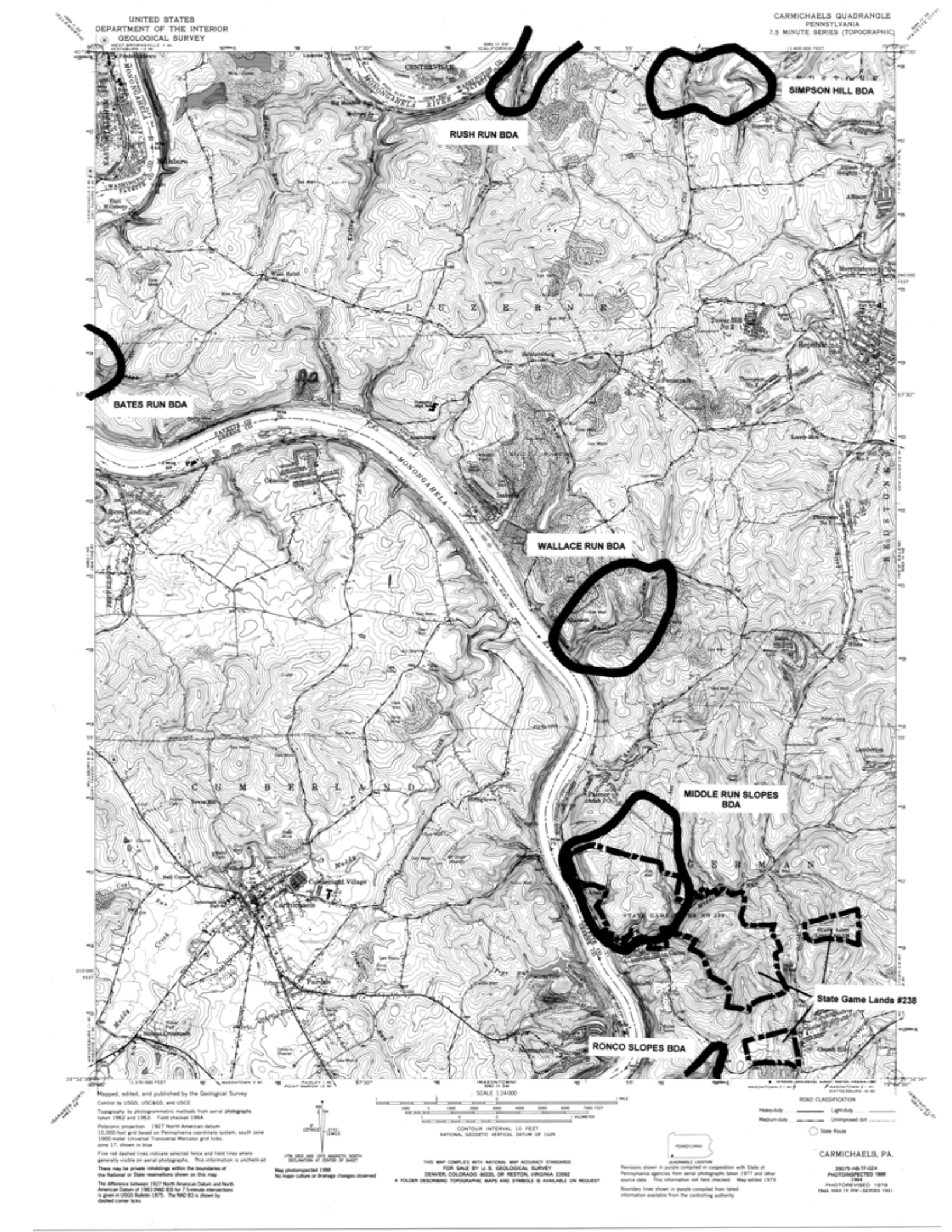
Recommendations

Working with the landowners and making them aware of the significance of the site would be a good first step in protecting these species. The township and railroad corporation should be alerted as to the significance of the site and maintenance activities planned to take the special concern plants into consideration.

CARMICHAELS QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
BATES RUN BDA		*High Significance*			
SPECIAL PLANT:	SP013	G4	S3	N	PE
MIDDLE RUN SLOPES BDA		*Notable Significance*			
SPECIAL PLANT:	SP010	G5	S2	N	PT
SPECIAL PLANT:	SP012	G5	S2	N	PT
RONCO SLOPES		*County Significance*			
RUSH RUN BDA		*Notable Significance*			
SPECIAL PLANT:	SP001	G4	S3	N	PE
SPECIAL PLANT:	SP004	G4	S3	N	PE
SIMPSON HILL/COX RUN BDA		*Exceptional Significance*			
NATURAL COMMUNITY	NC013				
SPECIAL PLANT:	SP008	G3	S1	N	PE
SPECIAL PLANT:	SP013	G3	S1	N	PE
SPECIAL PLANT:	SP014	G4	S3	N	PE
WALLACE RUN BDA		*Exceptional Significance*			
SPECIAL PLANT:	SP015	G4	S3	N	PE
SPECIAL PLANT	SP016	G5	S1	N	TU

MANAGED LANDS: State Game Lands #238


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
CARMICHAELS QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
SIMPSON HILL BDA
RUSH RUN BDA
BATES RUN BDA
WALLACE RUN BDA
MIDDLE RUN SLOPES BDA
State Game Lands #238
RONCO SLOPES BDA
MONONGAHELA
LUZERNE
CUMBERLAND
GERMAN
REDSTONE
Mapped, edited, and published by the Geological Survey
Control by USGS, USC&GS, and USCE
Topography by photogrammetric methods from aerial photographs taken 1962 and 1963. 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
There may be private inholdings within the boundaries of the National or State reservations shown on this map
The difference between 1927 North American Datum and North American Datum of 1983 (NAD 83) for 7.5-minute intersections is given in USGS Bulletin 1875. The NAD 83 is shown by dashed corner ticks
SCALE 1:24 000
CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
Map photoinspected 1988
No major culture or drainage changes observed
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
State Route
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
Boundary lines shown in purple compiled from latest information available from the controlling authority
CARMICHAELS, PA.
39079-H8-TF-024
PHOTOINSPECTED 1988
1964
PHOTOREVISED 1979
DMA 5063 IV NW—SERIES V851

CARMICHAELS QUADRANGLE

Fayette County occupies a little more than half of the eastern side of this quadrangle. Here the Monongahela River defines the western edge of the county in a spot where the river takes a turn to the west, giving the regional name, "West Bend". In the east are the town of Republic and a host of other smaller patch towns. Wallace Run joins the Monongahela River north and downstream of Palmer. Strip-mined land accounts for about a quarter of the Fayette County portion of this quadrangle. This quadrangle has five Natural Heritage areas and one managed land – **State Game Lands #238**.

Bates Run BDA

This Natural Heritage area is discussed on the Mather quadrangle.

Middle Run Slopes BDA

Middle Run Flows into the Monongahela River just north of the town of Gates. This BDA encompasses the lower section of Middle Run and the immediate watershed of the Monongahela surrounding the town of Adah. This BDA includes a section of State Game Lands #238. Much of the upland section of the BDA were cleared and are now reverting to shrub-dominated thickets of exotic species including multiflora rose (*Rosa multiflora*) and Morrow's honeysuckle (*Lonicera morrowi*).

The slopes of Middle Run and its tributaries as well as the slopes above the Monongahela feature rich flora and mesic forest communities. Sugar maple (*Acer saccharum*), American Beech (*Fagus grandifolia*), and white ash (*Fraxinus americana*) dominate the forests and box elder (*Acer negundo*) and American elm (*Ulmus americana*) grow along the lower slopes and streams. The herbaceous flora are dense and the spring wildflower displays striking within the stream valleys. Spring blue-eyed mary (*Collinsia verna*), wild blue phlox (*Phlox divaricatus*), false mermaid (*Floerkia proserpinacoides*), wild ginger (*Asarum canadensis*), and dutchman's breeches (*Dicentra cucullaria*) are common herbs. Also found within these rich communities is a plant species of special concern – **SP010** and **SP012**. This BDA represents the largest known population of this threatened plant in the state. This species requires moist, generally limestone-based soils in relatively undisturbed forested slopes and floodplains.

Threats and Stresses

The surrounding landscape, particularly the uplands, in this area is disturbed. Reverting agricultural areas are now dense with aggressive exotic plants. ATV use along the main stem of Middle Run has eliminated swathes of vegetation and led to problems of erosion. Maintaining the integrity of the valleys and high-quality habitats will be critical in seeing the special concern species and the associated natural community remains viable over time.

Recommendations

The special concern plant population extends both on and off of State Game Lands. The Pennsylvania Game Commission as well as the individual land owners in the area should be made aware of the significance of the site and any new information collected should be conveyed to allow consideration of the plants of concern in management plans.

Restoring portions of the uplands to forest to provide better buffers would help to check spread of the exotics within the BDA. Control of the numerous exotics would require planning and persistence but would be feasible considering the management expertise available through the Game Commission. Current management policies that limit motorized vehicles on Game Lands will need to be continually enforced to prevent the damage to other sections of the BDA. Further surveys of Middle Run and its tributaries would better establish the extent of the special concern species and document other features and species within the valley.

Rush Run BDA

This Natural Heritage area is discussed on the California quadrangle.

Simpson Hill/Cox Run BDA

In the course of flowing to its confluence with Dunlap Creek, Cox Run cuts into a south-facing slope exposing small amounts of limestone of the Monongahela Group that underlay the valley. These slopes serve as habitat for two Pennsylvania endangered plant species (**SP008**, **SP013** and **SP014**), one a Pennsylvania endangered and globally rare plant. Vegetative cover on the slopes is defined as a yellow oak-redbud woodland (**NC013**) dominated by red oak (*Quercus rubra)*, yellow oak (*Quercus muehlenbergii)*, white oak (*Quercus alba*), sugar maple (*Acer saccharum*), hackberry (*Celtis occidentalis*) and white ash (*Fraxinus americana*). Understory species include bladdernut (*Staphylea trifolia*), redbud (*Cercis canadensis*), pawpaw (*Asimina triloba*) and eastern wahoo (*Euonymus atropurpurea*). Herbaceous species present are white goldenrod (*Solidago bicolor*), green violet (*Hybanthus concolor*), orange-fruit horse-gentian (*Triosteum aurantiacum*) and round leaved ragwort (*Senecio obovatus*).

Threats and Stresses

SP008, SP013 and SP014 exist on steep, thin-soiled slopes, underlain by limestone where competition is low and light levels are high. Dramatic changes in light levels (this plant cannot tolerate shade) or hydrology, soil disturbance or competition by other plant species would likely adversely impact the plant populations. The Mon-Fayette Expressway is planned to go near these populations and changes related to clearing, construction, staging, and eventual road maintenance in some of the areas within the BDA that provide direct habitat or buffer for the plants may prove detrimental to the populations.

The western section of the BDA has recently been timbered resulting in a loss of buffer to the steep slopes that support the unique communities and species within this area. A nearby powerline right-of-way cuts across the BDA. Herbicides and other chemicals used to control the vegetation in the right-of-way may negatively impact the species of concern if not applied correctly. Invasive plants such as multiflora rose (*Rosa multiflora*) and common privet (*Ligustrum vulgare*) have been noted uphill from the plants.

Recommendations

This BDA is vulnerable to substantial changes in habitat due to proposed road construction. Alteration in light levels, increased opportunity for invasion by aggressive exotic species, and impact from road salt and chemicals associated with highway use and maintenance would become primary concerns if highway construction proceeds.

An important first step in protecting the above listed plants would be to make the owners aware of the importance of the site. The planning of the Mon-Fayette Expressway should incorporate upland buffers and strategies to preserve the habitat of the community and plants of concern. The utility company should be made aware of the plants and should make sure that the plants are not impacted by the application of herbicides and other chemicals. Mechanical clearing of the ROW would be preferable over use of herbicides. This same right-of-way can act as a corridor for invasive plants. Management could incorporate native shrubs in an attempt to check the spread of exotics.

Wallace Run BDA

Wallace Run and associated slopes is the focus of this BDA. Surrounded by strip mines the valley itself is remarkably intact. Along the run are mature forested areas supporting two plant species of special concern (**SP015** and **SP016**). Dominant canopy species along the stream include tuliptree (*Liriodendron tulipifera*), sugar maple (*Acer saccharum*), American beech (*Fagus grandifolia*), red oak (*Quercus rubra*) and sycamore (*Platanus occidentalis*). Common understory species are spicebush (*Lindera benzoin*), witchazel (*Hamamelis virginiana*), American hornbeam (*Carpinus caroliniana*) and slippery elm (*Ulmus rubra*). Herbaceous species include northern maidenhair fern (*Adiantum pedatum*), christmas fern (*Polystichum acrostichioides*), white wood aster (*Aster divaricata*) and great blue lobelia (*Lobelia siphilitica*). Within the lower valley of the run **SP016** grows with these associates.

At the bottom of Wallace Run near its confluence with the Monongahela River, are slopes with calcareous soils from the underlying limestone of the Monongahela Group. Dominant canopy species here include yellow oak (*Quercus muehlenbergii*), red oak (*Quercus rubra*), white oak (*Quercus alba*) and basswood (*Tilia americana*). Understory species include redbud (*Cercis canadensis*) and bladdernut (*Staphylea trifolia*). **SP015** and other herbaceous species such as small-headed sunflower (*Helianthus microcephalus*), woodland goldenrod (*Solidago caesia*), green violet (*Hybanthus concolor*), wild coffee (*Triosteum aurantiacum*), early meadow-rue (*Thalictrum dioicum*) and a Pennsylvania threatened plant species (**SP015**) grows on the dry, limey slopes. At the base of the slope is a railroad right-of-way.

Threats and Stresses

The species of special concern here are threatened by activities associated with the mines such as further mining, erosion and acid mine drainage. At the bottom of the valley, the location of SP015, railroad maintenance is a threat due to the application of herbicides and other right-of-way activities. Throughout the area invasive species are a problem, especially in the mined areas.

Recommendations

Making the landowner aware of the significance of the valley would be an important step in the protection of the site. Further mining and erosion of the uplands and slopes could further degrade the forest community and impact the plant species of special concern. Any forestry activity should take these plants into account and manage for them. Any vegetation control using herbicides along the railroad where SP015 is located should be carefully managed. Mechanical maintenance of the ROW would be preferable cover spraying of herbicides both as a way of preventing damage to the special concern plants and natural communities and encouraging the growth of native herbs and shrubs. If necessary, herbicides should applied correctly and not allowed to disperse into the adjacent woods where other, non-target plants could be impacted.

CONFLUENCE QUADRANGLE

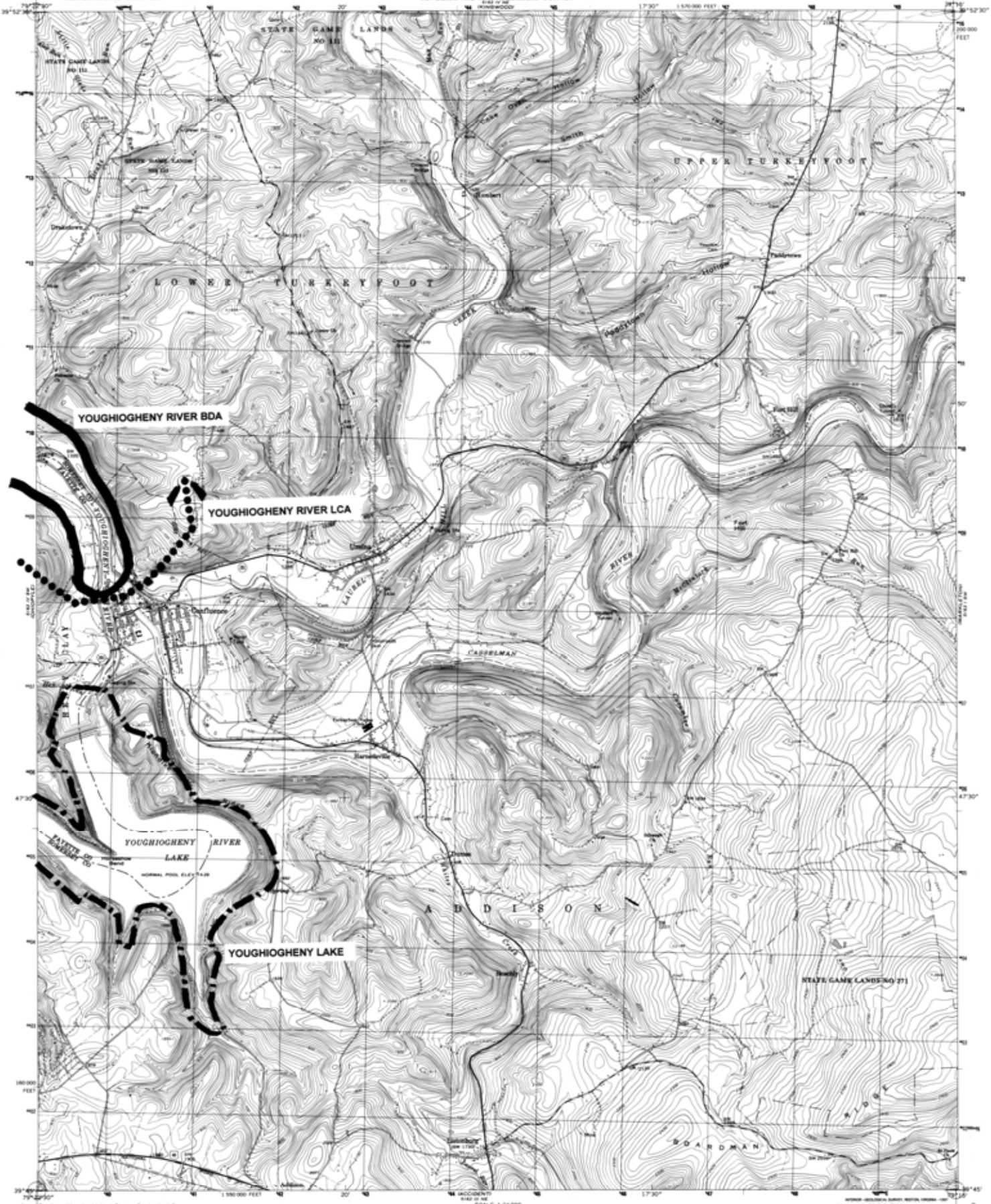
	PNDI Rank		Legal Status	
	Global	State	Fed.	State

NATURAL HERITAGE AREAS:

YOUGHIOGHENY RIVER LCA

YOUGHIOGHENY RIVER BDA

MANAGED LANDS: Youghiogheny Lake



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY

CONFLUENCE QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)

Produced by the United States Geological Survey

Topography compiled 1966. Planimetry derived from imagery taken 1973. Photoinspected using imagery dated 1994; no major culture or drainage changes observed. Survey control current as of 1967. Boundaries, other than corporate, revised 1997

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

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 obtainable from National Geodetic Survey NADCON software

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

Areas covered by dashed light-blue pattern are subject to controlled inundation

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO CONVERT FROM FEET TO METERS, MULTIPLY BY 0.3048

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

CONFLUENCE, PA.

1994

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, P.O. BOX 25286, DENVER, COLORADO 80225
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

Information shown in purple may not meet USGS content standards and may conflict with previously mapped contours

DMA 5163 IV SE—SERIES V851

CONFLUENCE QUADRANGLE

Fayette County covers a small sliver of this quadrangle and is defined by the Youghiogheny River on north and east and to the south by the impounded portion of the river – Youghiogheny Lake. Hen Run enters the Youghiogheny River here just below the Youghiogheny Lake dam. This quadrangle has two Natural Heritage areas and one managed land – **Youghiogheny Lake**.

Youghiogheny River BDA

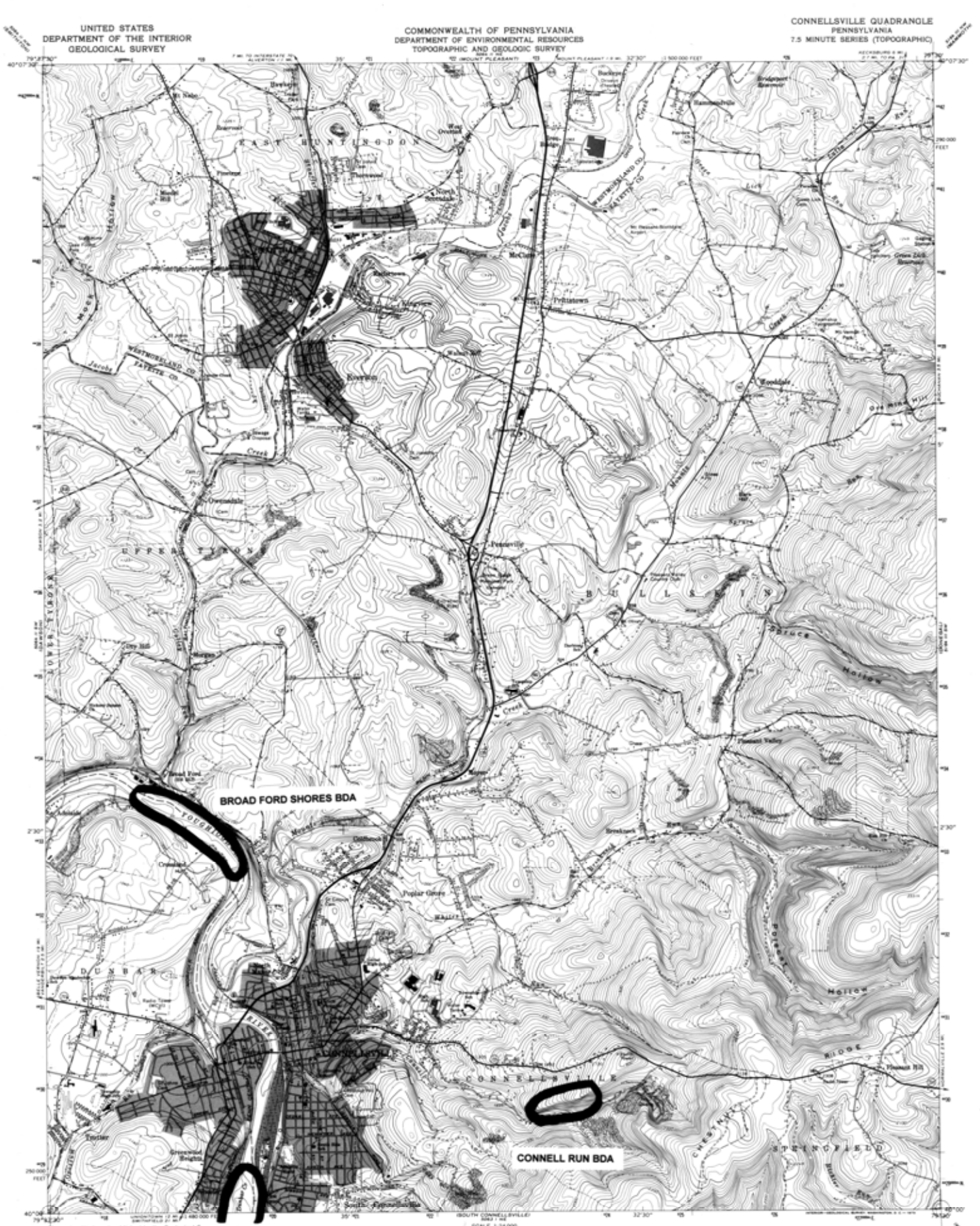
This Natural Heritage area is discussed on the Ohiopyle quadrangle.

Youghiogheny River LCA

This Natural Heritage area is discussed on the Ohiopyle quadrangle.

CONNELLSVILLE QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
BROAD FORD SHORES BDA		*Notable Significance*			
SPECIAL PLANT:	SP008	G4	S2	N	PT
SPECIAL PLANT:	SP001	G5	S3	N	PR
CONNELL RUN BDA		*Notable Significance*			
SPECIAL ANIMAL:	SA004	G3G4	S3	N	PT
DUNBAR CREEK CONFLUENCE BDA		*Notable Significance*			
SPECIAL PLANT:	SP007	G4	S2	N	PT
DUNBAR CREEK LCA		*Exceptional Significance*			
MANAGED LANDS:	None				


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)
BROAD FORD SHORES BDA
CONNELL RUN BDA
DUNBAR CREEK
CONFLUENCE BDA
EAST HUNTINGDON
UPPER TYRONE
DUNBAR
CONNELLSVILLE
SPRINGFIELD
BULLSKIN
Mapped, edited, and published by the Geological Su
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
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
UTM GRID AND 1973 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET
Map photoinspected 1977
No major culture or drainage changes observed
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
CONNELLSVILLE, PA.
N4000—W7930/7.5
PHOTOINSPECTED 1977
1964
PHOTOREVISED 1973
AMS 5964 II SE—SERIES V851

CONNELLSVILLE QUADRANGLE

Fayette County occupies much of this quadrangle with Westmoreland County entering the northwest quarter. This is one of the quadrangles that sit along the physiographic division in the county – the Pittsburgh Plateau lying to the west and the Allegheny Mountains to the east. The Youghiogheny River flowing north past Connellsville and a major portion of Jacobs Creek are prominent natural features of this quadrangle. Four Natural Heritage areas and no managed lands are contained within this quadrangle.

Broad Ford Shores BDA

Broad Ford Shores is located just downstream of Connellsville. Nearby is a historic crossing of the Catawba Trail that was used by the native Americans. The adjacent slope was used as a slag dump by the railroad. The opposite shore is the former location of the Overholt distillery. The floodplain next to the BDA has been subdivided and houses are being built.

The island community and slope here is similar to those discussed as part of the Perryopolis Islands BDA on the Dawson quadrangle. The natural communities, while similar to those on the BDA above, are not as well developed and have been subjected to more disturbance, some off which persists to this day. On either side of the river are large outfalls of acid mine drainage. Invasive exotic plant species such as multiflora rose (*Rosa multiflora*) and Japanese knotweed (*Polygonum cuspidatum*) have made a strong foothold. One physical difference between this area and Perryopolis Islands is the more alkaline character of the slopes above the island. The species represented are of those communities found on circumneutral and alkaline soils

A sugar maple-basswood forest dominated by sugar maple (*Acer saccharum*), box elder (*Acer negundo*), white ash (*Fraxinus americana*), tuliptree (*Liriodendron tulipifera*), yellow oak (*Quercus muehlenbergii*), and American basswood (*Tilia americana*) covers the slopes above the river. Understory associates include redbud (*Cercis canadensis*), bladdernut (*Staphylea trifolia*), witch-hazel (*Hamamelis virginiana*), and wild hydrangea (*Hydrangea arborescens*). Common herbs included false solomon's seal (*Smilacina racemosa*), wild geranium (*Geranium maculatum*), pokeweed (*Phytolacca americana*), and jewelweed (*Impatiens pallida*). The slopes remain cover in places by fly ash and cinders from the iron slag.

The shore of the river and an adjacent unmapped island are dominated by sycamore (*Platanus occidentalis*), sweet birch (*Betula lenta*) and bitternut hickory (*Carya cordiformis*). Understory associates include spicebush (*Lindera benzoin*) and multiflora rose (*Rosa multiflora*). Common herbaceous species include the exotic species garlic mustard (*Alliaria petiolata*) and large flowered daisy (*Chrysanthemum leucanthemum*), wild geranium (*Geranium maculatum*) and jewelweed (*Impatiens pallida*). The rocky bank of the river provides habitat for two Pennsylvania plant species of special concern (**SP008** and **SP001**). **SP008** is on the slope that is a former slag dump. **SP001** is at the head of the island.

Threats and Stresses

Alteration of the shoreline and water flow characteristics, invasion of exotic species such as Japanese knotweed (*Polygonum cuspidatum*) and multiflora rose (*Rosa multiflora*), and alteration of the flooding regime are just a few of the more significant threats to the health of the floodplain forest and river gravel communities that are present on the fringes of the shoreline and island.

On the upstream end of the island is a powerline right-of-way. Herbicides used for control of vegetation pose a threat to SP001 as this population is near the right-of-way. On the both sides of the river acid mine drainage flows into the river and impacts aquatic and shoreline features in the immediate discharge area.

Recommendations

Although disturbed and altered by human activity, this island, as well as other islands in the Youghiogheny River retains some potential for recovery. As the water quality if the river improves through mine reclamation, native bivalves and fish may recolonize. Monitoring of the exotic species on the island would provide a record and initiate removal action if those, or any new alien species spread. The county tax office does not list an owner for the islands. Opportunities to clarify the ownership and work with the landowner to 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 32.

Connell Run BDA

The headwaters of Connell Run originate just north of PA 711. To the south of this highway, the run flows past a rocky south-facing slope. Rock outcrops on this section of the slope provide habitat for a Pennsylvania animal species of special concern (**SA004**).

Threats and Stresses

SA004 depends upon outcrops and natural rock formations to provide living and nesting habitat. The forest community present on this site provides this animal with forage resources and helps to regulate and stabilize the microclimate(s) present on the site. Direct disturbance to the forest floor or outcrops, or activities that might affect the immediate habitat including those that would result in a change in light or moisture levels stand to disturb this species. Increased access due to unplanned road or trail construction would likely prove detrimental to this species.

Recommendations

Working with the landowner to make them aware of the presence and requirements of the animals would be a good first step in protecting the species here. More studies to get a better understanding of the species' ecology and distribution will help in furthering their survival over the long term. Activities within the BDA that could alter the microhabitat, directly impact the

rock outcrops, or increase access to the site should be carefully evaluated to reduce potential impacts to this species.

Dunbar Creek LCA

This Natural Heritage area is discussed on the South Connellsville quadrangle.

Dunbar Creek Confluence BDA

The ruins of an old mill can still be seen in the floodplain of Dunbar Creek Confluence BDA. Since the closure of the mill, a forest of almost entirely sycamore (*Platanus occidentalis*) has formed on the floodplain between Dunbar Creek and the Youghiogheny River. Other overstory species present include black cherry (*Prunus serotina*), tuliptree (*Liriodendron tulipifera*) and green ash (*Fraxinus pennsylvanica*). The understory of the floodplain is mostly of spicebush (*Lindera benzion*) with scattered thickets of the exotic multiflora rose (*Rosa multiflora*), European privet (*Ligustrum vulgare*) and summer grape (*Vitis aestivalis*). Herbaceous species in the floodplain include white wood aster (*Aster divaricatus*), joe pye weed (*Eupatorium fistulosum*), white snakeroot (*Eupatorium rugosum*), creeping mint (*Glechoma hederacea*), cardinal flower (*Lobelia cardinalis*) and bee-balm (*Monarda didyma*).

Along the shore and in some interior areas are scour channels created by water rushing through during floods. In one of the scour channels is a Pennsylvania plant species of special concern (**SP007**). This species relies on the infrequent flooding of the river and scour channels for its habitat.

Threats and Stresses

Requirements of the plant species of special concern are such that changes in the light levels, hydrology, direct disturbance to the floodplain and increased aggressiveness of invasive exotic plant species are threats to this population. The community where these plants occur is in an area disturbed by invasive species and the ruins of the old mill. In addition, an open field on one side and the adjacent forest contains additional exotic species. Both of these cleared and disturbed areas can act as conduits for invasive species. Multiflora rose (*Rosa multiflora*) and privet (*Ligustrum vulgare*) are already present in the floodplain and are dense in parts.

Recommendations

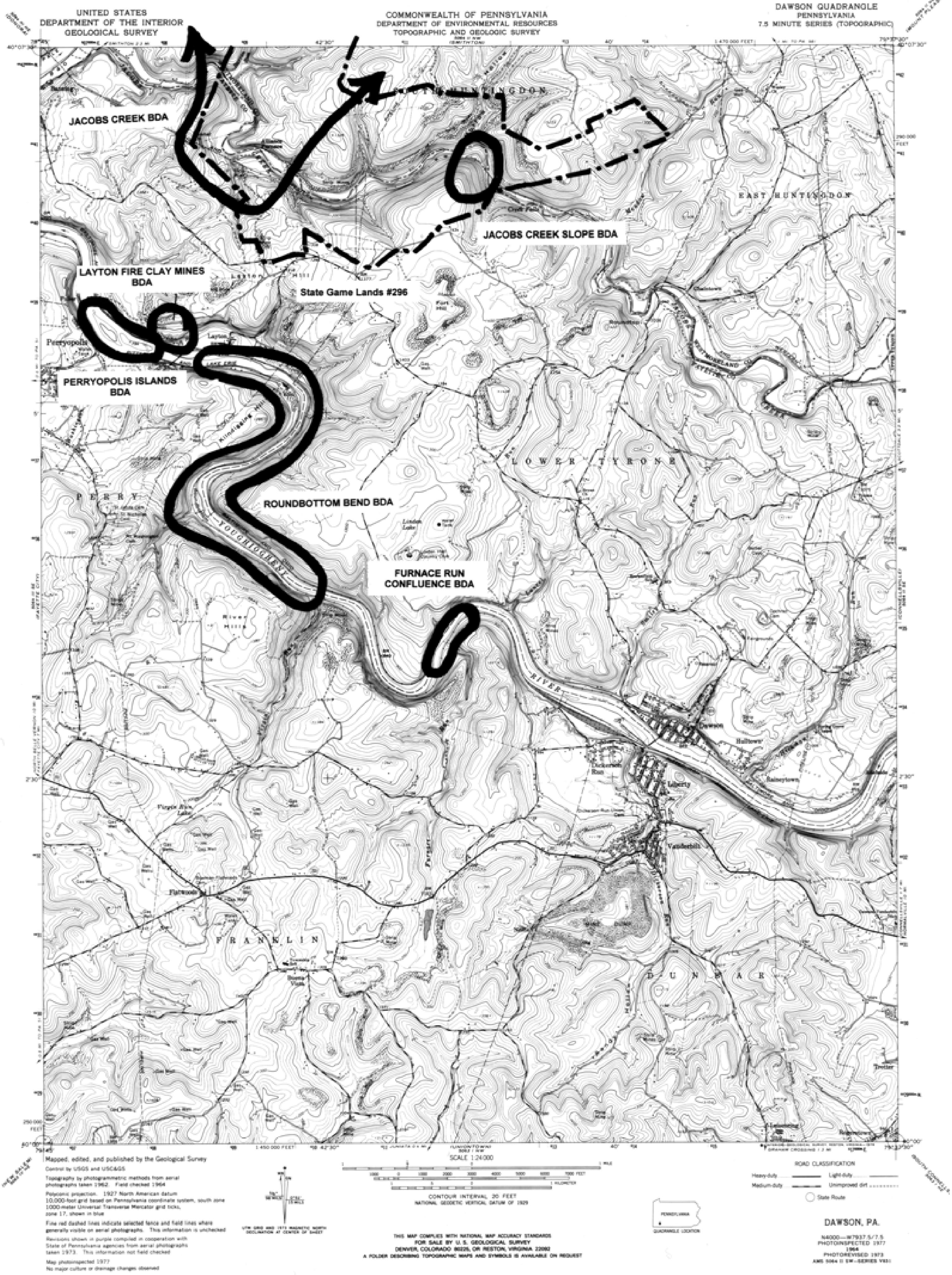
Working with the Municipal Authority of Westmoreland County, which owns the site, to incorporate the needs of the plants into any existing management plan would be a good first step in their protection. It is recommended that activities not take place that result in the loss of canopy. Any opening or loss of canopy would likely cause an expansion of the invasive plant species that are present and could result in the decline of the species population.

DAWSON QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
LAYTON FIRE CLAY MINES BDA		*High Significance*			
SPECIAL ANIMAL:	SA016	S3B,S3	G3	N	CR
JACOBS CREEK BDA		*High Significance*			
SPECIAL PLANT:	SP001	G3G4	S1	N	TU
SPECIAL PLANT:	SP002	G3G4	S1	N	TU
JACOBS CREEK SLOPE BDA		*Notable Significance*			
SPECIAL PLANT:	SP013	G3G4	S1	N	TU
LAYTON FIRE CLAY MINES BDA					
SPECIAL ANIMAL:	SA016	G4	S3B,S3N		CR
PERRYOPOLIS ISLANDS BDA		*High Significance*			
SPECIAL PLANT:	SP017	G5	S3	N	PR
SPECIAL PLANT:	SP018	G4	S2	N	PT
ROUNDBOTTOM BEND BDA		*High Significance*			
SPECIAL PLANT:	SP003	G4	S2	N	PT
SPECIAL PLANT:	SP004	G4	S2	N	PT
SPECIAL PLANT:	SP005	G4	S2	N	PT
SPECIAL PLANT:	SP006	G4	S2	N	PT
SPECIAL PLANT:	SP007	G5	S3	N	PR

SPECIAL PLANT:	SP015	G5	S3	N	PT
SPECIAL PLANT:	SP019	G4	S2	N	PT
SPECIAL PLANT:	SP020	G5	S3	N	PR

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
JACOBS CREEK SLOPE BDA
LAYTON FIRE CLAY MINES
BDA
State Game Lands #296
PERRYOPOLIS ISLANDS
BDA
ROUNDBOTTOM BEND BDA
FURNACE RUN
CONFLUENCE BDA
EAST HUNTINGDON
LOWER TYRONE
PERRY
FRANKLIN
DUNBAR
YOUGHIOGHENY
RIVER
Perryopolis
Dawson
Liberty
Vanderbilt
Flatwoods
SCALE 1:24 000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
ROAD CLASSIFICATION
Heavy-duty
Light-duty
Medium-duty
Unimproved dirt
State Route
Mapped, edited, and published by the Geological Survey
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
DAWSON, PA.
PHOTOINSPECTED 1977
1964
PHOTOREVISED 1973

DAWSON QUADRANGLE

Fayette County covers most of this quadrangle except for the upper fifth, north of Jacobs Creek, that is part of Westmoreland County. The Youghiogheny River is a prominent natural feature on this quadrangle as it flows northwest across the Pittsburgh Plateau. North of the Youghiogheny River, Jacobs creek descends through a steep gorge on its way to the river. Boroughs present on this quadrangle include Perryopolis in the west and Dawson, Liberty, and Vanderbilt in the center. This quadrangle has six Natural Heritage areas and one managed land – **State Game Lands #296**.

Furnace Run Confluence BDA

Furnace Run is a tributary to the Youghiogheny River downstream of Connellsville. Like most of the shore of the Youghiogheny River, this confluence has a cobbly shore and scour zones where floodwaters rush across the bank of the river. These communities are called riverside ice scour communities and are the habitat for a Pennsylvania plant species of special concern (**SP020**). This particular location is covered by debris, largely from a 1996 flood. Other known locations for this plant exist along the Youghiogheny River and Indian Creek in both scour zones and in rock crevices. Farther back on the floodplain is a Sycamore- (river birch) box elder forest with sycamore (*Platanus occidentalis*), sweet birch (*Betula lenta*), green ash (*Fraxinus pensylvanica*) and spicebush (*Lindera benzoin*) as the main woody species. Herbaceous species include boneset (*Eupatorium perfoliatum*), cardinal flower (*Lobelia cardinalis*), water horehound (*Lycopus americanus*), fringed loosestrife (*Lysimachia ciliata*) and basil balm (*Monarda clinopodia*).

Threats and Stresses

The most imminent threat to the population is invasive exotic plant species. Species such as Japanese knotweed (*Polygonum cuspidatum*) are present in the floodplain but not in the immediate area of the plants. If these exotic plants establish near the plants they could potentially shade out the plants as well as other species such as monkey flower (*Mimulus ringens*) present in these scour zones and compete for the limited habitat along the shoreline.

Disturbance due to recreation on the river is a possible threat to these plants. Boaters and rafters stopping along the floodplain or accessing the shoreline from the adjacent Youghiogheny River bike trail could trample plants and their habitat.

Recommendations

Informing the Youghiogheny Trail Corporation of the presence of the plants is a good first step in protecting the species. Monitoring of invasive species is recommended in order to check their progress. Currently there are no invasive species near the rare species but it is far easier to remove the initial colonizers rather than trying to eradicate the exotic species once they have established. Allowing the forest to return to a closed canopy condition on the floodplain

would help reduce some of the threat from invasives and create a more functional riparian buffer along the river.

Jacobs Creek BDA

Jacobs Creek BDA spans Fayette and Westmoreland Counties and is dissected by Jacobs Creek. The section of Jacobs Creek within the BDA descends through a gorge on its way to meeting the Youghiogheny River at the Fayette-Westmoreland County line. Most of the BDA is encompassed by State Game Lands #296. The higher elevation parts (about 1,200 feet and above the railroad) of the BDA have been clearcut and are regenerating. A Red Oak-mixed hardwoods forest covers the steep slopes of the creek below the railroad. Dominant overstory species on the slopes include red oak (*Quercus rubra*), chestnut oak (*Quercus prinus*), shagbark hickory (*Carya ovata*), black cherry (*Prunus serotina*), and tuliptree (*Liriodendron tulipifera*). The understory is mostly dominated by witch-hazel (*Hamamelis virginiana*). Common herbs on the slope include doll eyes (*Actaea pachypoda*), jewelweed (*Impatiens capensis*), intermediate shield fern (*Dryopteris intermedia*), and christmas fern (*Polystichum acrostichioides*).

A tuliptree- (beech)-maple forest community covers the floodplain. Common canopy species include tuliptree (*Liriodendron tulipifera*), red maple (*Acer rubrum*), sugar maple (*Acer saccharum*), sycamore (*Platanus occidentalis*) and beech (*Fagus grandifolia*). Understory species include serviceberry (*Amelanchier arborea*), witch-hazel (*Hamamelis virginiana*), spicebush (*Lindera benzoin*), cucumber tree (*Magnolia accuminata*) and alternate-leaved dogwood (*Cornus alternifolia*). The herb layer is composed of hayscented fern (*Dennsteadtia punctilobula*), stinging nettle (*Laportea canadensis*), sensitive fern (*Onoclea sensibilis*), chickweed (*Stellaria pubera*) and skunk cabbage (*Symplocarpus foetidus*). The rich floodplain forest provides habitat for a Pennsylvania plant species of special concern (**SP001** and **SP002**). This species requires moist, minimally disturbed slopes found in these forests.

Threats and Stresses

Timbering occurred in this area from the 1920's to the 1940's and the forest on these slopes represents second or more likely third growth forest. Poor forestry practices, change in the character of the slope, including loss of canopy, and alteration of hydrology and any further subsequent introductions of aggressive species such as tree-of-heaven (*Ailanthus altissima*) and multiflora rose (*Rosa multiflora*) are all threats. Direct disturbance such as construction of accesses and moving of equipment represents another threat.

Recommendations

Encouraging the inclusion of special species habitat requirements and distribution into management plans for the area would be a good first step in the protection of this site. Monitoring of the population as to its quality and viability over time is needed. In addition, checking the progress of invasive exotic plant species is needed in to prevent further loss of habitat.

Jacobs Creek Slope BDA

Within this BDA, Jacobs Creek makes a sharp bend to the north and creates a moist wooded slope where a Pennsylvania plant species of concern lives (**SP013**). This is the largest population of this plant in the state. All of this BDA is contained within State Game Lands #296. The forest here has a canopy of sugar maple (*Acer saccharum*), beech (*Fagus grandifolia*) and sycamore (*Platanus occidentalis*). Understory species include spicebush (*Lindera benzoin*) and witch-hazel (*Hamamelis virginiana*). Common herbs are Canada violet (*Viola canadensis*), marginal shield fern (*Dryopteris marginalis*), intermediate shield fern (*Dryopteris intermedia*) and black cohosh (*Cimicifuga racemosa*).

Threats and Stresses

Timbering occurred in this area from the 1920's to the 1940's and now the forest is recovering and maturing. Direct disturbance, poor forestry practices, change in the character of the slope including loss of canopy and alteration of hydrology and any further introductions of aggressive species could degrade the natural communities and species of concern populations present.

Recommendations

Any additional information concerning the species of special concern, the natural communities, or quality of the habitats present on the site should be brought to the attention of the Pennsylvania Game Commission. The habitat requirements and the distribution of the species of concern should be incorporated into management plans for the area. Monitoring of the population as to its quality and viability over time will be needed.

Layton Fire Clay Mines BDA

This area is an old clay mine that historically provided material for a nearby brick kiln. The mine is now habitat for a Pennsylvania animal species of concern (**SA016**). This animal uses the mine for winter habitat.

Threats and Stresses

Lack of recognition and knowledge of the animals present here probably represents the greatest threat to the animals. Ignorance could lead to dismantling of the mine or blocking of the entrance, thereby preventing the animals from using the mine. Human visitation and vandalism are another threat to this site. Noise and light from visitation could disturb the animals, especially during critical seasons. Additionally, surrounding areas may prove important to the maintenance of humidity and airflow through the mines and therefore disturbance to nearby areas could also prove detrimental to the animals.

Recommendations

Informing the landowner of the significance of the clay mines is a good first step to insure the protection of this habitat, so critical to the animals of special concern. Gating of the mine may be the best way to limit access and disturbance to this habitat. Any forestry activity within the BDA and surrounding areas should consider the effects of equipment usage, road construction or access and removal of significant portions of the canopy on the animals and the microhabitat. Any direct disturbances should be avoided. Any work required to maintain the structure or surrounding properties should be evaluated. The Pennsylvania Game Commission is responsible for the management of these animals and is an appropriate contact for management issues.

Perryopolis Islands BDA

The Youghiogheny River is noted in this inventory for the riverine habitats that present along its length. In the Pittsburgh Plateau section of the county, the river islands represent some of the most significant habitats in the river. The islands near Perryopolis are just downstream of the Village of Layton and within eyesight of the Layton to Perryopolis bridge. There are about five islands in this complex; two of them are worthy of note. These islands have been noted as the best examples of bottomland forest along the Youghiogheny River (Palmer 1984). In 1996, a spring flood thoroughly washed the uppermost island and part of the lower island (Hewitt Island) and the large mounds of debris deposited are still visible on both islands.

The islands have a combination of habitats which are also discussed on other BDA's present on the Youghiogheny River. This BDA best exemplifies the River bed-bank-floodplain complex in the Pittsburgh Plateau portion of the county. Communities present include a riverside ice scour community, a water willow-smartweed riverbed community, and on the interior of the uppermost island, a sycamore- (river birch)-box elder floodplain forest). Hewitt Island has a higher elevation section near the center that is not flooded and supports a red oak-mixed hardwoods forest. In total there are four natural community types present on the islands.

The upstream island is the second largest island and has apparently formed since the 1880 mapping of the river. It is bisected at its upper end by a powerline right-of-way, which is providing a point of entry and establishment area for invasive exotic species. The forested parts of the island are dominated by sycamore (*Platanus occidentalis*), silver maple (*Acer saccharinum*), and box elder (*Acer negundo*). The edges of the island are cobbly and support a habitat dominated by American waterwillow (*Justicia americana*). At the upstream end of the island near the edge of the forest grows a plant species of special concern (**SP017**). Downstream from the population a powerline right-of-way cuts across the island.

The largest island, Hewitt Island, is adjacent to and downstream of the island described above. This island appears on the 1880 map. The interior of this island has a rise in elevation and has more varied habitats. On the lower elevation portions of the island, exists a Sycamore- (river birch)-box elder floodplain forest in which a plant species of special concern (**SP018**) is found. This species thrives in scour channels and open areas with high light levels. Also in this section

of the island at the base of the higher elevation rise grows a colony of Ostrich Fern (*Matteuccia struthiopteris*); the only location for this species seen in the county.

The higher elevation area supports a community that dominated by oaks including white oak (*Quercus alba*) and red oak (*Quercus rubra*). The trees are mature with many being about 30 to 91 cm dbh (diameter at breast height). In the middle of the island is a depression possibly caused by excavation for gravel. The depression is covered by a thick cover of summer grape (*Vitis aestivalis*).

Threats and Stresses

Alteration of the shoreline and water flow characteristics, invasion of exotic species such as Japanese knotweed (*Polygonum cupsidatum*), purple loosestrife (*Lythrum salicaria*) and multiflora rose (*Rosa multiflora*) and alteration of flooding regime are just a few of the more significant threats to the health of the floodplain forest and river gravel communities that are presently on the fringes of the islands. The powerline right-of-way is already the point of entry for multiflora rose (*Rosa multiflora*) and Japanese knotweed (*Polygonum cuspidatum*).

Recommendations

Although disturbed by human activity, these islands have potential for recovery. Monitoring of the exotic species present on the islands would provide a graphic record and demonstrate the need for removal action if those, or any new alien species spread. This site is planned to be a park for the Borough of Perryopolis. Monitoring needs of special species and control strategies for invasive species should be incorporated into management plans for the park.

Roundbottom Bend BDA

Downstream of the Borough of Dawson the Youghiogheny River makes a bend to the northeast and then a bend to the northwest. On the first bend is a sandy floodplain named roundbottom. The floodplain is covered by a Sycamore- (river birch)-box elder forest dominated by sycamore (*Platanus occidentalis*), tuliptree (*Liriodendron tulipifera*), black cherry (*Prunus serotina*) and sassafras (*Sassafras albidum*). The understory has smaller members of the above species plus hazelnut (*Corylus* spp.). Herbs present include wingstem (*Verbesina alternifolia*), jumpseed (*Polygonum virginianum*), turk's cap lily (*Lilium superbum*), joe pye weed (*Eupatorium fistulosum*) and basil balm (*Monarda clinopodia*). Along the banks of the river both up and downstream of this site are forest communities with a canopy of sycamore (*Platanus occidentalis*), silver maple (*Acer saccharinum*) and box elder (*Acer negundo*). On the rocky shore of the river grows water willow (*Justicia americana*), dodder (*Cuscuta gronovii*), cardinal flower (*Lobelia cardinalis*) and the exotic, Japanese knotweed (*Polygonum cuspidatum*). On the floodplains and lower slopes are several locations of a Pennsylvania threatened plant species (**SP003**, **SP004**, **SP005**, **SP006**, and **SP019**). This species is generally found on alluvial soils just above the mean high water terraces of rivers. They are plants of edge habitats and require moderate light for flowering. In a rich stream valley above the roundbottom floodplain is the

location of another plant species of special concern (**SP015**). The rocky shore downstream of the floodplain supports another plant species (**SP007**) that is Pennsylvania rare.

Threats and Stresses

SP003, SP004, SP005, SP006, and SP019 grow in a narrow habitat favored by Japanese knotweed (*Polygonum cuspidatum*) making these species very vulnerable to extreme competition from this plant. SP015 is particularly prone to deer browsing. Browsing by deer has been noted at many of the sites of this species in Fayette County and threatens the reproduction of this species. Use of the sandy beach along the river from both water and bike trail recreationists. Direct impact to habitat, storage of equipment or boats, and trampling and trail creation could negatively impact these plants. Additionally, increased access and (foot) traffic may help spread exotic species already present on the site.

Recommendations

Making the Youghiogheny River Trail Corporation aware of the presence of these plants would be a good first step in the protection of this site. A simple management plan could be developed to maintain habitat and keep track of special plant populations over time. This management plan should include provisions for deer management in order to reduce browsing pressure. As part of the plan the effects of deer browsing on these plants and the natural communities in general should be monitored and maintained at levels compatible with the ecological health of the forest and the plants of special concern. Access to this area should be planned to avoid special plant populations and to assure that critical habitat(s) are not impacted by general use.

DONEGAL QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
GREENLICK RUN BDA		*High Significance*			
SPECIAL ANIMAL:	SA003	G3G4	S3	N	PT
SPECIAL PLANT:	SP007	G5	S3	N	TU
SPECIAL PLANT:	SP011	G5	S3S4	TU	TU
LAUREL RUN BDA		*Notable Significance*			
SPECIAL PLANT:	SP008a	G5	S3	N	TU
SPECIAL PLANT:	SP008b	G5	S3	N	PT
NEWMEYER RUN BDA		*Notable Significance*			
SPECIAL PLANT:	SP005	G5	S3	N	TU
STONY RUN TRIBUTARY BDA		*Notable Significance*			
SPECIAL PLANT:	SP004	G5	S3	N	TU
WASH RUN BDA		*Notable Significance*			
SPECIAL PLANT:	SP006	G5	S3	N	TU
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)
GREENLICK RUN BDA
WASH RUN BDA
NEWMEYER RUN BDA
STONY RUN TRIBUTARY BDA
LAUREL RUN BDA
MOUNT PLEASANT
DONEGAL
BULLSKIN
SPRINGFIELD
SCALE 1:24 000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
ROAD CLASSIFICATION
DONEGAL, PA.
40079-A4-TF-024
1967
REVISED 1993

DONEGAL QUADRANGLE

This quadrangle sits mostly within Fayette County with a small portion of Westmoreland County covering the northeastern fifth. The most prominent natural feature is Indian Creek, which winds its way through the villages of Melcroft and Indian Head and flows westward toward its confluence with the Youghiogheny River. The town of Normalville is located on the southern edge of this quadrangle and development of Bear Rocks is on the northern edge. This quadrangle has five Natural Heritage areas and no managed lands.

Greenlick Run BDA

Greenlick Run drains Greenlick Hollow on the western slope of Chestnut Ridge. The rich slopes are dominated by tuliptree (*Liriodendron tulipifera*), red maple (*Acer rubrum*), sugar maple (*Acer saccharum*), yellow birch (*Betula allegheniensis*), red oak (*Quercus rubra*) and beech (*Fagus grandifolia*) in the overstory. Understory associates include rosebay rhododendron (*Rhododendron maximum*), spicebush (*Lindera benzoin*), elderberry (*Sambucus canadensis*), cucumber tree (*Magnolia accuminata*) and wild hydrangea (*Hydrangea arborescens*). Herbs present are nodding mandarin (*Disporum lanuginosum*), intermediate shield fern (*Dryopteris intermedia*), broad beech fern (*Phegopteris hexagonoptera*), jack-in-the-pulpit (*Arisaema triphyllum*), wild oats (*Uvularia perfoliata*) and many others. These forests support three plant species of special concern and one animal species of special concern – (**SP007a, SP007b**, **SP009**, **SP011** and **SA003**). **SP007a** is found in seepage areas in the uppermost section of the hollow. **SP011** is found in rocky floodplain woods in the lower section of the hollow. **SP007b** and **SP009** grow on rich, moist, lower slopes within the valley. **SA003** is associated with the rock outcrops steep slopes of the hollow.

Threats and Stresses

Loss of canopy, direct disturbance to the soils or other changes in microhabitat could adversely affect the plants. The plants that grow in the seeps need a perennial source of discharging groundwater in order to thrive. Activities that change the hydrology or lower the groundwater can negatively these plants. Direct disturbances to the rock outcrops or structural changes in the forest (e.g. loss of canopy) that alters the microclimate of the forest can negatively affect the animals. Increased access from trails and roads can further be stressing to the animals.

This area has been under consideration for limestone extraction for sometime. Quarrying would be detrimental to the forest in general, the species of special concern and the flow and quality of the water in the creek. Parts of the upper watershed are in agriculture and the upper slopes have been recently threatened. These practices may have affected water quality and have certainly fragmented this largely forested watershed. Additionally, these areas may serve as conduits for exotic and aggressive species to enter the area. Limestone quarrying and the activities associated with it could severely change the structure and landscape of the entire BDA.

Recommendations

Activities that alter the hydrology by affecting groundwater flows and recharge zones in the aquifer should be avoided. Large scale extraction may not be compatible with the overall integrity of the valley and the watershed. However, it may be possible to limit impacts to the plant populations of special concern and preserve the forest community in key areas. Specific accommodations for the important ecological features of the BDA should be incorporated into operations and management plans for limestone extraction. Likewise, the locations and requirements of the special concern species should be incorporated into forest management plans for the watershed. Monitoring of these plant and animal populations will be critical in understanding the effects activities within the watershed have on their viability.

Newmeyer Run BDA

Newmeyer Run drains part of the Indian Creek valley on the eastern slope of Chestnut Ridge in the northern part of Fayette County. Just downstream of the junction of Newmeyer Run and Poplar Run are seepage areas that support a Pennsylvania plant species of special concern (**SP005**).

Threats and Stresses

Loss of canopy, direct disturbances to habitat or other changes in microhabitat could adversely affect the plant population. This species grows in seepage areas and needs a perennial source of discharging groundwater in order to exist. Activities that change the hydrology by affecting the recharge zones or lower the groundwater can impact these plants.

Recommendations

Activities that directly impact drainages and seepages, alter the hydrology by affecting groundwater flows and recharge zones in the aquifer, or significantly alter the structure of the forest should be avoided. Assuring that the landowner is aware of the significance of the site would be a good first step in the protection of this plant population.

Stony Run Tributary BDA

Stony Run is a tributary of Indian Creek that drains the east slope of Chestnut Ridge. Like Newmeyer Run, this run also has seepage areas in which a Pennsylvania plant species of special concern lives (**SP004**). This species, the same as that on Newmeyer Run, depends on perennial sources of groundwater and undisturbed habitats.

Threats and Stresses

Loss of canopy, direct disturbances to the soils or other changes in the microhabitat for the species could adversely affect the plants. The plants thrive in seepage areas and therefore activities that change the hydrology by affecting recharge zones or by altering groundwater flow can impact these plants. Alteration in surface water flows may also impact this plant population.

Recommendations

Activities that alter the hydrology by affecting groundwater flows and recharge zones in the aquifer should be avoided. Any direct disturbance to the plant species of special concern (SP004) that affects the microhabitat and results in a loss of water quality by increasing sediment or nutrient load can be detrimental.

Wash Run BDA

Wash Run, like the other runs above, is a tributary of Indian Creek draining the eastern slope of Chestnut Ridge. It also has seepage areas along its course and supports Pennsylvania plant species of special concern (**SP006**). This being the same species as that in Newmeyer Run and Stony Run Tributary, it requires a perennial source of groundwater and undisturbed habitats.

Threats and Stresses

Loss of canopy, direct disturbances to the soils or other changes in the microhabitat for this species could adversely affect the plants. These plants grow in the seepage areas and need a perennial source of discharging groundwater in order to thrive. Activities that change the hydrology or lower the groundwater can impact these plants.

Recommendations

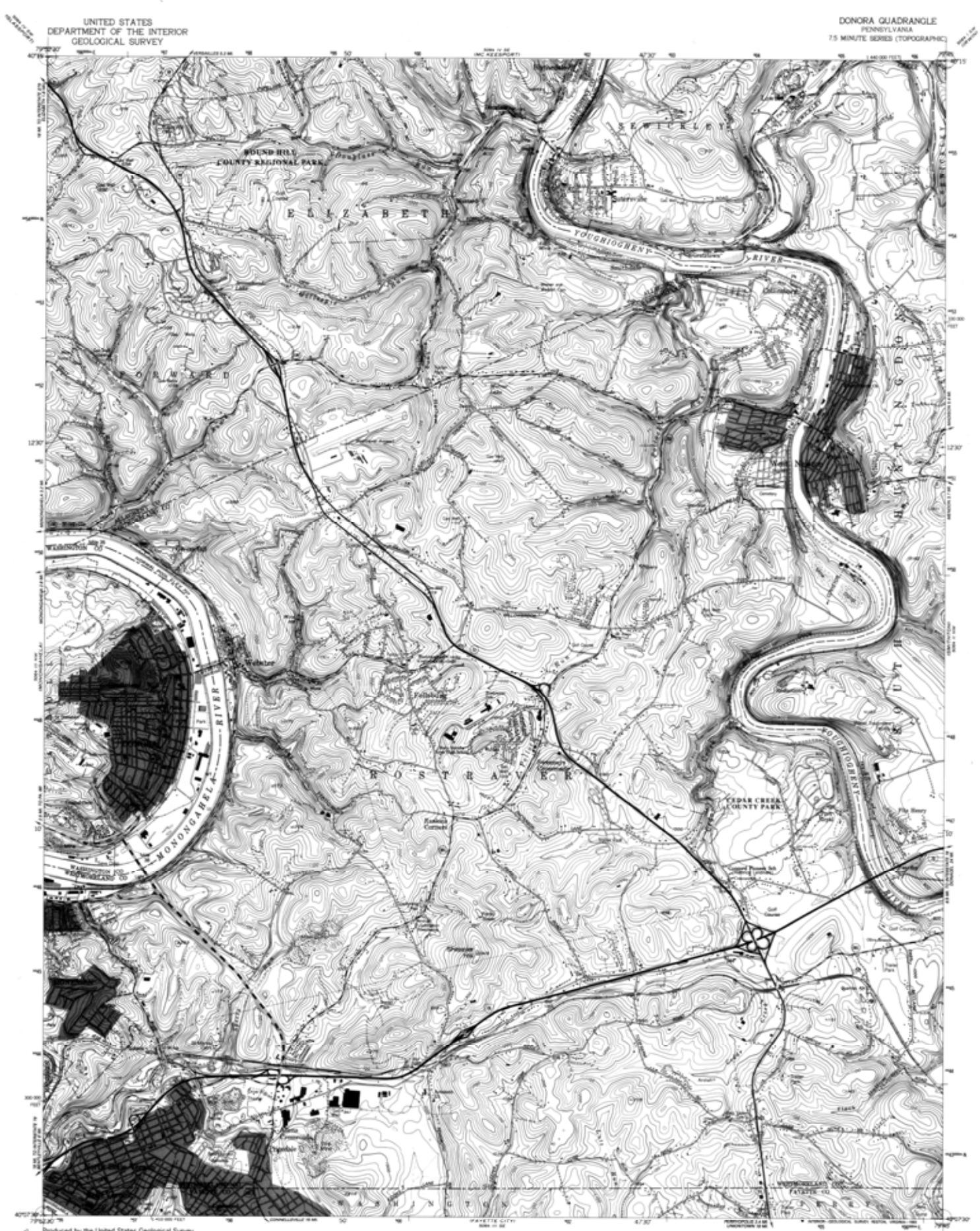
Activities that alter the hydrology by affecting groundwater flows and recharge zones in the aquifer should be carefully evaluated in light of the requirements of these special plant populations and the specialized and sensitive habitats in which they grow.

DONORA QUADRANGLE

	PNDI Rank		Legal Status	
	Global	State	Fed.	State

NATURAL HERITAGE AREAS: None

MANAGED LANDS: None


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
DONORA QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
ROUND HILL
COUNTY REGIONAL PARK
ELIZABETH
SEWICKLEY
YOUGHIOGHENY RIVER
FORWARD
DONORA
MONONGAHELA RIVER
Webster
ROSTRAVER
CEDAR CREEK
COUNTY PARK
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
Light-duty road, hard or improved surface
Secondary highway, hard surface
Unimproved road
Interstate Route
U. S. Route
State Route
DONORA, PA.
40079-B7-TF-024
1993

DONORA QUADRANGLE

Fayette County covers the very southern portion of the Donora quadrangle. The Monongahela River flows through the town of Belle Vernon as it continues north and into Washington and Westmoreland counties. There are no Natural Heritage areas or managed lands located on this quadrangle.

FAYETTE CITY QUADRANGLE

	PNDI Rank		Legal Status	
	Global	State	Fed.	State

NATURAL HERITAGE AREAS:

BROWNELLER RUN CONFLUENCE BDA *Notable Significance*

SPECIAL PLANT:	SP002	G4	S2	N	PT

GRINDSTONE SLOPES BDA *County Significance*

MANAGED LANDS: None


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
FAYETTE CITY QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
BROWNELLER RUN
CONFLUENCE BDA
GRINDSTONE SLOPES BDA
MONONGAHELA
RIVER
WASHINGTON
PERRY
JEFFERSON
Arnold City
Fayette City
Perryopolis
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, RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
ROAD CLASSIFICATION
FAYETTE CITY, PA.
N4000—W7945/7.5
1954
PHOTOREVISED 1979

FAYETTE CITY QUADRANGLE

Almost the entire quadrangle is contained in Fayette County except for a small area west of the Monongahela River in Washington County. Major natural features include the Monongahela River on the west, the Youghiogheny River in the northeast, and Redstone Creek in the south. Towns found on this quadrangle include Perryopolis on the east, Smock to the south, and Arnold City to the north. Two Natural Heritage areas and no managed lands are on this quadrangle.

Browneller Run Confluence BDA

Browneller Run enters the west side of the Youghiogheny River just upstream of where Jacobs Creek, a major tributary, enters from the east side of the river. A Dry oak-mixed hardwood forest covers the area around Browneller Run. Dominant canopy species present are white oak (*Quercus alba*), red oak (*Quercus rubra*), chestnut oak (*Quercus prinus*), tuliptree (*Liriodendron tulipifera*), and basswood (*Tilia americana*). Common understory associates include pawpaw (*Asimina triloba*), sugar maple (*Acer saccharum*) and summer grape (*Vitis aestivalis*). Herbaceous species include wild ginger (*Asarum canadense*), blue cohosh (*Caulophyllum thalictrioides*), wild geranium (*Geranium maculatum*) and twinleaf (*Jeffersonia diphylla*).

At the confluence of Browneller Run with the Youghiogheny River, the forest is dominated by eastern sycamore (*Platanus occidentalis*) and box elder (*Acer negundo*) and provides habitat for a plant species of special concern (**SP002**). This species requires alluvial soils just beyond normal high water terraces along rivers. Being a plant of edge habitats and needing moderate light to flower, this plant is also in the same niche that the aggressive exotic, Japanese knotweed (*Polygonum cuspidatum*), occupies. In Fayette County, **SP002** is found commonly only along the Youghiogheny River. At the junction of Browneller Run and the Youghiogheny River this species is under a dense herbaceous cover dominated by wingstem (*Verbesina alternifolia*).

Threats and Stresses

This site is threatened by invasive species such as Japanese knotweed (*Polygonum cuspidatum*). The populations, of the special concern species (SP002), where they occur, tend to be small making them vulnerable to almost any impact. Although not noted at this site, deer browsing is a problem at other sites. Loss of canopy, direct disturbances of the soils, or other changes in the habitat associated with the shoreline could adversely affect this plant. Changes in the flooding regime could impact the plants by changing the character of the narrow habitat in they live.

Recommendations

Monitoring the coverage and spread of invasive species along the river is crucial to ensuring the survival of SP002 along the Youghiogheny River. Monitoring would provide a

baseline for and initiate removal action if those present now, or any new species, spread. In addition the native species should also be monitored to better understand changes over time and total extent and health of the population along the river corridor.

Effects of deer browsing on SP002 and the forest community in general should be monitored and programs or approaches instituted to maintain deer populations at levels compatible to the ecological health of the natural communities and the plants of special concern.

Grindstone Slopes BDA

Near Grindstone an unnamed tributary enters Redstone Creek. The tributary descends, sometimes sleepily, cresting several waterfalls and pools along its narrow valley. The slopes here are moist and feature a prominent display of wildflowers as well as a sugar maple-basswood forest. Although this area is not presently known to support any species of special concern, the natural forest community is of note due to its diversity and maturity. Common canopy species in this community include sugar maple (*Acer saccharum*), red maple (*Acer rubrum*), basswood (*Tilia americana*), red oak (*Quercus rubra*), beech (*Fagus grandifolia*), and pignut hickory (*Carya glabra*). Understory associates are American hornbeam (*Carpinus caroliniana*) and bladdernut (*Staphylea trifolia*). Herbaceous species present include bedstraw (*Galium* spp.), stonecrop (*Sedum ternatum*), intermediate shield fern (*Dryopteris intermedia*), violet (*Viola* spp.), Virginia waterleaf (*Hydrophyllum virginianum*), white wood aster (*Aster divaricatus*), stinging nettle (*Laportea canadensis*), jewelweed (*Impatiens capensis*) and christmas fern (*Polystichum acrostichioides*).

Threats and Stresses

The main threats here include loss of overstory from timbering and development, competition by invasive species such as multiflora rose (*Rosa multiflora*), direct disturbance and natural senescence without regeneration caused by over browsing by deer. In the case of Grindstone slopes logging would change the microenvironment sufficiently to alter the habitat in which these plants are surviving. This would also allow multiflora rose, which is already present at the site, to gain even more of a foothold in the area. Direct disturbances such as altering the stream course or dumping would impact the environment here.

Recommendations

Informing the landowners of the significance of the site would help protect this stream valley and natural communities present. If the landowner is interested, a management plan could be developed for this site. Direct disturbances, such as soil removal or canopy removal should be avoided. Further inventory of the site should be conducted to better describe the community and survey for unique plants and animals that may exist here. Management of deer populations to keep them in balance with the overall ecological health of the forest community would benefit this BDA.

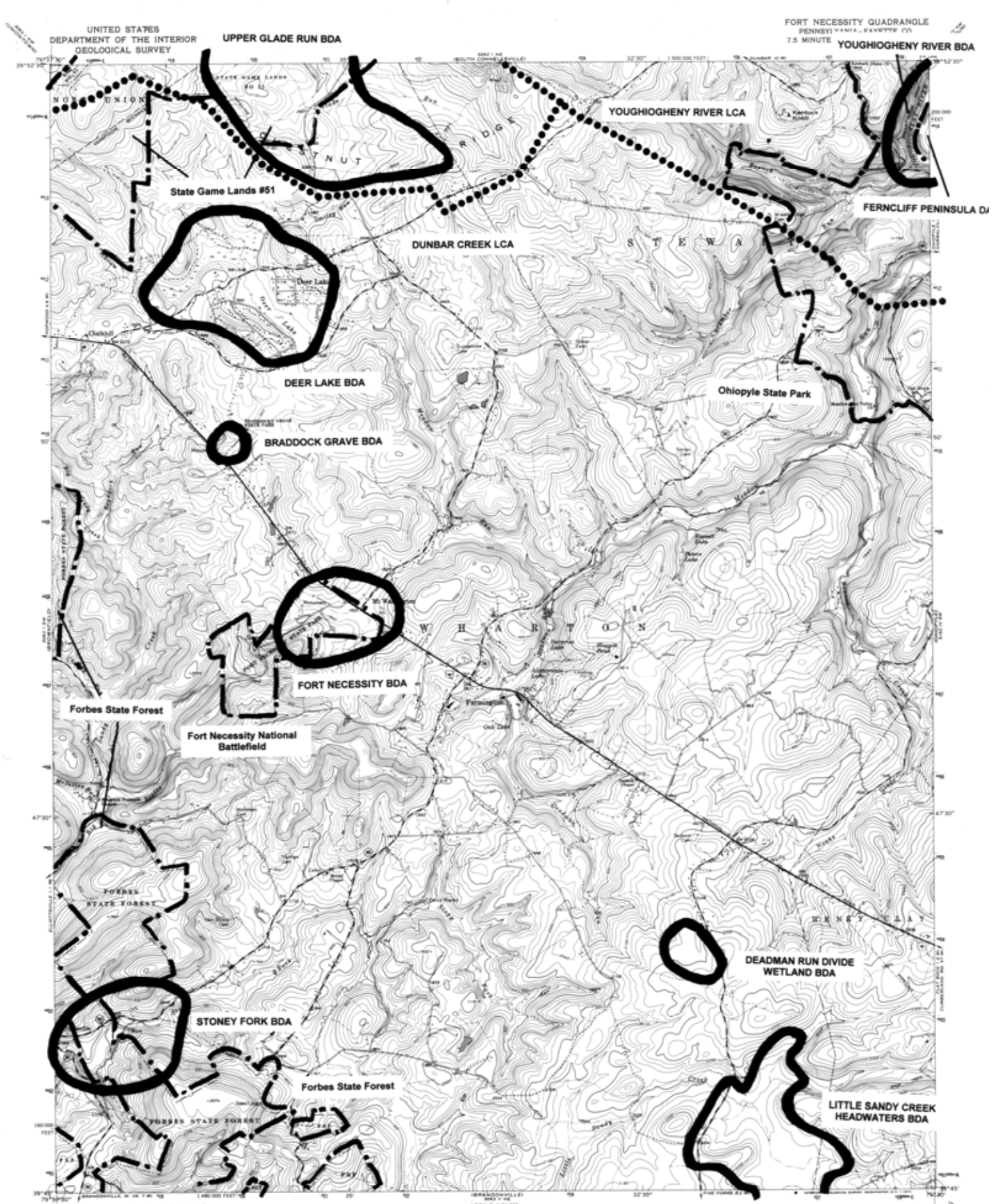
FORT NECESSITY QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
BRADDOCK GRAVE BDA		*Notable Significance*			
SPECIAL PLANT:	SP029	G5	SU	N	TU
DEADMAN RUN DIVIDE WETLAND BDA		*Notable Significance*			
SPECIAL PLANT:	SP035	G5	S2	N	PT
NATURAL COMMUNITY:	NC035				
DEER LAKE BDA		*High Significance*			
SPECIAL PLANT:	SP022a	G5	S2	N	PT
SPECIAL PLANT:	SP022b				
FORT NECESSITY NATIONAL BATTLEFIELD BDA		*High Significance*			
SPECIAL PLANT:	SP001	G5	S2	N	PT
SPECIAL PLANT:	SP017	G5	SU	N	TU
SPECIAL PLANT:	SP019	G5	S2	N	PT
LITTLE SANDY CREEK HEADWATERS BDA		*Notable Significance*			
SPECIAL PLANT:	SP037	G5	S2	N	PT
SPECIAL PLANT:	SP038	G5	S2	N	PT
SPECIAL PLANT:	SP039	G5	S2	N	PT
STONEY FORK BDA		*Notable Significance*			

SPECIAL PLANT:	SP006	G4	S1	N	PE
SPECIAL PLANT:	SP036	G5	S3	PT	PR

UPPER GLADE RUN BDA		*Exceptional Significance*			
SPECIAL PLANT:	SP018	G5	S2	N	PT

MANAGED LANDS: Braddock Grave
Ferncliff Peninsula DA
Forbes State Forest
Fort Necessity National Battlefield
Ohiopyle State Park
State Game Lands #51



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

UTM GRID AND 1973 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

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

QUADRANGLE LOCATION

AMS 5063 I SE—SERIES V851

The Fort Necessity quadrangle is covered entirely by Fayette County. Meadow Run drains much of this section of the county to the Youghiogheny River. The Sandy Creek watershed captures the drainages to the south and west, carrying these waters to the Cheat River. A number of impoundments including Little Sandy Reservoir and Deer Lake are prominent features on this quadrangle. This quadrangle has nine Natural Heritage areas and six managed lands – **Braddock Grave National Monument**, **Ferncliff Peninsula Natural Area**, **Forbes State Forest**, **Fort Necessity National Battlefield**, **Ohiopyle State Park**, and **State Game Lands #51**.

Braddock Grave BDA

Braddock's Grave BDA includes a small section of successional forest, open lawns and public walkways/pathways. Within this BDA is a population of a plant species of special concern (**SP029**) that takes advantage of the relatively open edges of the maintained lawn and fields of the site. In addition to its ecological significance, has historical importance as holding the ultimate burial site for General Edward Braddock, who died in an ill-fated attempt to take Fort Duquesne from the French in 1755.

Threats and Stresses

The major threats to this species of special concern is lack of management attention and the small size of its population on this site. Recent construction and expansion of public access and facilities may impact these plants. Maintenance or construction crews not familiar with the location of the plants could cause damage.

Recommendations

The National Park Service maintenance workers need to be made aware of the location of the plants and how maintenance activities may affect them. Management of the site geared toward increasing and enhancing habitat would help ensure that this species survives at this location.

Deadman Run Divide Wetland BDA

Deadman Run divide is located on a watershed divide between the Little Sandy Creek and Beaver Creek drainages. It is typical of most headwater wetlands in the Allegheny Mountain region of Fayette County, being dominated primarily by shrubs and herbaceous plants and surrounded by forest. This community is classified as an Alder-ninebark wetland (**NC035**). Dominant shrubs include arrow-wood (*Viburnum dentatum*), hazel alder (*Alnus serrulata*), speckled alder (*Alnus rugosa*) and winterberry (*Ilex verticillata*). Herbs growing amongst the shrubs and in open areas include cinnamon fern (*Osmunda cinnamomea*), wood fern (*Dryopteris carthusiana*), sensitive fern (*Onoclea sensibilis*) and jewelweed (*Impatiens* spp.). The forest surrounding the shrub swamps is dominated by red maple (*Acer rubrum*), yellow birch (*Betula*

allegheniensis), black cherry (*Prunus serotina*), and red oak (*Quercus rubra*). Some shrub swamps have an open overstory of black gum (*Nyssa sylvatica*). In the ecotone (edge of the wetland), grows a Pennsylvania plant species of special concern (**SP035**). This species generally exists on moist but not saturated soils in open habitats.

Threats and Stresses

Dinner Bell Road runs along the upstream side of the wetland. Salt applied to the road during the winter washing into the wetland could alter water chemistry and create adverse conditions for the plants and the natural community. Likewise, use of herbicides to clear roadsides could impact the plants growing within the wetland.

The habitat of this plant is also the favored habitat of some of the invasive species that are present in the area. Further downstream in the Deadman Run watershed at the site of a drained lake is a large area of purple loosestrife (*Lythrum salicaria*). Other activities that may affect the level of the groundwater or disrupt the recharge zones could alter the hydrology of the wetland.

Recommendations

Informing the landowner of the significance of the wetland and the presence of the species within would be a first step in its protection. Additionally, letting the landowner know about the life history of the plant and its requirements will help them manage for the species. Monitoring of the wetland for general condition, for the health of the species of concern and for possible establishment of invasive species would help in developing a future plan for conservation of the site.

Road maintenance crews need to be made aware of the wetland and its significance and manage the road right-of-way to minimize impacts from the use of chemicals, including salt, and heavy equipment on the wetland.

Deer Lake BDA

Deer Lake, an impoundment of Meadow Run, is managed by a homeowners association. Located northeast of Chalk Hill, the area contains the lake and a complex of wetlands in the stream headwaters. The wetlands are considered to be an example of an alder ninebark wetland (**NC022**) and are dominated by hazel alder (*Alnus serrulata*), winterberry (*Ilex verticillata*), arrow-wood (*Viburnum dentatum*) and clammy azalea (*Rhododendron viscosum*). Herbaceous plants are scattered among the shrubs. The shores and headwaters are populated with a Pennsylvania Threatened plant species (**SP022a**). Associates of this species include sallow sedge (*Carex lurida*), tussock sedge (*Carex stricta*), bulrush (*Scirpus cyperinus*), trailing raspberry (*Rubus hispidus*), wrinkle-leaf goldenrod (*Solidago rugosa*) and stout goldenrod (*Solidago squarrosa*). In the lake itself is another plant species of concern (**SP022b**). Other aquatic plant species in the lake include watershield (*Brasenia scheberi*), ribbon-leaf pondweed (*Potamogeton epihydrus*), broad-fruit burr-reed (*Sparganium eurocarpum*) and yellow pond lily (*Nuphar lutea*).

Threats and Stresses

Changes in the water level of the lake would change the structure and extent of the associated habitats. SP022 is dependent on open situations and occurs often in association with old beaver impoundments. The shores and wetlands of Deer Lake furnish a similar habitat and the upper part of the lake apparently was once beaver impounded. The edges of old beaver impoundments and the habitat furnished as they dry down furnish new habitat for a number of new plant and animal species including the plant of special concern discussed here. Therefore, maintaining these successional communities across the landscape best assures their continued existence and that of the plants associated with them.

Another threat to this population is the possibility of invasive species populating the lakeshore or the wetlands, although during the visit to the site there were no invasive species seen. Invasive species such as purple loosestrife (*Lythrum salicaria*) are considered to be a threat in most any wetland within the Allegheny Mountain Physiographic Province of Fayette County. A large population has established itself nearby to this site. Given the right conditions loosestrife could take over the entire wetland.

Recommendations

The landowners association should be made aware of the presence of the plants and the significance of the site if they are to consider the ecological values of the lake and surrounding communities in the management of the lake for recreation. Additionally, checking any invasion of aggressive exotics would be an important component of monitoring at this site. Members of the owner's association could assume a role in the monitoring of the lake and wetlands for invasive species.

Activities that lead to changes in hydrology of the wetlands including road construction, changes in lake level or upstream development should be carefully evaluated. Impacts of upstream development projects on the hydrology and nutrient loads of these sensitive communities should be analyzed and tied together with the land use plans for this area.

Dunbar Creek LCA

This Natural Heritage area is discussed on the South Connellsville quadrangle.

Fort Necessity National Battlefield BDA

Fort Necessity National Battlefield was the scene of George Washington's only surrender when he surrendered to French forces. In the defense, a fort was built on a rise in a largely level terrain that contains numerous wetlands. The wetlands here bear a resemblance to "The Glades" described on the Brandonville quadrangle but are more disturbed and have less species diversity. The wetland edges provide habitat for the same plant species of special concern (**SP001** and

SP019) as described in "The Glades". Some of the areas surrounding the wetlands were once fields and were subsequently planted to Norway spruce plantations. In open areas associated with the plantations grows a Pennsylvania plant species of special concern (**SP017**). This plant usually grows in relatively open areas associated with mesic, limestone slopes but will also take advantage of other more open areas such as these reforested slopes in this BDA.

Threats and Stresses

The National Park Service is aware of the presence of these plants and have considered them in the management of the park. Efforts are being undertaken at the site to better and more permanently mark the locations of the plants and ensure their protection.

Currently a project is being undertaken to restore the wetlands around the fort to what they may have been like in the mid 1700's. It is unknown at this point what effect this will have on the wetland species present here.

Recommendations

Activities that change the hydrology of the wetlands or change the overall character of the wetlands need to be fully assessed. Direct disturbance SP001/019 should be avoided and actions taken to reduce the impacts of future construction and restoration efforts. The restoration effort has the possibility of increasing the diversity in the wetland and making the habitat more suitable to the plant species of special concern. Likewise, for SP017, efforts to expand or enhance habitat, particularly the associated natural communities should be considered as part of the overall management of the park

Little Sandy Creek Headwaters BDA

The headwaters of Little Sandy Creek are characterized by shrub and hemlock wetlands. Most of the area is recovering from timbering and there is no developed overstory present. Dominant woody species here include black cherry (*Prunus serotina*), plum (*Prunus virginiana*), red maple (*Acer rubrum*), yellow birch (*Betula allegheniensis*) and in a few scattered areas hemlock (*Tsuga canadensis*). Prominent herbaceous species in thicket openings include cinnamon fern (*Osmunda cinnamomea*), skunk cabbage (*Symplocarpus foetidus*), melic manna grass (*Glyceria melicaria*), and northern long sedge (*Carex folliculata*). In some of the open areas on the edges of the wetlands grows a Pennsylvania plant species of special concern (**SP037**, **SP038** and **SP039**). The species has also been noticed growing on the adjacent uplands.

Threats and Stresses

This site includes a wetland that has been timbered with fragments of the original forest remaining. It is predominantly a swamp forest in regeneration. As typical for this plant of special concern, this population is taking advantage of open wetland borders. This plant is well established within this large successional community.

Natural succession will likely lead to the decline of the plant in its present locations but new habitats that are created within the wetland complex will be the key to long term viability of the plant. Natural processes, such as beaver activity, flooding and dry down will be critical in maintaining populations of this plant. Additional timbering or disturbance at this site may or may not directly impact this plant, but alterations in the natural processes could.

In all of these headwater wetland complexes in this part of the county, looms the threat of invasive species such as purple loosestrife (*Lythrum salicaria*) and tall reed (*Phragmites australis*), both which are capable of displacing large portions of the vegetation native to these wetlands.

Recommendations

Informing the owner of the significance of the wetland and the special species present would be a good first step in the protection of this area. Monitoring of the special plant species and careful observation for introduction or establishment of purple loosestrife or common reed is recommended. It is easier to prevent an invasive species from being established than to eradicate it once it has. Disruption of natural processes, trapping of beaver, damming, ditching and draining should be avoided.

Stoney Fork BDA

Stoney Fork is a tributary to Big Sandy Creek that joins the main stem near Elliottsville. The BDA features a rich slope community, a shrub swamp and two Pennsylvania plants of special concern (**SP006** and **SP036**).

The slope in this BDA support a basswood-sugar maple forest (**NC036**) dominated by sugar maple (*Acer saccharum*), basswood (*Tilia americana*), white oak (*Quercus alba*), red oak (*Quercus rubra*), and black cherry (*Prunus serotina*). The understory is composed largely of saplings of the overstory species with some witch-hazel (*Hamamelis virginiana*) and hazelnut (*Corylus americana*). Northern maidenhair fern (*Adiantum pedatum*), black cohosh (*Cimicifuga racemosa*), wild geranium (*Geranium maculatum*), christmas fern (*Polystichum acrostichioides*) and foamflower (*Tiarella cordifolia*) are some herbs present on the rich slopes. Also found growing on the slopes within the forest community is plant species of special concern ().

The wetlands and shorelines at the base of the slope are dominated by winterberry (*Ilex verticillata*), arrow-wood (*Viburnum dentatum*), and silky dogwood (*Cornus ammomum*). A diversity of herbaceous plants here includes Canadian goldenrod (*Solidago canadensis*), twisted sedge (*Carex torta*), blue vervain (*Verbena hastata*), monkey flower (*Mimulus ringens*) and wool-grass (*Scirpus cyperinus*).

Along a portion of the shore where a strong shrub component has developed, grows another species of special concern (**SP006**). Rosebay rhododendron (*Rhododendron viscosum*) and smooth alder (*Alnus serrulata*) account for much of the vegetation associated with the shoreline and species of concern.

Threats and Stresses

SP006 grows along rocky stream shores and slopes. Its natural range brings it barely into PA. In Pennsylvania this plant is only found in the Big Sandy Creek watershed and in only three locations. Direct threats are not imminent for this species, but because of the small size, and extent of the population, even limited disturbances are significant threats to this population. Stream crossing and timber operations could prove detrimental to these plants if not planned to accommodate them and their immediate habitat.

SP036 grows within a mature, forest community marked by a shrub swamp and stream below and a road (Rt. 381) above. The concern for this plant and natural community arise from the relatively high value of timber within the BDA and the presence of a road on top of the slope. Loss of overstory would change the structure and conditions of the forest and ultimately habitat for the species of special concern. Road maintenance practices, including vegetation management, application of salt, and paving could negatively impact the slopes and the communities and species present. Additionally, like all of populations of this special concern species in the county, deer browsing is a factor in the survival of this plant.

Recommendations

Making the landowner aware of the significance of this area will be important to the protection of the communities and species within this BDA, particularly in light of strong pressure to timber within the county. Also, the portions of the BDA within Bureau of Forestry land are under active timber management designation and therefore the local district office should assure that field personnel are aware of the plant populations contained within Bureau of Forestry land. State and township road maintenance crews should be aware of the presence of this significant area and avoid the use of this section of road for equipment storage and salt stockpiling. Ditching for drainage and widening of the right-of-way should be avoided, Mechanical clearing of vegetation should be emphasized over the use of herbicides. Effective deer management will continue to be a priority in both the protection of the species of concern and the long-term regeneration and viability of the forest.

Upper Glade Run BDA

In its headwaters, Glade Run drains a profusion of wetlands. Some of these are beaver created and some created from depressions in the Pottsville sandstone (bogs). The individual drainages of these old beaver impoundments and bogs come together and form Glade Run which then flows into Dunbar Creek. Each of these areas are habitats for different groups of Pennsylvania plants of special concern. The bogs, similar to the Markleysburg Bog discussed on the Ohiopyle quadrangle (Page 177), are the location of a sphagnum-beaked rush peatland community (**NC010**). Higher up in the watershed are some old beaver impoundments where a Pennsylvania plant species of special concern (**SP018**) lives.

After all of its branches have joined, Glade Run descends through a gorge, eventually meeting with Dunbar Creek. On the upper slopes are sandstone outcrops where an animal species of special concern (**SA022** and **SA023**) lives. This animal requires moist rock outcrops within relatively undisturbed forests.

Threats and Stresses

NC010 is restricted to the boggy areas in the sandstone depressions. Activities that affect the hydrology of the bogs could negatively impact the communities and species present. Increased access, adjacent trail use and off-road vehicle use could all be concerns for this wetland.

SA022 and SA023 are restricted to moist sandstone outcrops within relatively undisturbed forests. This species is confined to very few locations in southwestern PA all within Fayette County. Any disturbance to the outcrops or the crevices in which this animal lives will adversely affect this species. Additionally changes in microhabitat that could result from loss of canopy or upslope activities could negatively impact this animal population.

Recommendations

Activities that directly impact the sandstone outcrops or affect the microhabitat present within the rock outcrops should be avoided. Working with the PA Game Commission to assure that all information collected about this species of special concern, natural communities and landscape features is incorporated into a management plan for this site would help guide recreation or resource management activities for the future. 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 the needs for ultimate protection of this site.

Youghiogheny River BDA

This Natural Heritage area is discussed on the Ohiopyle quadrangle.

Youghiogheny River LCA

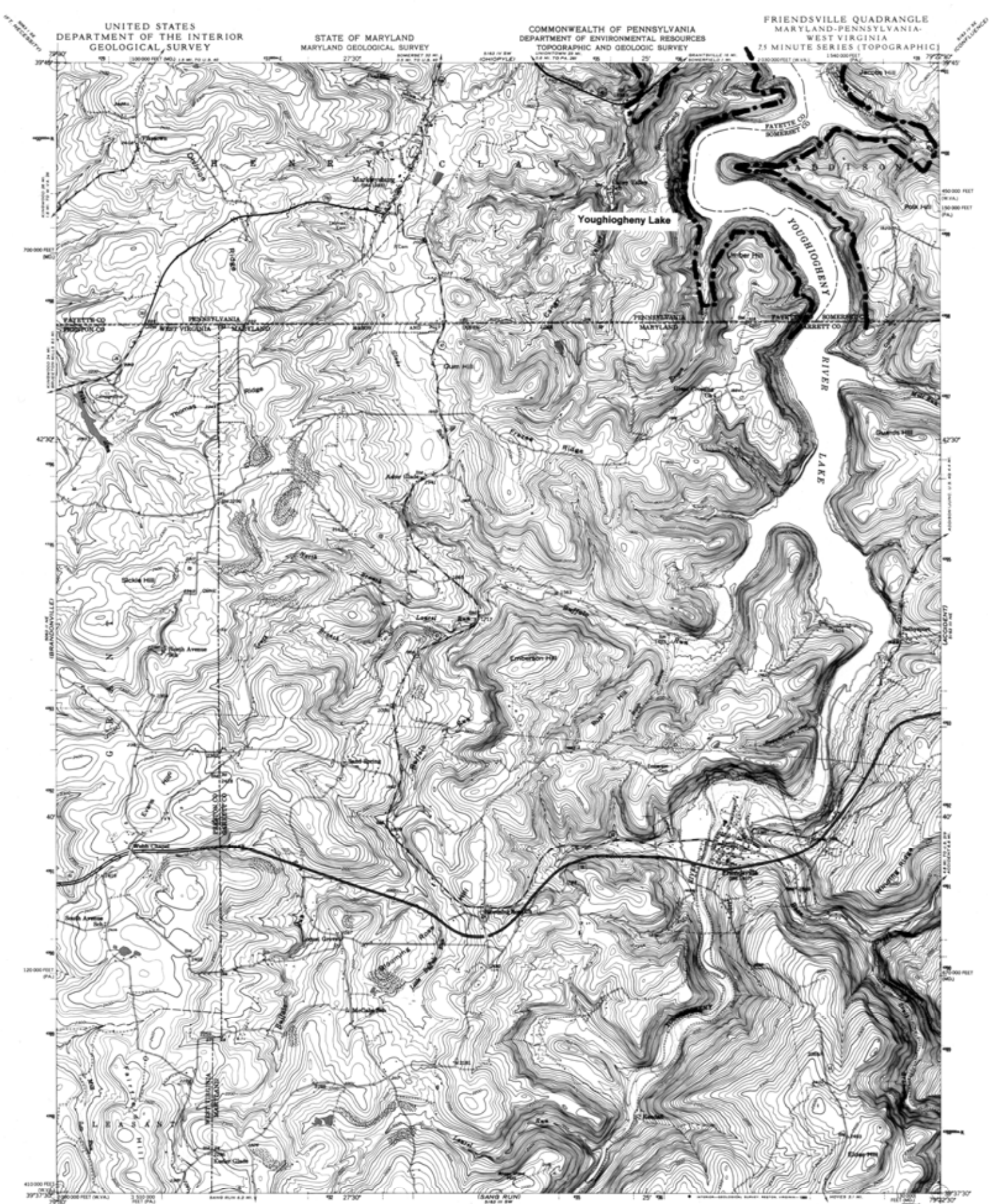
This Natural Heritage area is discussed on the Ohiopyle quadrangle.

FRIENDSVILLE 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 MARYLAND
MARYLAND GEOLOGICAL SURVEY
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY
FRIENDSVILLE QUADRANGLE
MARYLAND-PENNSYLVANIA-
WEST VIRGINIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
Youghiogheny Lake
YOUGHIOGHENY
RIVER
LAKE
ALLEGHENY
Mapped, edited, and published by the Geological Survey
Control by USGS, NOS/NOAA, and USCE
Topography by photogrammetric methods from aerial photographs taken 1946. Field checked 1947
Polyconic projection. 10,000-foot grid ticks based on Maryland coordinate system, Pennsylvania coordinate system, south zone and West Virginia coordinate system, north 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 6 meters south and 20 meters west as shown by dashed corner ticks
Blue hatching indicates areas subject to controlled inundation
Normal pool elevation 1439 feet. Spillway elevation 1468 feet
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
Heavy-duty
Light-duty
Medium-duty
Unimproved dirt
Interstate Route
U.S. Route
State Route
QUADRANGLE LOCATION
FRIENDSVILLE, MD.-PA.-W.VA.
39079-F4-TF-024
1947
PHOTOREVISED 1981
DMA 5163 II NW-SERIES V833
Revisions shown in purple and woodland compiled in cooperation with Commonwealth of Pennsylvania agencies from aerial photographs taken 1974 and other sources. This information not field checked. Map edited 1981

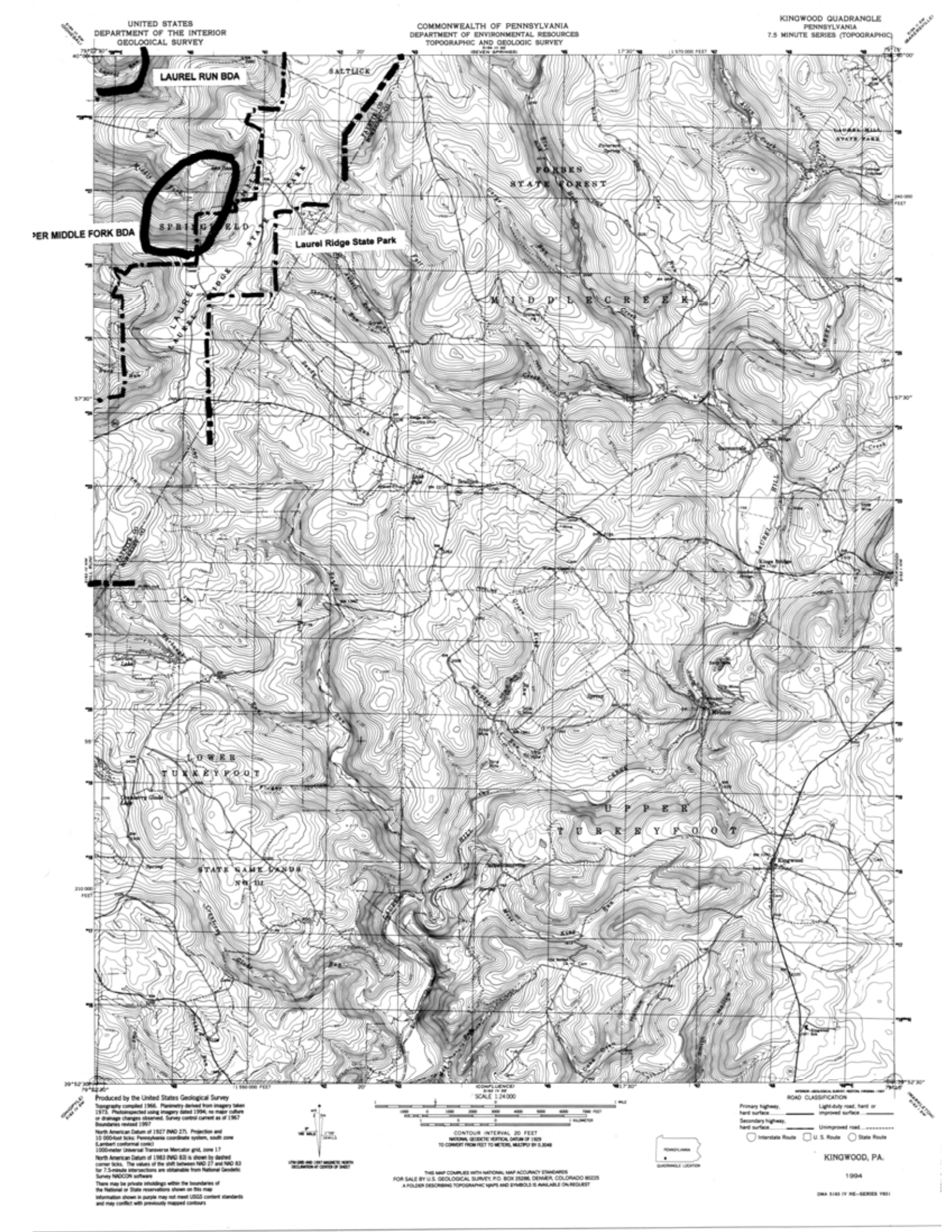
FRIENDSVILLE QUADRANGLE

The Friendsville Quadrangle represents portions of three states, Pennsylvania, West Virginia, and Maryland. The Fayette County portion of Pennsylvania is in the northern fourth of the quadrangle. The most prominent feature is Youghiogheny Lake on the east side. The Borough of Markleysburg is located in the center of the Pennsylvania section. This quadrangle has no Natural Heritage areas and one managed land – **Youghiogheny Lake**.

KINGWOOD QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
LAUREL RUN BDA		*Notable Significance*			
SPECIAL PLANT:	SP008a	G5	S3	N	PT
SPECIAL PLANT:	SP008b	G5	S3	N	TU
UPPER MIDDLE FORK BDA		*Notable Significance*			
SPECIAL PLANT:	SP012	G5	S2	N	PT
SPECIAL PLANT:	SP013	G5	S3	N	TU

MANAGED LANDS: Laurel Ridge State Park


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY
KINGWOOD QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
LAUREL RUN BDA
ER MIDDLE FORK BDA
Laurel Ridge State Park
SALTLICK
FORBES
STATE FOREST
SPRINGFIELD
MIDDLE CREEK
LOWER
TUKEYFOOT
UPPER
TUKEYFOOT
STATE GAME LANDS
NO. 111
Kingwood
Produced by the United States Geological Survey
SCALE 1:24 000
CONTOUR INTERVAL 20 FEET
ROAD CLASSIFICATION
KINGWOOD, PA.
1994

KINGWOOD QUADRANGLE

Fayette County is represented in the northwestern third of the Kingwood quadrangle. The major natural feature is Laurel Hill. Middle Fork, Laurel Run, and Buck Run drain the area. There are no towns in the Fayette County portion of the quadrangle. This quadrangle has two Natural Heritage areas and one managed land – **Laurel Ridge State Park**.

Laurel Run BDA

The slopes and seepages along Laurel Run support rich tuliptree-beech-maple forests. Overstory species include beech (*Fagus grandifolia*), sugar maple (*Acer saccharum*), sweet birch (*Betula lenta*) and tuliptree (*Liriodendron tulipifera).* Common understory species are striped maple (*Acer pennsylvanica*), rosebay rhododendron (*Rhododendron maximum*) and spicebush (*Lindera benzoin*). Herbaceous species are jewelweed (*Impatiens capensis*), Melic manna grass (*Glyceria melicaria*), violet (*Viola cucullata*), turtlehead (*Chelone glabra*), marginal shield fern (*Dryopteris marginalis*) and whorled nodding aster (*Aster accuminatus*).

On the slopes above Laurel Run grows a Pennsylvania plant species of special concern (**SP008a**). Typically a species of rich, moist slopes, the plants grow here in several places along the stream and on lower slopes adjacent to cleared areas associated with summer residences. Another plant species of special concern, **SP008b**, grows in seepage areas that feed Laurel Run. Both of these species need relatively undisturbed habitat in order to exist.

Threats and Stresses

The threats to the plants in this BDA include browsing by deer and development of infrastructure. SP008a is especially prone to browsing by deer. The plant has been browsed heavily in other locations, which has affected its reproduction and viability. In addition, since the population of this plant is located near some summer homes, development of infrastructure near these homes or additional homes being built could be a threat to this species.

SP008b requires a perennial source of groundwater and exists in seepages along Laurel Run. Changes in local hydrology, both surface and groundwater components, or significant changes in water quality could adversely impact this species.

Recommendations

Making the landowners aware of the plants would be a good first step in the protection of this site. Alteration of local hydrology due to water extraction, impoundment, or road construction should be evaluated in terms of the communities and species that rely on groundwater discharge. If protection of the plant species is of concern to the owner of the site, a simple management plan could be developed to maintain habitat and keep track of the populations over time to assess their health. As part of the plan the effects of deer browsing on these plants and the forest communities in general should be monitored and maintained at levels compatible with the ecological health of the forest and the plants of special concern.

Upper Middle Fork BDA

Middle Fork flows into Laurel Run and shortly thereafter Laurel Run flows into Indian Creek. A large clearcut is present in the upper sections of Middle Fork. Downstream of this clearcut the natural community is a tuliptree-beech-maple forest dominated by sugar maple (*Acer saccharum*), red maple (*Acer rubrum*), beech (*Fagus grandifolia*), tuliptree (*Liriodendron tulipifera*), and red oak (*Quercus rubra*). Understory species include rosebay rhododendron (*Rhododendron maximum*), witch-hazel (*Hamamelis virginiana*) and striped maple (*Acer pennsylvanica*). Common herbaceous species are New York fern (*Thelypteris novaboracensis*), cinnamon fern (*Osmunda cinnamomea*), intermediate shield fern (*Dryopteris intermedia*), foamflower (*Tiarella cordifolia*), christmas fern (*Polystichum acrostichioides*) and partridge berry (*Mitchella repens*).

The section of the watershed upstream of the cut area approaching Laurel Ridge State Park is a maturing forest community that harbors two plant species of special concern (**SP012**, and **SP013**). **SP012** is found on moist rich slopes and **SP013** is found in seepage areas along the small tributaries to Middle Fork. The species in the overstory are similar to the lower section with the addition of American basswood (*Tilia americana*). The understory, also similar, has the addition of spicebush (*Lindera benzoin*) and yellow birch (*Betula allegheniensis*). Herbaceous species are the same as those in the lower section.

Threats and Stresses

Loss of canopy, direct disturbances to the soils or other changes in the microhabitat for the two species could adversely affect the plants. SP013 grows in seepage areas and needs a perennial source of ground water in order to thrive. Activities that change the hydrology or lower the ground water level can impact these plants. Just downstream of the plants is a recent clearcut which may prevent its colonization and survival downstream, due to the lack of overstory. Timbering may seriously impact SP013 due to soil disturbance and changes in moisture and light levels. Browsing by deer is a threat to SP012. This problem has been noted at the other locations.

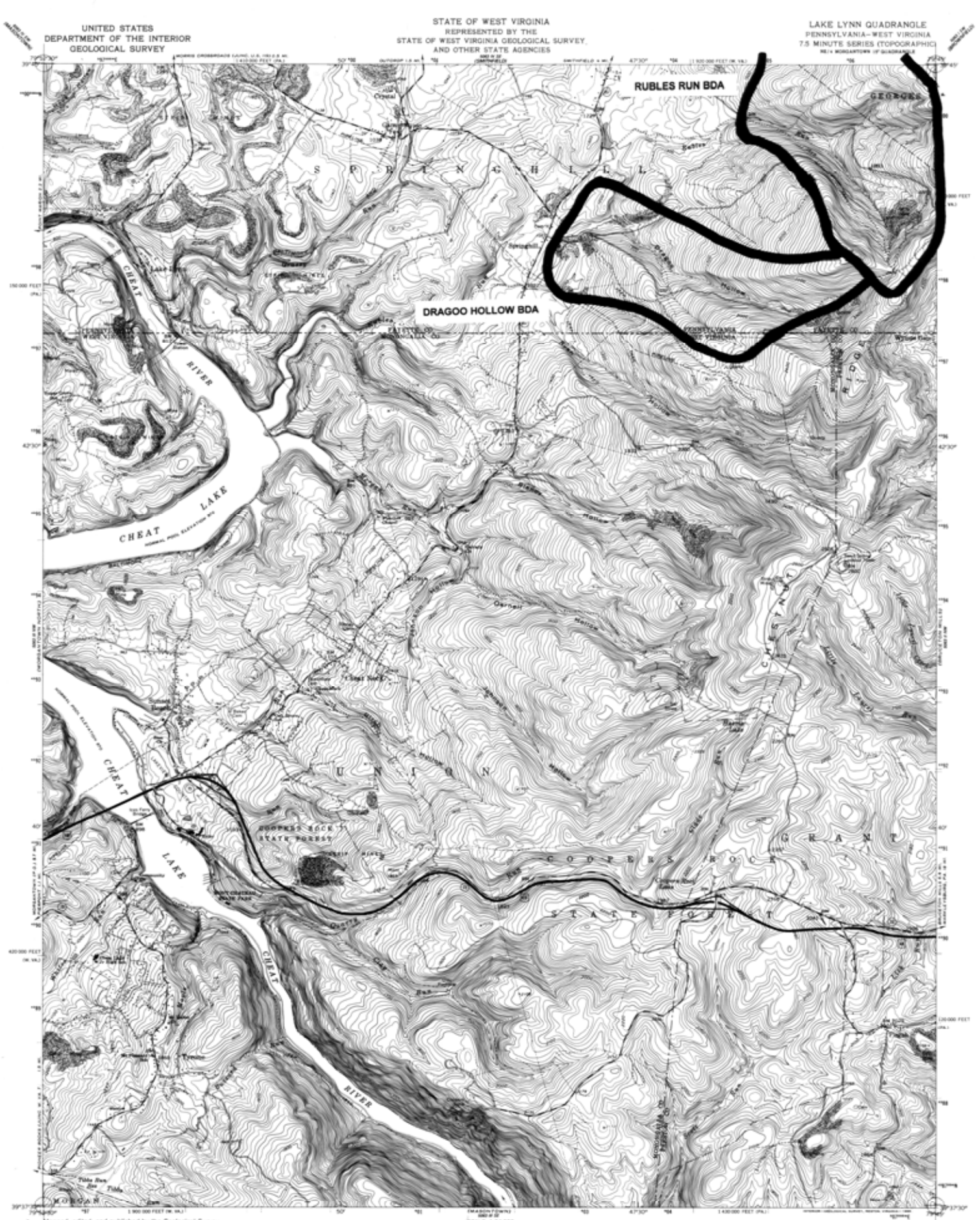
Recommendations

Making the landowner aware of the presence of these plants 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. As part of the plan the effects of deer browsing on these plants and the forest communities in general should be monitored. Ultimately, deer populations must be maintained at levels compatible with the ecological health of the forest and the plants of special concern.

LAKE LYNN QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
DRAGOO HOLLOW BDA		*Notable Significance*			
SPECIAL ANIMAL:	SA003	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA005	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA006	G3G4	S3	N	PT
SPECIAL PLANT:	SP009	G5	S3S4	N	TU
RUBLE'S RUN BDA		*Exceptional Significance*			
SPECIAL ANIMAL:	SA004	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA007	G3G4	S1	N	PT
SPECIAL ANIMAL:	SA008	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA010	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA011	G3G4	S3	N	PT
SPECIAL PLANT:	SP001	G5	S1	N	PE

MANAGED LANDS: None



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF WEST VIRGINIA
REPRESENTED BY THE
STATE OF WEST VIRGINIA GEOLOGICAL SURVEY
AND OTHER STATE AGENCIES

LAKE LYNN QUADRANGLE
PENNSYLVANIA—WEST VIRGINIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
NE/4 MORGANTOWN 15' QUADRANGLE

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1956. Field check 1960

Polyconic projection. 1927 North American datum
10,000-foot grids based on West Virginia coordinate system,
north zone, and 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

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

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, RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

Revisions shown in purple compiled from aerial photographs
taken 1976. This information not field checked

ROAD CLASSIFICATION
Medium-duty ——— Light-duty ———
Unimproved dirt - - - - - - -
State Route
Interstate Route

LAKE LYNN, PA.—W. VA.
NE/4 MORGANTOWN 15' QUADRANGLE
39079-F7-TF-024

1960
PHOTOREVISED 1976
DMA 5063 II NE—SERIES 1904

LAKE LYNN QUADRANGLE

Fayette County covers the northern fifth of the Lake Lynn Quadrangle. Notable physical features on the Pennsylvania portion of the quadrangle include Chestnut Ridge in the east and the Cheat River in the west. Grassy Run and Rubles Run, tributaries of the Cheat River, drain much of this area. The villages of Gans and Lake Lynn lie in this quadrangle. Lake Lynn quadrangle has two Natural Heritage areas and no managed lands.

Dragoo Hollow BDA

Dragoo Hollow is the southernmost hollow completely in Pennsylvania on the western slope of Chestnut Ridge. The unnamed tributary in Dragoo Hollow flows to Rubles Run and on into Cheat Lake. Typical of most Chestnut Ridge hollows, the slopes of Dragoo Hollow are predominantly steeply north or south facing with some gentler west facing slopes. The rich forests provide habitat for three locations of a Pennsylvania animal of species of special concern (**SA003**, **SA005** and **SA006**) and a plant of special concern (**SP009**). This animal is found in association with rock outcrops on forested slopes.

SP009 is an understory tree that is more common to in the southeastern United States where it grows in the understory of rich, mesic forests. This species reaches the northern limit of its range in southwestern Pennsylvania.

Threats and Stresses

SA003, SA005 and SA006 depend upon outcrops and natural rock formations to provide living and nesting habitat. The associated forest community provides this animal with forage resources and helps to regulate and stabilize the microclimate(s) present on the site. Direct disturbance to the forest floor, activities that might affect the immediate habitat and associated rock outcrops including those that would result in a change in light levels and direct impact to habitat can be detrimental to the existence of the species. Higher noise levels and increased access from unplanned road or trail construction could also prove detrimental to the animals.

SP009 in the southeastern United States is usually found as an understory tree, in numerous natural forest communities. Changes in light levels that result in increased competition or encouragement of exotic species could be detrimental to the species of concern.

Recommendations

Making the landowner aware of the presence of these species, its requirements and life history would be a good first step in the protection of this species. Monitoring the viability of the populations and additional study and survey will be needed to know the full distribution of these species in the BDA and on Chestnut Ridge in general.

Maintaining the structure of the natural forest community in which these species live may be the best approach to assuring proper habitat and conducive conditions.

Rubles Run BDA

Located at the headwaters of Rubles Run, this BDA is west of Wymp's Gap and has historically been a favorite area for botanists active in the region. Many specimens of plants have been collected here and there are some historic locations of rare plants in this area. Like Dragoo Hollow, this area has steeply sloping north and south slopes with more gentle westerly slopes. The forests here are typified by an overstory of tuliptree (*Liriodendron tulipifera*), American beech (*Fagus grandifolia*), sugar maple (*Acer saccharum*), red maple (*Acer rubrum*), red oak (*Quercus rubra*), chestnut oak (*Quercus prinus*) and sweet birch (*Betula lenta*). Underneath grows witch-hazel (*Hamamelis virginiana*), rosebay rhododendron (*Rhododendron maximum*), cucumber tree (*Magnolia accuminata*) and spicebush (*Lindera benzoin*). Herbaceous species include woodland goldenrod (*Solidago caesia*), goldie's fern (*Dryopteris goldiana*), white wood aster (*Aster divaricatus*), christmas fern (*Polystichum acrostichioides*), black cohosh (*Cimicifuga racemosa*), glade fern (*Athyrium pycnocarpon*) and jack-in-the-pulpit (*Arisaema triphyllum*). These forests provide habitat for two Pennsylvania animal species of special concern (**SA004**, **SA008**, **SA010**, **SA011** and **SA007**) and one plant species of special concern (**SP001**).

These animals are found in association with rock outcrops in mature woods. One of the animals (**SA007**) utilizes moist crevices of sandstone. The other animal species (**SA004**, **SA008**, **SA010** and **SA011**) is generally found living in rock outcrops, which it relies on for shelter and nesting. Both of these animals typically occur on remote, forested slopes. Plant species (**SP001**) requires wooded areas, often with limestone influenced soils and often occurs at the margins of small streams.

Threats and Stresses

SA004, **SA008**, **SA010** and **SA011** depends upon outcrops and natural rock formations to provide living and nesting habitat. The forest community present on this site provides this animal with forage resources and helps to regulate and stabilize the microclimate(s) present on the site. Direct disturbance to the forest floor, activities that might affect immediate habitat including those that would result in a change in light levels and direct impact to habitat could adversely impact this animal. Increased access from unplanned trail or road construction could cause additional stress to the animals.

SA007 is restricted to moist sandstone outcrops within relatively undisturbed forests. This species is confined to very few locations in southwestern Pennsylvania, all within Fayette County. Any disturbance to the outcrops or the crevices in which this animal lives may adversely affect this species. Additionally changes in microhabitat that could result from loss of canopy or upslope activities that affect the hydrology of the area could also negatively impact this animal population.

SP001 is strongly associated with rich, limestone-based soils and as a typical woodland species, may not compete well in more open or disturbed environments. Increases in light levels and the subsequent increase in competition and direct disturbance would be of concern for the health of this species.

Recommendations

Informing the landowner of the significance of this area would be a good first step in protecting these species present. For the animals in the BDA, activities that directly impact the sandstone outcrops or reduce the moisture present in the rock should be avoided. Monitoring of the plant of concern would help to track changes in its population and identify any related management issues.

Any management within the BDA should take into consideration the requirements of these species. Additional survey and monitoring of natural communities and species of special concern at the site would help to determine the extent of the known populations and provide a better understanding of what would be required for the ultimate protection of this site.

MAMMOTH 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

MAMMOTH 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 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

UTM GRID AND 1993 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

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, all weather, hard surface	Light-duty road, all weather, improved surface
Secondary highway, all weather, hard surface	Unimproved road, fair or dry weather
Interstate Route	State Route

PENNSYLVANIA
QUADRANGLE LOCATION

MAMMOTH, PA.
40079-B4-TF-024

1967
REVISED 1993
DMA 5164 III NW-SERIES V831

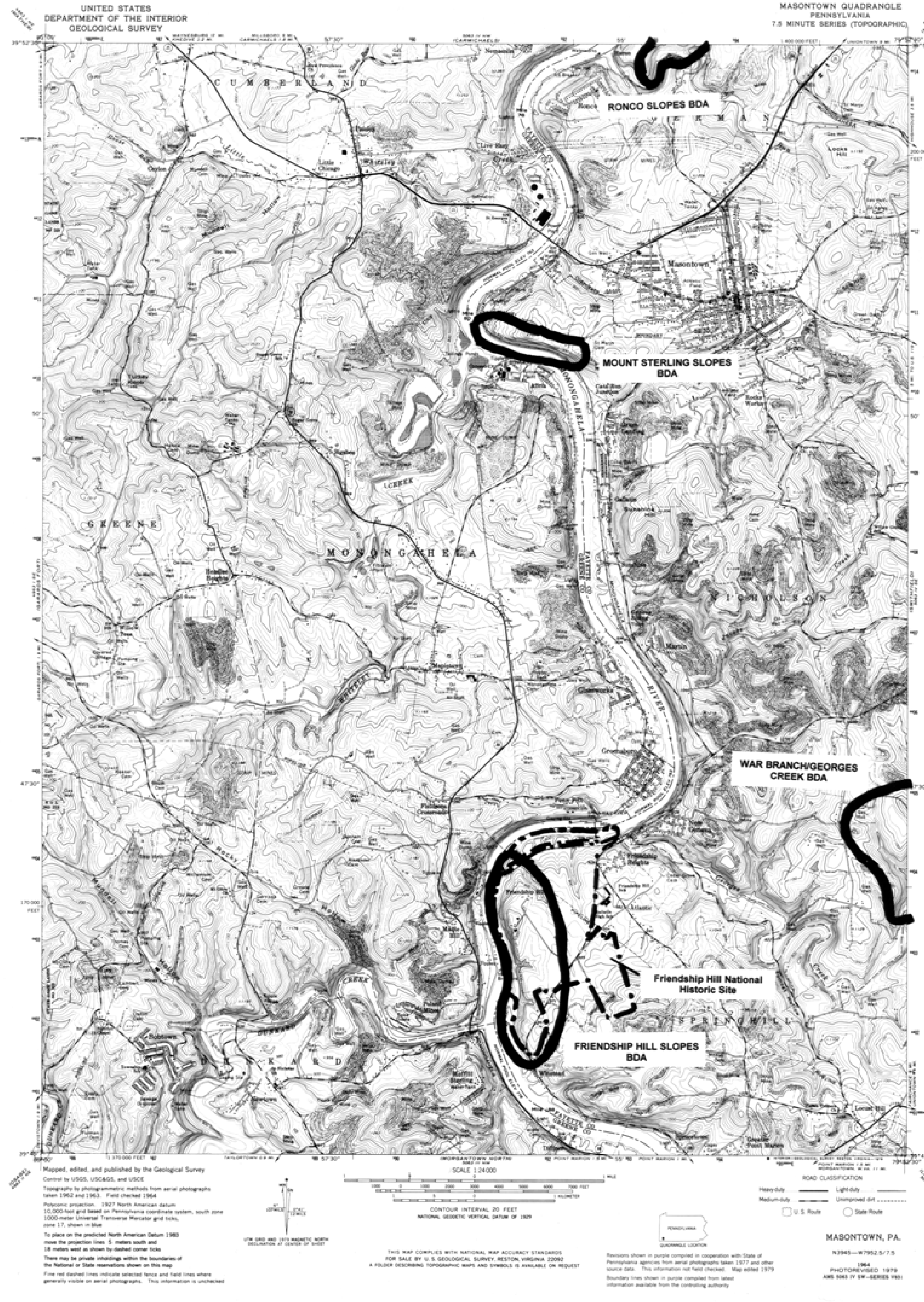
MAMMOTH QUADRANGLE

The Mammoth Quadrangle contains only a small sliver of Fayette County in its southwest corner and sits mostly south of PA 31. A major land feature is the west slope of Chestnut Ridge where the development of Bear Rocks is located. The upper tributaries to Jacobs Creek in Fayette County are shown on this quadrangle. There are no recognized Natural Heritage areas or managed lands present on this quadrangle.

MASONTOWN QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
FRIENDSHIP HILL SLOPES BDA		*Exceptional Significance*			
NATURAL COMMUNITY:	NC001				
SPECIAL PLANT:	SP014	G5	S2	N	PT
SPECIAL PLANT:	SP018	G4	S2	N	PT
SPECIAL PLANT:	SPO19	G5	S1	N	TU
SPECIAL PLANT:	SP020	G5	SR	N	N
SPECIAL PLANT:	SP021	G5	SR	N	N
MOUNT STERLING SLOPES BDA		*Notable Significance*			
SPECIAL PLANT:	SP022	G4	S3	N	PE
SPECIAL PLANT:	SP023	G4	S3	N	PE
RONCO SLOPES BDA		*County Significance*			
WAR BRANCH/GEORGES CREEK BDA		*Notable Significance*			
NATURAL COMMUNITY:	NC007				

MANAGED LANDS: Friendship Hill National Historical Site


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
MASONTOWN QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
RONCO SLOPES BDA
MOUNT STERLING SLOPES BDA
WAR BRANCH/GEORGES CREEK BDA
Friendship Hill National Historic Site
FRIENDSHIP HILL SLOPES BDA
CUMBERLAND
GREENE
MONONGAHELA
NICHOLSON
SPRINGHILL
MONONGAHELA
RIVER
Masontown
Mapped, edited, and published by the Geological Survey
SCALE 1:24 000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
ROAD CLASSIFICATION
MASONTOWN, PA.
N3945—W7952.5/7.5
1964
PHOTOREVISED 1979

MASONTOWN QUADRANGLE

The Fayette County part of the Masontown quadrangle includes all of that land east of the Monongahela River. The Monongahela River, a major natural feature of this quadrangle, roughly splits the quadrangle map with the eastern half being Fayette County and the western half being Greene County. Georges Creek flows west through the southern part of the quadrangle and meets the Monongahela River just south of New Geneva. Friendship Hill, the home of Albert Gallatin, is at the top of a bluff overlooking the Monongahela River next to Friendship Hill Slopes BDA. This quadrangle contains two BDA's and one managed land – **Friendship Hill National Historic Site**.

Friendship Hill Slopes BDA

The National Park Service owns and manages the Friendship Hill National Historic Site. The land here has been in agriculture since the late 1700's and has had some areas preserved, such as Sophie's Woods, named for Albert Gallatin's first wife Sophia, who is buried there.

Sophie's Woods is a mature Red Oak-mixed hardwood forest (NC001) that has taken on many old growth characteristics. Forests of such maturity are unusual for the county and the region in general. Dominants include red oak (*Quercus rubra*), white oak (*Q. alba*), scarlet oak (*Q. coccinea*), tuliptree (*Liriodendron tulipifera*), and shagbark hickory (*Carya ovata*). Major shrubs include mountain laurel (*Kalmia latifolia*), spicebush (*Lindera benzoin*), and American witchazel (*Hamamelis virginiana*). Herbs in this forest are sparse mainly composed of Virginia creeper (*Parthenocissus quinquefolia*), round-leaved violet (*Viola rotundifolia*), false solomon's seal (*Smilacina racemosa*) and sessile bellflower (*Uvularia sessilifolia*). Excepting the conspicuous absence of American chestnut (*Castanea dentata*), this forest is probably similar to those forests seen by Albert Gallatin when he lived here and George Washington when he surveyed in the area.

On a seepage slope near a waterfall of South Run, grows Pennsylvania threatened plant species (**SP018**). This species is generally found on rocky shorelines, such as those on the Youghiogheny River. South Run flows into the Monongahela River via a levee created wetland. In the associated floodplain grows a Pennsylvania threatened plant species (**SP014**). This species thrives on rich floodplains. The shoreline of the river is sandy and rocky in places providing habitat for **SP019**, **SP020** and **SP021**. These plant species are adapted to the sandy habitat that the river provides.

The slopes below the visitor center are dissected by many steep tributaries. A mixed mesophytic forest covers portions of these slopes. Such forest communities reach the northern limit of their range in Fayette County. Although in the mixed mesophytic forest there is no clear dominant species, common species for this forest include American hackberry (*Celtis occidentalis*), yellow buckeye (*Aesculus flava*), sugar maple (*Acer saccharum*), chestnut oak (*Quercus prinus*), and red oak (*Quercus rubra*). The understory is made up of spicebush (*Lindera benzoin*) and pawpaw (*Asimina triloba*). Common herbs are white wood aster (*Aster divaricatus*), giant chickweed (*Stellaria pubera*), white thoroughwort (*Eupatorium album*), and

two invasive species Japanese stilt grass (*Microstegium vimineum*) and Japanese knotweed (*Polygonum cuspidatum*).

Threats and Stresses

Requirements of the plant species of special concern SP018 are such that changes in light levels or hydrology, direct disturbance to the slopes and floodplain, and increased competition of invasive exotic plant species are threats to the well-being of these populations. In the case of SP018, a disturbed field sits on the top of the slope that apparently is reclaimed strip mined land and could provide a corridor for invasive plant species to colonize. Ongoing reclamation of old strip mines could also lead to the introduction of non-native and/or aggressive plant species. Also this plant, at other locations, is known to be desired forage for deer. Although not noted upon visitation for the inventory, deer browsing could be a serious concern.

The plants of special concern need the sandy substrate of the "beaches" in order to survive. Flooding and high water renew sediments along these beeches and so natural processes along the river, even though altered by locks and dams, are important in maintaining habitat for these species. The special concern species (SP019, SP020 and SP021) growing in the river floodplain require open sandy areas associated with rivers, streams, and woodlands. Loss of these areas due to dredging, development or intensive recreation would limit available habitat for these species.

Recommendations

Effects of deer browsing on SP018 and the forest community in general should be monitored and programs or approaches instituted to maintain deer populations at levels compatible with the ecological health of the forest and the plants of special concern.

For SP019, SP020 and SP021 direct disturbance of beach areas should be avoided so as not to impact these plants. Entities potentially involved with the management or usages on the section of river within this BDA should be informed of the presence of these plant populations and encouraged to consider them in any activities on-going along the river.

Mount Sterling Slopes BDA

Mount Sterling Slopes is located to the west of Masontown where the Monongahela River takes a bend to the west. The lower sections of the slopes were cut mainly during the construction of the railroad. A yellow oak-redbud woodland covers the slopes. Typical overstory species include yellow oak (*Quercus muehlenbergii*), redbud (*Cercis canadensis*) and slippery elm (*Ulmus rubra*). Understory species include redbud (*Cercis canadensis*) and bladdernut (*Staphylea trifolia*). Eastern green-violet (*Hybanthus concolor*), wreath goldenrod (*Solidago caesia*) and Short's American aster (*Aster shortii*) are some common herbs.

Two populations of a Pennsylvania plant of special concern **SP023** and **SP024** grow on the steep south-facing slopes. This plant requires areas with circumneutral or basic soil and relatively open canopy forests in order to exist.

Threats and Stresses

The plants that grow here depend upon the limited habitat remaining on the steep slopes and limestone outcrops. Parts of this site show some evidence of past timbering. In addition, multiflora rose (*Rosa multiflora*) occurs on this site and threatens to invade some of the populations of SP023 and SP024. Buffer areas between the slopes and uplands are limited or non-existent. Activities that would directly disturb these habitats, expansion or maintenance of the railroad right-of-way, spraying of herbicides, and upslope disturbances from construction or clearing could severely threaten these plants. These disturbances can also encourage the spread of multiflora rose and other invasive species. Further timbering could destabilize the slopes, disturb the soil, and allow openings whereby invasive species could enter and take hold.

Recommendations

Monitoring of invasive species on the slope and powerline right-of-way would provide more information concerning potential threats to these plant populations. Minimizing direct disturbances to the slope would help to maintain viable habitat for the plants and slow the spread of many nearby exotics. Hand cutting and mowing of vegetation to maintain the powerline right-of-way would be preferable over spraying of herbicides. Where necessary, herbicides could be applied by hand, assuring specific contact and avoiding dispersal to adjacent habitats.

Ronco Slopes BDA

This BDA located along Brown Run features a natural community of county significance. Classified as a sugar maple-basswood forest, this community is dominated by sugar maple (*Acer saccharum*) and basswood (*Tilia americana*). Other canopy associates include tuliptree (*Liriodendron tulipifera*) and sycamore (*Platanus occidentalis*) lower in the valley. Understory associates include pawpaw (*Asimina triloba*), spicebush (*Lindera benzoin*), and witch-hazel (*Hamamelis virginiana*). Common herbaceous species are jewelweed (*Impatiens pallida*), false solomon's seal (*Smilacina racemosa*), stonecrop (*Sedum ternatum*), marginal shield fern (*Dryopteris marginalis*), intermediate shield fern (*Dryopteris intermedia*), wild ginger (*Asarum canadense*) and christmas fern (*Polystichum acrostichioides*). No Pennsylvania listed species are presently known to exist here.

Threats and Stresses

The major threats to this area are timbering and deer browsing. Also the slopes adjacent to the road above Browns Run are covered with trash. Disturbances such as erosion of the slope by the dumping and activities needed to eventually clean up the trash could negatively impact the community.

Due to the age of the timber, there maybe pressure to remove timber on the slopes. Deer browsing is a problem in all of the forests in the county. Even though this BDA does not feature specific rare or unusual species deer browsing can impact the viability of the common species in the forest and can impact the reproduction of the canopy species, eventually altering the composition of the forest. Invasive exotic species are a factor in this area and disturbance can encourage further invasion and colonization of these species.

Recommendations

Activities that disturb the canopy, soils or produce other direct impacts should be avoided if possible. The trash along the slopes by the road should be removed with attention to minimizing disruption and limiting erosion. Further dumping should be discouraged in order to preserve the natural character of this area.

War Branch/Georges Creek BDA

The forest along the War Branch is a common forest type in the southwestern Pennsylvania but is an exceptionally mature example of this forest type. Trees here are very large as compared to most sizes seen in the rest of the area, in some cases exceeding 35 m in height and 2 meters dbh (diameter at breast height). This Red oak-mixed hardwoods forest (**NC007**) is therefore recognized due to its old growth characteristics and uniqueness in the area.

The canopy here is dominated by red oak (*Quercus rubra*), white oak (*Quercus alba*), black oak (*Quercus velutina*), Sassafras (*Sassafras albidum*), tuliptree (*Liriodendron tulipifera*) and sugar maple (*Acer saccharum*). Understory species include spicebush (*Lindera benzoin*), alternate leaved dogwood (*Cornus alternifolia*) and slippery elm (*Ulmus rubra*). Herbaceous species present are glade fern (*Athyrium pycnocarpon*), Virginia waterleaf (*Hydrophyllum virginianum*), wild ginger (*Asarum canadense*), doll eyes (*Actaea pachypoda*) and richweed (*Collinsonia canadensis*). The stream valley holds a rich, vernal flora featuring spring blue-eyed mary (*Collinsia verna*), wild blue phlox (*Phlox divaricatus*), wild geranium (*Geranium maculatum*), and false mermaid (*Floerkia proserpinacoides*).

Threats and Stresses

High timber value and the relatively small size of this community stand as the major concerns for this BDA. Although the current owner has chosen not to sell the timber, change in ownership could increase interest in doing so. Additionally, loss of adjacent forests and a decrease in the size of the contiguous forest in the Georges Creek valley would further isolate the old growth community within the BDA. Viability of this community depends upon the successful replacement of the older canopy trees and the possibility of additional adjacent forest areas reaching maturity.

Recommendations

Any activity that may eliminate the canopy or disturb this forest would be detrimental to the structure of this community. Working with the landowner and adjacent landowners to consider conservation of this unique feature would be a necessary first step in the protection of the forests within the War Branch. Expanding the current acreage of maturing forest will be essential in maintaining this community. Adding additional upland buffers and protection of the contiguous Georges Creek stream corridor would create the context for a larger, more viable mature forest community sometime in the future.

MATHER QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State

NATURAL HERITAGE AREAS:

BATES RUN BDA *High Significance*

SPECIAL PLANT:	SP013	G4	S3	N	PE

MANAGED LANDS: None


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY
MATHER QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
WEST BETHLEHEM
EAST BETHLEHEM
MONONGAHELA RIVER
Clarksville
Mather
Jefferson
Dry Tavern
MORGAN
JEFFERSON
CUMBERLAND
BATES RUN BDA
Produced by the United States 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
MATHER, PA.
1961
REVISED 1994

MATHER QUADRANGLE

Fayette County occupies a small piece of the east side of this quadrangle, east of the Monongahela River. This piece is the western end of the "West Bend" of the Monongahela River, where the river turns abruptly to the west. The Monongahela River on the Fayette County side receives one tributary, Bates Run, on this quadrangle. This quadrangle has one Natural Heritage area and no managed lands.

Bates Run BDA

Bates Run is a tributary to the Monongahela River upstream of the "West Bend". Three forest types are found in Bates Run, including a mixed mesophytic forest, sugar maple-basswood forest and a yellow oak-redbud woodland. The mixed mesophytic and sugar maple-basswood forests are intermixed in the upper and middle reaches of the run. These forests are dominated by sycamore (*Platanus occidentalis*), tuliptree (*Liriodendron tulipifera*), sugar maple (*Acer saccharum*) and red oak (*Quercus rubra*). Common understory species include witch-hazel (*Hamamelis virginiana*), green ash (*Fraxinus pensylvanica*), basswood (*Tilia americana*) and slippery elm (*Ulmus rubra*). Herbaceous species include white wood aster (*Aster divaricatus*), wild ginger (*Asarum canadense*), wingstem (*Verbesina alternifolia*), sensitive fern (*Onoclea sensibilis*) and wild geranium (*Geranium maculatum*).

The lower sections of Bates Run are dry, thin-soiled environment supporting a yellow oak-redbud woodland. Dominants present include hackberry (*Celtis occidentalis*), shagbark hickory (*Carya ovata*) and white ash (*Fraxinus americana*). Understory species include redbud (*Cercis canadensis*), spicebush (*Lindera benzoin*) and dogwood (*Cornus florida*). Common herbs are green violet (*Hybanthus concolor*), white snakeroot (*Eupatorium rugosum*) and woodland goldenrod (*Solidago caesia*). On these dry, south-facing slopes grows a Pennsylvania plant species of special concern (**SP013**).

Threats and Stresses

Significant changes in the structure or composition of the forest communities present in this would affect a number of species found here including the plants of special concern. Direct disturbance to the plants or the substrate in which they grow would be detrimental. No such changes in habitat appear imminent but given the relatively confined extent of this population, changes to even small areas within the BDA could prove substantial to this plant.

A railroad right-of-way is present on the opposite side of the hill from where SP013 grows. Drift of herbicides from the right-of-way maintenance could possibly impact the adjacent natural communities as well as the plants of special concern if applied improperly.

Recommendations

Informing the landowner of the occurrence and significance of the area would be a good first step in protecting this species location. Monitoring of the special concern plant population would help to assess its health over time and identify any threats or disturbance within the natural communities of which this plant is a part.

Use of herbicides to maintain right-of-ways should be evaluated in the context of the special species and communities. Cutting of vegetation to maintain right-of-ways is preferable over the use of herbicides. If necessary, herbicides can be used selectively to treat (cut) woody vegetation, therefore avoiding drift through the air and through surface water.

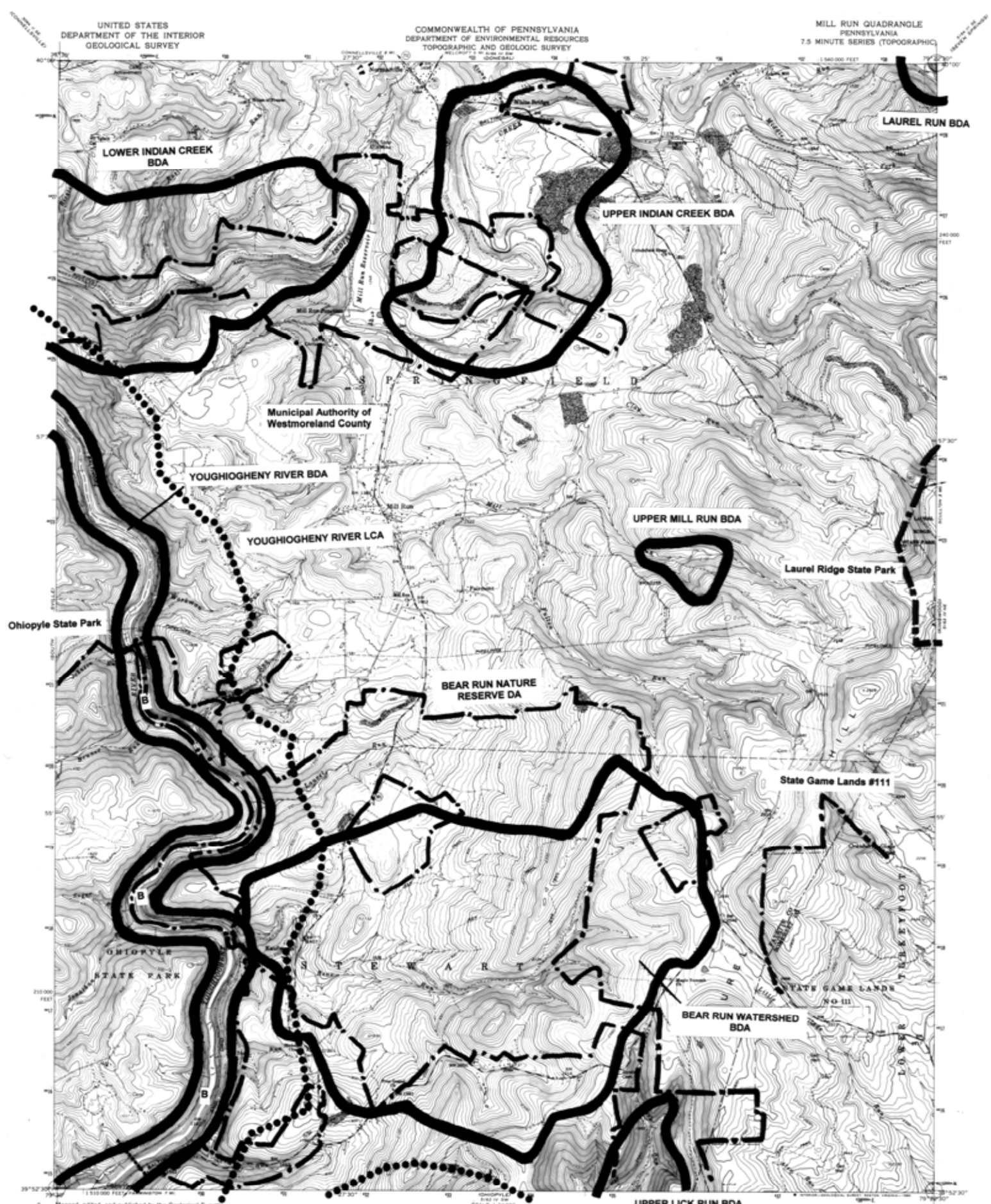
MILL RUN QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
BEAR RUN WATERSHED BDA	*Exceptional Significance*				
SPECIAL PLANT:	SP015	G5	S1	TU	PE
SPECIAL PLANT:	SP038	G5	S3	N	TU
SPECIAL PLANT:	SP051	G5	S1	TU	PE
LAUREL RUN BDA	*Notable Significance*				
SPECIAL PLANT:	SP008a	G5	S3	N	PT
SPECIAL PLANT:	SP008b	G5	S3	N	TU
LOWER INDIAN CREEK BDA	*Exceptional Significance*				
SPECIAL PLANT:	SP027a	G5	S3	N	TU
SPECIAL PLANT:	SP027b	G5	S3	PT	PR
SPECIAL PLANT:	SP036	G5	S3	N	PR
SPECIAL PLANT:	SP039	G5	S3	PR	PR
SPECIAL PLANT:	SP040	G5	S3	PR	PR
SPECIAL PLANT:	SP048	G5	S3	N	PR
UPPER INDIAN CREEK BDA	*Exceptional Significance*				
NATURAL COMMUNITY:	NC019				
NATURAL COMMUNITY:	NC024				
NATURAL COMMUNITY:	NC053				
SPECIAL PLANT:	SP019	G5	S3S4	TU	TU
SPECIAL PLANT:	SP024	G5	S3S4	TU	TU
SPECIAL PLANT:	SP039	G5	S3S4	TU	TU
SPECIAL PLANT:	SP052	G5	S3S4	TU	TU
UPPER LICK RUN BDA	*Notable Significance*				

SPECIAL ANIMAL:	SA013	G5T3	S1	N	PT
SPECIAL PLANT:	SP043	G5	S3	N	TU

UPPER MILL RUN BDA		*Notable Significance*			
SPECIAL PLANT:	SP042	G5	S3	N	TU

Managed Lands: Bear Run Nature Reserve DA
Laurel Ridge State Park
Ohiopyle State Park
State Game Lands #111


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY
MILL RUN QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
LOWER INDIAN CREEK BDA
LAUREL RUN BDA
UPPER INDIAN CREEK BDA
Municipal Authority of Westmoreland County
YOUGHIOGHENY RIVER BDA
YOUGHIOGHENY RIVER LCA
UPPER MILL RUN BDA
Laurel Ridge State Park
Ohiopyle State Park
BEAR RUN NATURE RESERVE DA
State Game Lands #111
BEAR RUN WATERSHED BDA
UPPER LICK RUN BDA
SPRINGFIELD
STEWART
OHIOPYLE STATE PARK
STATE GAME LANDS NO 111
Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS
Topography by photogrammetric methods from aerial photographs taken 1966. 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
To place on the predicted North American Datum 1983 move the projection lines 5 meters south and 19 meters west as shown by dashed corner ticks
There may be private inholdings within the boundaries of the National or State reservations shown on this map
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
UTM GRID AND 1980 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
QUADRANGLE LOCATION
Revisions shown in purple comprised in cooperation with State of Pennsylvania agencies from aerial photographs taken 1977 and other source data. This information not field checked. Map edited 1980
Boundary lines shown in purple compiled from latest information available from the controlling authority
ROAD CLASSIFICATION
Secondary highway, all weather. hard surface
Light-duty road, all weather, improved surface
Unimproved road, fair or dry weather
State Route
MILL RUN, PA.
N3952.5—W7922.5/7.5
1967
PHOTOREVISED 1980
DMA 5140 IV NW—SERIES V851

MILL RUN QUADRANGLE

The Mill Run quadrangle is all within Fayette County except for a small section in the southwest corner that lies within Somerset County. Laurel Hill bisects the quadrangle and the Youghiogheny River meanders through the western half. This quadrangle has eight Natural Heritage areas and five managed lands – **Bear Run Nature Reserve**, **Municipal Authority of Westmoreland County** (Indian Creek**)**, **Laurel Ridge State Park**, **Ohiopyle State Park** and **State Game Lands #111**.

Bear Run Nature Reserve DA

Bear Run Nature Reserve DA encompasses the Bear Run Nature Reserve and includes within its boundaries the Bear Run Watershed BDA. The DA includes those areas owned by the Western Pennsylvania Conservancy and does include the entire watershed. The intention of the Western Pennsylvania Conservancy is to manage this area for its ecological values and hence the status of Dedicated Area.

Threats and Stresses

The status of this area as a DA confers a good deal of protection to the natural communities and species of concern present. Bear Run is considered an exceptional value (EV) stream, but not all of the watershed is under the protection of the DA. Changes in community structure, direct disturbance to rock outcrops or other specific habitats, or hydrologic alterations in the landscape could all have negative implications for the species of concern living within this area.

Recommendations

A well thought out and uniform management within the entire Bear Run watershed that takes into account the ecological resources present would best assure the long-term protection of this area. Eventually extending the boundaries of the DA to include the entire watershed would create an ecological unit and allow more comprehensive management to take place. Work and agreements between the landowners within the watershed could help to establish a management program that would meet the needs of the parties involved.

Bear Run Watershed BDA

Bear Run Nature Reserve is managed by the Western Pennsylvania Conservancy and includes most of the watershed of Bear Run and parts of two other watersheds: Laurel Run and Lick Run. Being a large property of over 5,000 acres, Bear Run has a variety of community types and three species of rare plants. The stream itself is classified as Exceptional Value by the Department of Environmental Protection and as such, receives an additional level of protection. The initial Bear Run property was acquired in 1964 from Edgar Kaufmann, Jr. as part of the

Fallingwater property. A large portion of the Bear Run Watershed now belongs to Western Pennsylvania Conservancy.

Most of the Bear Run watershed is dominated by hardwood forest. Common species in the canopy include tuliptree (*Liriodendron tulipifera*), red oak (*Quercus rubra*), chestnut oak (*Q. prinus*), sugar maple (*Acer saccharum*), red maple (*A. rubrum*) and yellow birch (*Betula allegheniensis*). Beech (*Fagus grandifolia*) is a dominant species in the floodplain of the upper sections of Bear Run, but is uncommon in the rest of the reserve. Hemlock grows along major drainages such as Bear Run or Laurel Run. Understory species include spicebush (*Lindera benzoin*), cucumber tree (*Magnolia accuminata*), rosebay rhododendron (*Rhododendron maximum*), smooth azalea (*Rhododendron arborescens*), witch-hazel (*Hamamelis virginiana*), black gum (*Nyssa sylvatica*) and mountain laurel (*Kalmia latifolia*). The herbaceous cover in the watershed reflects the diversity of topography, aspect and soils. Common herbs include white wood aster (*Aster divaricatus*), painted trillium (*Trillium undulatum*), New York fern (*Thelypteris novaboracensis*), intermediate shield fern (*Dryopteris intermedia*), woodland goldenrod (*Solidago caesia*), wild yam (*Dioscorea villosa*), nodding mandarin (*Disporum lanuginosum*) and Indian cucumber root (*Medeola virginica*).

At Bear Run there are two plant species of special concern (**SP038**, and **SP015**, **SP051**). **SP038** is found in seepage areas where there is a perennial source of groundwater. **SP015** and **SP051** are found in a section of forest containing an old road and stream crossing. This plant generally grows in somewhat open areas as would be found on rocky slopes or dry woodland. Open abandoned roads or trails will serve as appropriate habitat as is the case within the Bear Run BDA.

Threats and Stresses

Loss of canopy, direct disturbances to the soils or other changes in microhabitat could adversely affect the plant populations. SP038 grows in the seepage areas and needs a perennial source of discharging groundwater in order to exist. Activities that change the hydrology by affecting the recharge zones or lower the groundwater can impact these plants.

For SP015 and SP051, direct disturbance and loss of habitat due to succession stand as the main threats to this species.

Recommendations

Activities that alter the hydrology by affecting groundwater flows and recharge zones in the aquifer should be avoided. Any direct disturbance to the plant species of special concern (SP015, SP051 and SP038) that affects the microhabitat and results in a loss of water quality by increased sediment or nutrient load can be detrimental. Use of the logging road where SP051 grows should be avoided so as not to impact the species population.

SP015 and SP051 should have a management regime that allows for periodic cutting of the trail and adjacent openings. The populations of both species should be monitored for viability over the long run.

Laurel Run BDA

This Natural Heritage area is discussed on the Kingwood quadrangle.

Lower Indian Creek BDA

The property around Indian Creek is owned by the Municipal Authority of Westmoreland County. Since it is managed for aspects of its ecological value this property is also considered to be a DA. Below the Mill Run reservoir, which was once used as a water source for the railroad traffic below, are rich forests and the steeply descending Indian Creek flowing southwest to the Youghiogheny River. Indian creek contains several natural communities. The forests along Indian Creek are dominated by tuliptree (*Liriodendron tulipifera*), white oak (*Quercus alba*), red oak (*Q. rubra*) hemlock (*Tsuga canadensis*), sycamore (*Platanus occidentalis*), red maple (*Acer rubrum*), beech (*Fagus grandifolia*) and basswood (*Tilia americana*). Understory species include smooth alder (*Alnus serrulata*), cucumber tree (*Magnolia accuminata*), rosebay rhododendron (*Rhododendron maximum*) and smooth azalea (*Rhododendron arborescens*). These forests provide habitat for four Pennsylvania plant species of special concern (**SP027a**, **SP027b**, **SP036**, **SP039**, **SP040** and **SP048**). These species have various requirements but all are associated with the creek valley in some way.

Threats and Stresses

This site includes much of the area owned by the Municipal Authority of Westmoreland County. Most of the stresses here are from deer browsing and invasive species. Other stresses are related to direct disturbance and removal of the overstory.

Invasive species such as Japanese knotweed (*Polygonum cuspidatum*) and multiflora rose (*Rosa multiflora*) pose a threat to species existing on these riverine shores in Fayette County. Additionally, though not currently present in the watershed, purple loosestrife (*Lythrum salicaria*) is present in the county and poses a threat to any streamside or wetland. SP036 could encounter competition seeing that it exists in the same microhabitat that is favored by the invasive species.

Recommendations

Along with monitoring of the plant populations of special concern, presence of invasive exotic species should be noted, especially purple loosestrife and Japanese knotweed (*Polygonum cuspidatum*) and measures taken to remove these plants before they become established. It is easier to control an invasive plant before establishment than eradicating it after it has become widespread and well established.

Effects of deer browsing on SP027b and the forest community in general should be monitored and programs or approaches instituted to maintain deer populations at levels compatible with the ecological health of the forest and the plants of special concern.

Upper Indian Creek BDA

Above Mill Run Reservoir is a complex of wetlands along Indian Creek. These wetlands are the home of two subtypes of a Red maple-black ash forest (**NC019** and **NC024**). One variation (**NC019**) is dominated by black ash (*Fraxinus nigra*). Other canopy species include tuliptree (*Liriodendron tulipifera*), sugar maple (*Acer saccharum*) and sycamore (*Platanus occidentalis*). Understory species include spicebush (*Lindera benzoin*), silky dogwood (*Cornus ammomum*), elderberry (*Sambucus canadensis*) and swamp rose (*Rosa palustris*). Herbs include water horehound (*Lycopus uniflorus*), false nettle (*Boehmeria cylindrica*), skunk cabbage (*Symplocarpus foetidus*), cinnamon fern (*Osmunda cinnamomea*) and sensitive fern (*Onoclea sensibilis*). These swamps are home to several locations of a Pennsylvania plant species of special concern **SP019**, **SP024**, **SP039**, and **SP052**.

The other subtype (**NC024**) of the community is co-dominated by black ash and swamp white oak (*Quercus bicolor*). Other canopy species include those in the first subtype plus red maple (*Acer rubrum*) and cottonwood (*Populus deltioides*). The understory and herbaceous species are essentially the same as in the previous community.

Interspersed between the forest communities are alder-ninebark wetlands. These marsh communities are dominated by fox grape (*Vitis labrusca*), white meadowsweet (*Spiraea alba*), hazel alder (*Alnus serrulata*), silky dogwood (*Cornus ammomum*) and in some places poison sumac (*Toxicodendron vernix*). Herbs present in the open areas include common rush (*Juncus effusus*), crested wood fern (*Dryopteris cristata*), cinnamon fern (*Osmunda cinnamomea*), greater bladder sedge (*Carex intumescens*) and sallow sedge (*Carex lurida*).

Threats and Stresses

Large portions of these swamps are contained within the Municipal Authority of Westmoreland County property and are afforded a great deal of protection under that ownership. However, disturbance from timbering could still affect these wetlands. Additionally transfer of ownership in the future could result in the loss of the protection status currently in place. Invasive species could impact these wetlands. Although not considered a large problem at present. Most of the property where the swamps are located are protected by the Municipal Authority of Westmoreland County. Other properties on the fringes of the swamps are unreclaimed strip mines and are also used for agriculture.

As discussed on the quadrangles further south where there are more wetlands, invasive species such as purple loosestrife (*Lythrum salicaria*) and multiflora rose (*Rosa multiflora*) could possibly invade these wetlands. If these species gain a foothold they could wipe out the diversity over the entire wetland.

Recommendations

Activities that result in loss of overstory or that affect the hydrology of the wetlands should be avoided. Monitoring of invasive species is recommended in order to check their

progress. Currently there are no invasive species near the rare plants but it is far easier to remove the initial colonizers rather than trying to eradicate the exotic species once they have established.

Upper Lick Run BDA

This Natural Heritage area is discussed on the Ohiopyle quadrangle.

Upper Mill Run BDA

In the steeply sloping forests in the headwaters of Mill Run is found a Pennsylvania plant species of special concern (**SP042**). This species requires seepage areas with a perennial source of circumneutral groundwater.

Threats and Stresses

Loss of canopy, direct disturbances to the soils or other changes in microhabitat could adversely affect the plant population. This species grows in the seepage areas and needs a perennial source of discharging groundwater in order to exist. Activities that change the hydrology by affecting the recharge zones or lower the groundwater can impact these plants.

Recommendations

Activities that alter the hydrology by affecting groundwater flows and recharge zones in the aquifer should be avoided. Any direct disturbance to the plant species of special concern (SP042) that affects the microhabitat and results in a loss of water quality by increased sediment or nutrient load can be detrimental.

Youghiogheny River BDA

This Natural Heritage area is discussed on the Ohiopyle quadrangle.

Youghiogheny River LCA

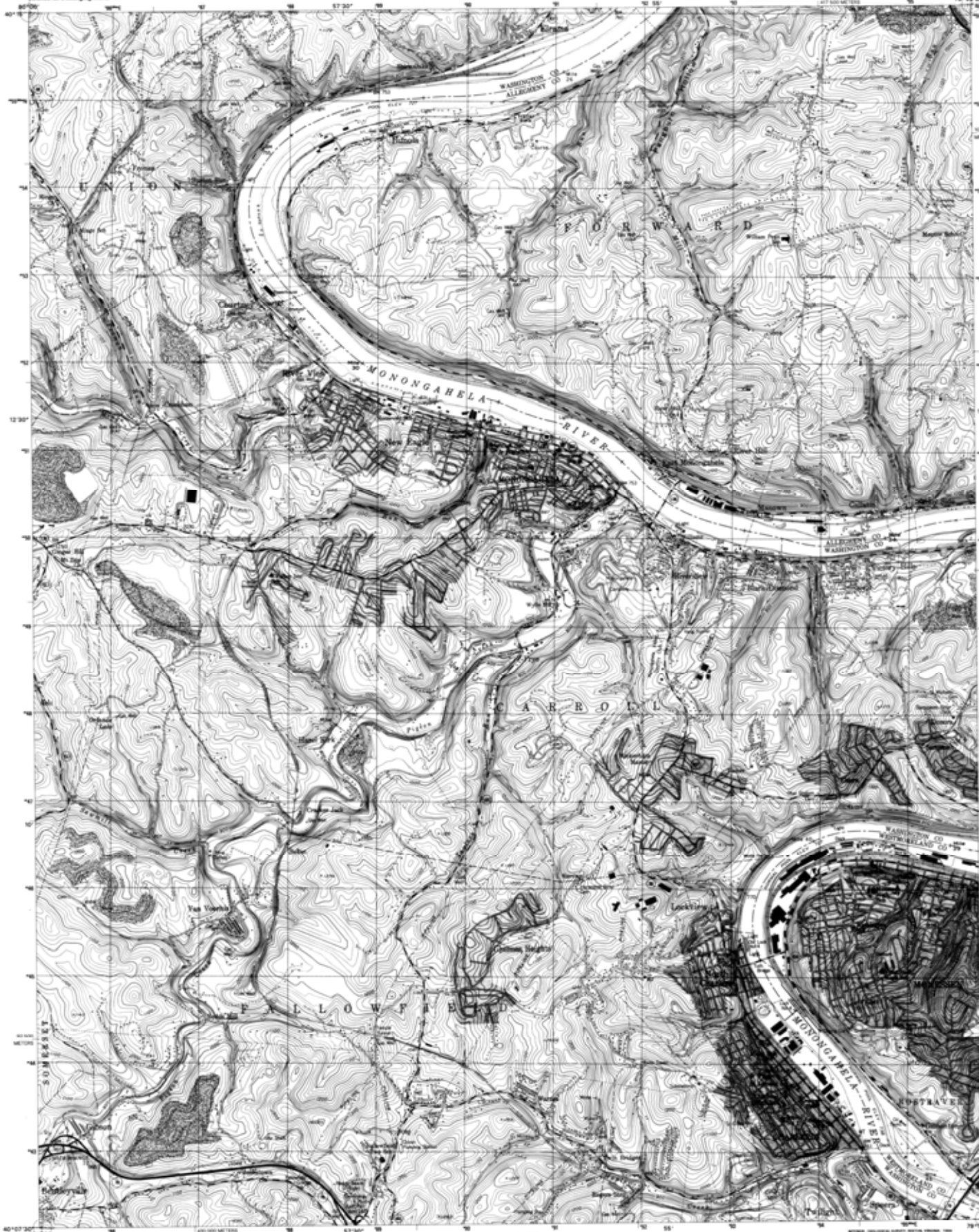
This Natural Heritage area is discussed on the Ohiopyle quadrangle.

MONONGAHELA QUADRANGLE

PNDI Rank		Legal Status	
Global	State	Fed.	State

NATURAL HERITAGE AREAS: None

MANAGED LANDS: None



U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY

MONONGAHELA QUADRANGLE
PENNSYLVANIA
7.5-MINUTE SERIES (TOPOGRAPHIC)

SCALE 1:24 000

Produced by the United States Geological Survey in cooperation with Pennsylvania Department of Conservation and Natural Resources, Bureau of Topographic and Geologic Survey

Topography compiled 1952. Planimetry derived from imagery taken 1993 and other sources. Survey control current as of 1994

North American Datum of 1983 (NAD 83). Projection and 1 000-meter grid: Universal Transverse Mercator, zone 17
2 500-meter ticks: Pennsylvania Coordinate System of 1983 (south zone)

North American Datum of 1927 (NAD 27) is shown by dashed corner ticks. The values of the shift between NAD 83 and NAD 27 for 7.5-minute intersections are obtainable from National Geodetic Survey NADCON software

Landmark buildings verified 1994

UTM GRID AND 1994 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO CONVERT FROM FEET TO METERS, MULTIPLY BY 0.3048

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

1	2	3
4		5
6	7	8

1 Bridgeville
2 Glassport
3 McKeesport
4 Packet
5 Donora
6 Ellsworth
7 California
8 Fayette City

ADJOINING 7.5' QUADRANGLE NAMES

MONONGAHELA, PA
1993

NOAA 5064 (E NW-SERIES V851

FOR SALE BY U.S. GEOLOGICAL SURVEY, P.O. BOX 25286, DENVER, COLORADO 80225
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

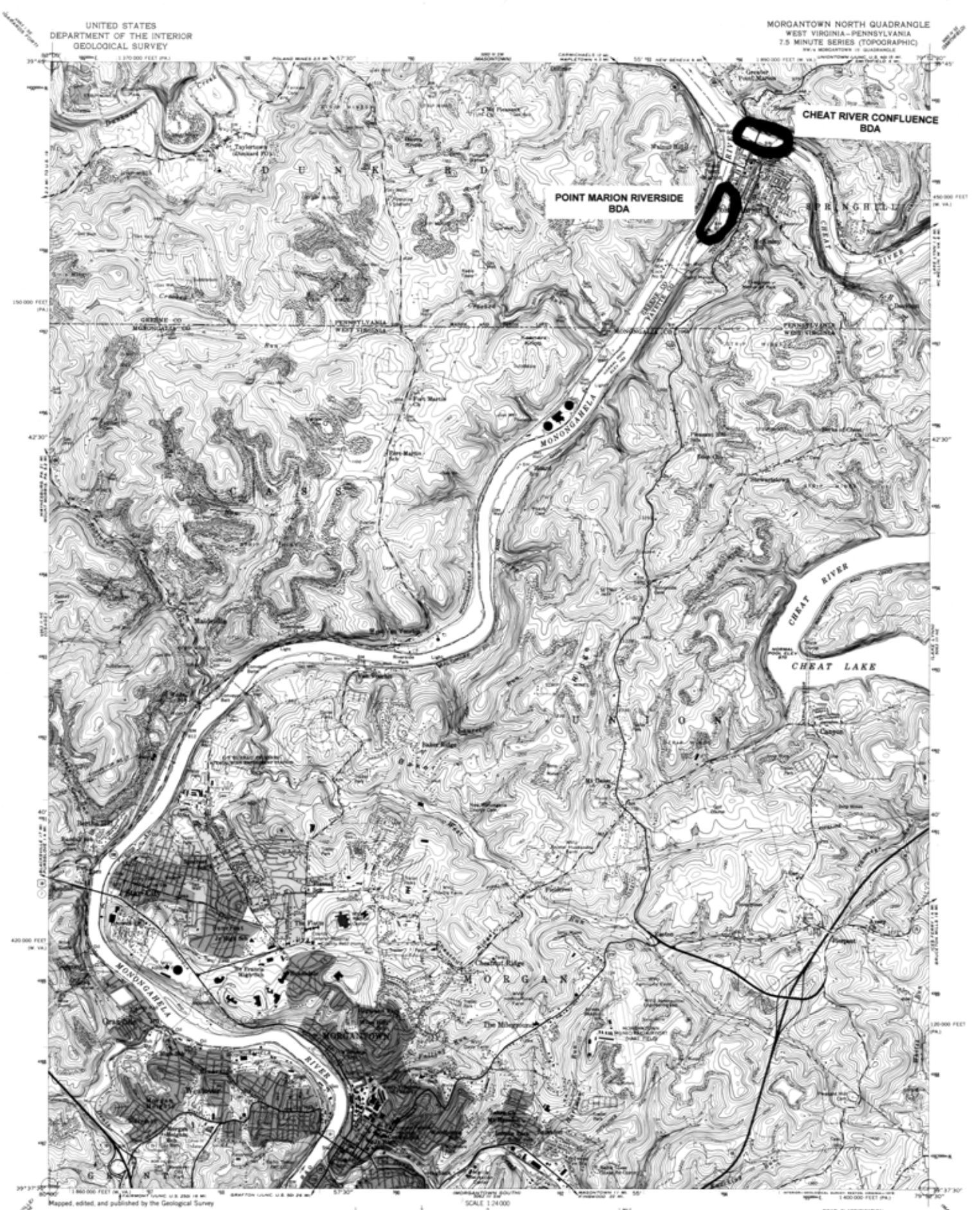
MONONGAHELA QUADRANGLE

Fayette County only covers a very small piece of this quadrangle. It is located in the southeast corner wedged between I-70 and the Monongahela River. The most prominent natural feature is the Monongahela River. There are no Natural Heritage areas or managed lands present on this quadrangle.

MORGANTOWN NORTH QUADRANGLE

	PNDI Rank		Legal Status	
	Global	State	Fed.	State
NATURAL HERITAGE AREAS:				
POINT MARION RIVERSIDE BDA	*Notable Significance*			
SPECIAL PLANT: SP009	G5	SR	N	N
CHEAT RIVER CONFLUENCE BDA	*Notable Significance*			
SPECIAL PLANT: SP004	G5	S1	N	PE

MANAGED LANDS: None



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

MORGANTOWN NORTH QUADRANGLE
WEST VIRGINIA–PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)

Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and USCE

Topography from aerial photographs by Kelsh plotter
Aerial photographs taken 1955. Field check 1957

Polyconic projection. 1927 North American datum
10,000-foot grids based on West Virginia coordinate system, north zone, and 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 visible on aerial photographs. This information is unchecked

Contours in strip mine areas from 1955 photography

Red tint indicates areas in which only landmark buildings are shown

Unchecked elevations are shown in brown
Purple tint indicates extension of urban areas

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, RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

Revisions shown in purple compiled from aerial photographs taken 1976. This information not field checked

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

MORGANTOWN NORTH, W. VA.–PA.
NW/4 MORGANTOWN 15' QUADRANGLE
N3937.5—W7952.5/7.5

1957
PHOTOREVISED 1976
AMS 5060 III NW–SERIES V854

MORGANTOWN NORTH QUADRANGLE

On the Morgantown North quadrangle, Fayette County is represented in the northeast corner. The area shown covers most of the Cheat River drainage and three small tributaries to the Monongahela River. The Cheat River meets the Monongahela River within the Pennsylvania portion of this quadrangle just downstream of Point Marion. This quadrangle has two Natural Heritage areas and no managed lands.

Cheat River Confluence BDA

The Cheat River is the second largest tributary to the Monongahela River. Its headwaters start near Elkins and Canaan Valley, West Virginia and flow into the Monongahela River at the town of Point Marion. At this confluence, on submerged sandbars, grows an aquatic Pennsylvania plant species of special concern (**SP004**).

Threats and Stresses

Boating activity and acute pollution sources may be the most immediate threats to this plant. The plant population is relatively confined and in an active environment, it is quite vulnerable to disturbance. Boats passing over the population could disturb or destroy the plants with their hulls or propellers. Chemicals used to maintain structures, salt from road and bridge surfaces, or acute spills or discharges of chemicals could severely impact these plants. Recently a new highway bridge was constructed near the plants apparently without severe impact to the population.

Recommendations

Making the U.S. Army Corps of Engineers or the U.S. Coast Guard aware of the location would be a good first step in protecting this species population. Boat traffic, although minimal, should keep to the channel and a navigation marker could be considered to mark the location of the plants.

Point Marion Riverside BDA

Along the Monongahela River, south of the Borough of Point Marion, is a park and boat launch. The edge of the river is sandy with a steep eroding bank above the floodplain. On the sandy shore grows a Pennsylvania plant species of special concern (**SP009**). This species is found commonly along the banks of the Monongahela River in Fayette County. Plants associated with these sandy shores include silver maple (*Acer saccharinum*), basswood (*Tilia americana*), common rush (*Juncus effusus*), false nettle (*Boehmeria cylindrica*), twisted sedge (*Carex torta*) and nodding sedge (*Carex gynandra*).

Threat and Stresses

Threats to this habitat include dredging on the river and invasion of aggressive exotic plants like purple loosestrife (*Lythrum salicaria*), multiflora rose (*Rosa multiflora*) and Japanese knotweed (*Polygonum cuspidatum*). These species are present in the county and multiflora rose is present nearby to the site. Direct disturbance of plants or habitat from placement of dredging spoils, equipment, or launches could prove detrimental.

Recommendations

Monitoring of invasive plant species would help to assure that good examples of riverine habitat remain available for native flora and fauna. If aggressive species colonize the area actions can be taken before the habitat is degraded and the species of special concern are impacted. Activities associated with the shoreline and floodplain of the river should take into consideration this habitat and population of special concern species.

MOUNT PLEASANT QUADRANGLE

	PNDI Rank		Legal Status	
	Global	State	Fed.	State

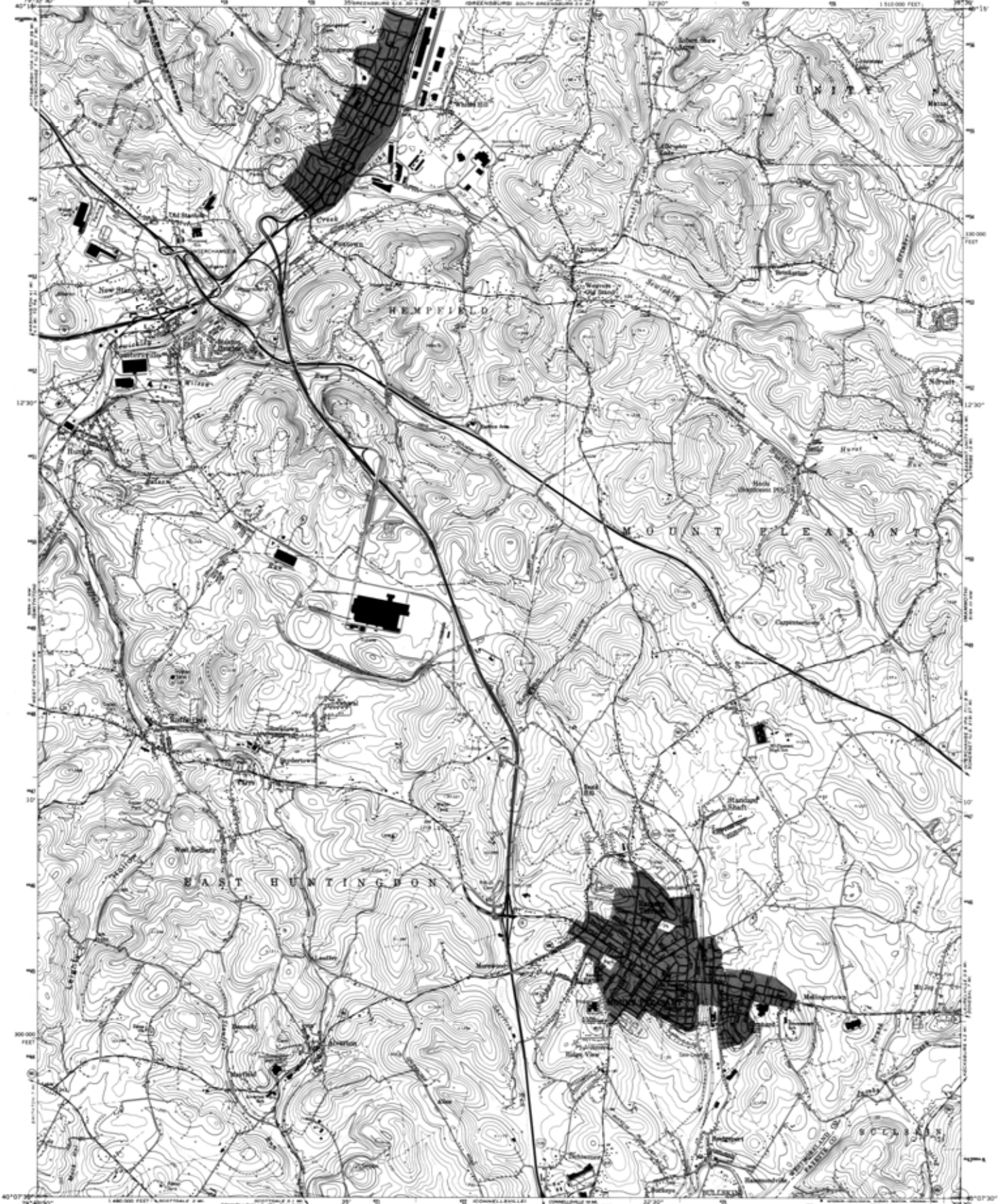
NATURAL HERITAGE AREAS: None

MANAGED LANDS: None

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY

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

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

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

1993

DMA 5064 II NE-(USGS) V831

Mount Pleasant

Fayette County covers a small fraction of the southeast corner on the Mount Pleasant quadrangle. Fayette County is all of that area on the quadrangle south of Jacobs Creek. This quadrangle has no Natural Heritage areas or managed lands.

NEW SALEM QUADRANGLE

	PNDI Rank		Legal Status	
	Global	State	Fed.	State

NATURAL HERITAGE AREAS: None

MANAGED LANDS: None

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

NEW SALEM QUADRANGLE
PENNSYLVANIA—FAYETTE CO.
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 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
To place on the predicted North American Datum 1983 move the projection lines 5 meters south and 19 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

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

UTM GRID AND 1973 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

Map photoinspected 1977
No major culture or drainage changes observed

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

PENNSYLVANIA
QUADRANGLE LOCATION

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

NEW SALEM, PA.

N3952.5—W7945/7.5
PHOTOINSPECTED 1977
1964
PHOTOREVISED 1973
AMS 5963 IV NE—SERIES V851

NEW SALEM QUADRANGLE

Fayette County covers the entire New Salem quadrangle. This quadrangle is contained within the Pittsburgh Plateau region of Fayette County. The main drainages on the New Salem quadrangle include Redstone Creek and Dunlap Creek that drain the western slope of Chestnut Ridge and flow to the Monongahela River. There are no Natural Heritage areas recognized or managed lands present on this quadrangle.

OHIOPYLE QUADRANGLE

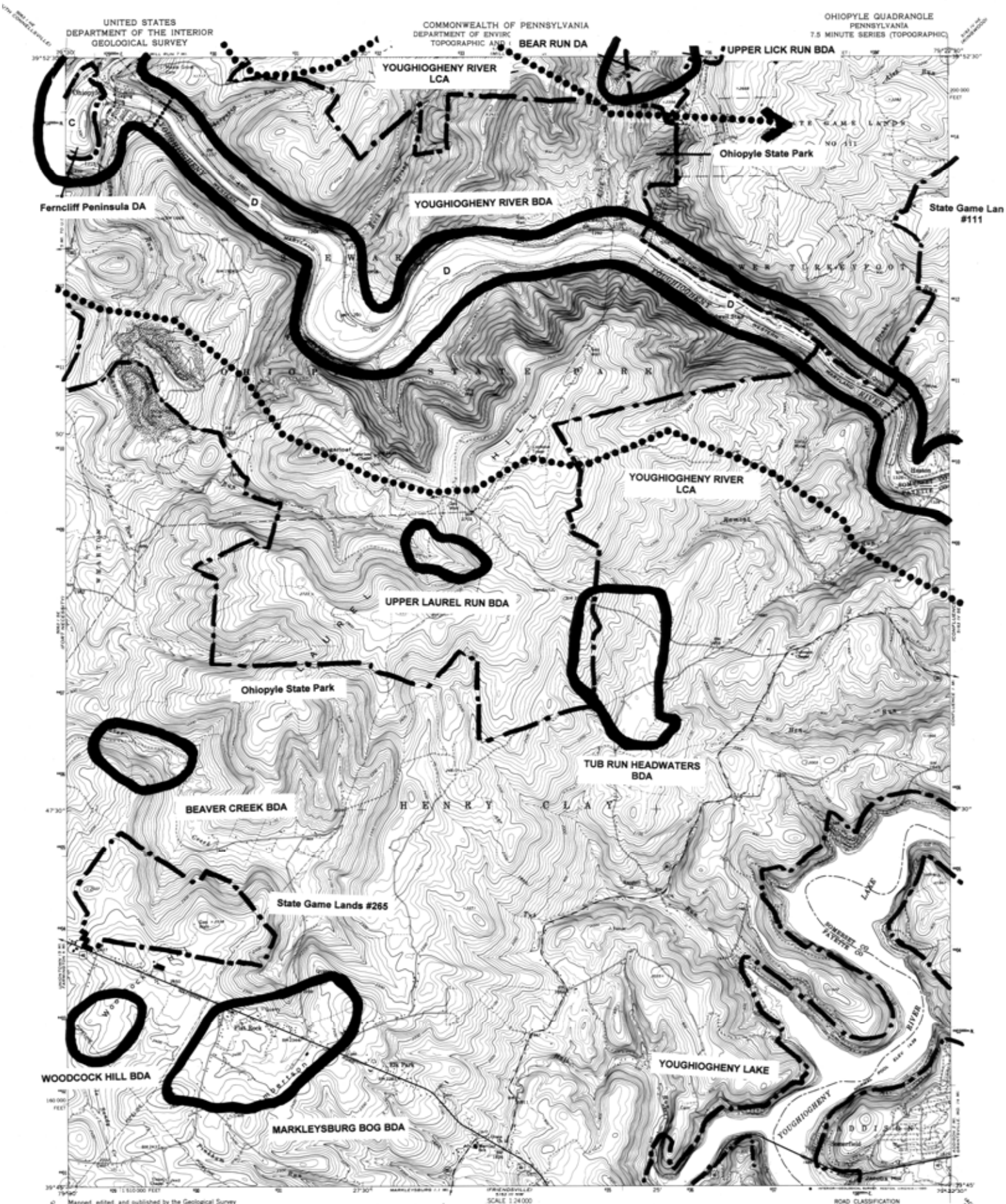
		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
BEAVER CREEK BDA		*High Significance*			
SPECIAL PLANT:	SP066a	G5	S3	PT	PR
SPECIAL PLANT:	SP066b	G5	S3	TU	PR
MARKLEYSBURG BOG BDA		*High Significance*			
SPECIAL ANIMAL:	SA048	G3G4	S3	N	PT
SPECIAL PLANT:	SP012a	G5	S2	N	PT
SPECIAL PLANT:	SP012b	G5	S2	N	PT
SPECIAL PLANT:	SP012c	G5	S3	N	PR
WOODCOCK HILL BDA		*Notable Significance*			
SPECIAL ANIMAL:	SA016	G3G4	S3	N	PT
YOUGHIOGHENY RIVER LCA		*Exceptional Significance*			
TUB RUN HEADWATERS BDA		*Notable Significance*			
SPECIAL PLANT:	SP049	G5	S2	N	TU
UPPER LAUREL RUN BDA		*Notable Significance*			
SPECIAL PLANT:	SP076	G5	S3	N	TU
UPPER LICK RUN BDA		*Notable Significance*			

SPECIAL ANIMAL:	SA013	G5T3	S1	N	PT
SPECIAL PLANT:	SP043	G5	S3	N	TU

YOUGHIOGHENY RIVER BDA *Exceptional Significance*

SPECIAL ANIMAL:	SA027	G3G4	S1	N	PT
SPECIAL ANIMAL:	SA047	G4	S3S4		
SPECIAL PLANT:	SP002a	G2	S1	PE	PE
SPECIAL PLANT:	SP002b	G5	S2	TU	PE
SPECIAL PLANT:	SP002c	G5	S3	PR	PR
SPECIAL PLANT:	SP003a	G4	S2	PT	PT
SPECIAL PLANT:	SP003b	G4	S2	PT	PT
SPECIAL PLANT:	SP003c	G2	S1	PE	PE
SPECIAL PLANT:	SP004a	G3	S1	PX	PE
SPECIAL PLANT:	SP004b	G2	S1	PE	PE
SPECIAL PLANT	SP005	G5	S3	TU	PR
SPECIAL PLANT:	SP006	G2	S1	PE	PE
SPECIAL PLANT:	SP011	G5	S3	PT	PR
SPECIAL PLANT:	SP013	G5	S3	TU	PR
SPECIAL PLANT:	SP014a	G2	S1	PE	PE
SPECIAL PLANT:	SP014b	G4	S2	PT	PT
SPECIAL PLANT:	SP015	G5	S3	PR	PR
SPECIAL PLANT:	SP016	G2	S1	PE	PE
SPECIAL PLANT:	SP018	G4	S2	PT	PT
SPECIAL PLANT:	SP019a	G2	S1	PE	PE
SPECIAL PLANT:	SP019b	G5	S3	TU	PR
SPECIAL PLANT:	SP020	G4	S2	PT	PT
SPECIAL PLANT:	SP022	G5	S3	TU	PR
SPECIAL PLANT:	SP028	G4	S2	PT	PT
SPECIAL PLANT:	SP029	G2	S1	PE	PE
SPECIAL PLANT:	SP030	G2	S1	PE	PE
SPECIAL PLANT:	SP031	G5	S3	PR	PR
SPECIAL PLANT:	SP032	G2	S1	PE	PE
SPECIAL PLANT:	SP033	G2	S1	PE	PE
SPECIAL PLANT:	SP038	G4	S3	N	PR
SPECIAL PLANT:	SP041	G5	S3	PR	PR
SPECIAL PLANT:	SP042	G4	S3	N	PR
SPECIAL PLANT:	SP058	G2	S1	PE	PE
SPECIAL PLANT:	SP060	G2	S1	PE	PE
SPECIAL PLANT:	SP062	G4	S2	PT	PT
SPECIAL PLANT:	SP077	G4	S2	PT	PT

MANAGED LANDS:	Ferncliff Peninsula DA
	Ohiopyle State Park
	State Game Lands #111
	State Game Lands #265
	Youghiogheny Lake


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRC
TOPOGRAPHIC AND
OHIOPYLE QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
BEAR RUN DA
UPPER LICK RUN BDA
YOUGHIOGHENY RIVER
LCA
Ohiopyle State Park
Ferncliff Peninsula DA
YOUGHIOGHENY RIVER BDA
State Game Lan
#111
YOUGHIOGHENY RIVER
LCA
UPPER LAUREL RUN BDA
Ohiopyle State Park
TUB RUN HEADWATERS
BDA
BEAVER CREEK BDA
State Game Lands #265
WOODCOCK HILL BDA
MARKLEYSBURG BOG BDA
YOUGHIOGHENY LAKE
SCALE 1:24 000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
ROAD CLASSIFICATION
OHIOPYLE, PA.

OHIOPYLE QUADRANGLE

Fayette County is represented on a large portion of the Ohiopyle quadrangle. The Youghiogheny Gorge cuts prominently through Laurel Hill on the northern half of the quadrangle and the impounded Youghiogheny Reservoir lies within the southeastern portion forming the border between Fayette and Somerset Counties. This quadrangle also includes much of Ohiopyle State Park, the largest state park in Pennsylvania by land area. The Ohiopyle quadrangle holds seven Natural Heritage areas and five managed lands – **Ferncliff Peninsula DA**, **Ohiopyle State Park**, **State Game Lands #111**, **State Game Lands #265** and **Youghiogheny Lake**.

Beaver Creek BDA

This BDA is oriented around a portion of the Beaver Creek watershed just north of State Game Lands #265. A portion of this BDA is currently held by Western Pennsylvania Conservancy and will eventually be conveyed to a buyer interested in the conservation of the site. Also, the Conservancy is assisting a local water company by allowing a water well to be established on the property.

The rich woods along the creek have a canopy of tuliptree (*Liriodendron tulipifera*), sugar maple (*Acer saccharum*), red oak (*Quercus rubra*), white oak (*Quercus alba*), chestnut oak (*Quercus prinus*) and red maple (*Acer rubrum*). Understory associates include sweet birch (*Betula lenta*), spicebush (*Lindera benzoin*), sassafras (*Sassafras albidum*), white ash (*Fraxinus americana*) and black cherry (*Prunus serotina*). Common herbs are Christmas fern (*Polystichum acrostichioides*), intermediate shield fern (*Dryopteris intermedia*), marginal shield fern (*Dryopteris marginalis*), false solomon's seal (*Smilacina racemosa*) and woodland goldenrod (*Solidago caesia*). The lower slopes next to the creek provide habitat for a Pennsylvania plant species of special concern (**SP066a**). Higher up on the slope, groundwater seepages support another plant species of special concern (**SP066b**).

Threats and Stresses

SP066a grows in rich mesic woods in the southern Alleghenies of Pennsylvania. Changes in the natural community through loss of canopy or direct disturbance could negatively impact the plants by introducing higher levels of competition by native and non-native flora. Many known populations of this plant have documented deer browsing impacts. The effect of continuous browsing over time is difficult to gauge. Temporary loss of ability to reproduce could have long-term implications for specific and broader species populations.

SP066b is found in places where there is a constant flow of groundwater with a circumneutral pH. In Fayette County this plant is found only in the Youghiogheny River watershed. Loss of canopy, direct disturbance, loss of water quality through increased sediment or nutrient loads or activities affecting the groundwater flow could be detrimental

to these plants. Studies have indicated that the water to be withdrawn for local use should not affect the aquifer from which the hillside seepages are discharging.

Recommendations

Overall, the best protection strategy for this site is to minimize direct disturbances and maintain the natural community present within the BDA. The perennial problem of browsing impacts on plant populations is of concern here as it is in much of the county. Effects of deer browsing on these plants and the forest community in general should be monitored and programs or approaches instituted to maintain the deer populations at levels compatible with the ecological health of the forest and the plants of special concern. SP066a often grows in association with a closely related species. Although identification is usually straightforward, occasionally there is indication that hybrid plants may be present. Research related to hybridization would be useful to understand the ecology and distribution of the plant.

SP006b requires a constant flow of groundwater. Any activity that affects the recharge zone or lowers the groundwater flow within the aquifer could impact this population. Direct disturbance that impacts the microhabitat should be avoided.

Markleysburg Bog BDA

Markleysburg Bog covers about ten acres and is one of two non-glacial bogs in Fayette County. These bogs are essentially bowls or concavities in the Pottsville Sandstone. The BDA contains a meadow area to the northeast and the main part of the bog to the southwest. The two sections are obvious low points and are joined at a narrow constriction. Surrounding the two sections are dry woods to the east and west, swampy woods to the south, and thickets to the north. The upper part of Beaver Creek winds through the BDA.

The resulting "bowl" in the Pottsville sandstone have filled with vegetation, sphagnum moss a prominent component, and the resulting natural community now rests on the undecaying vegetation that sits within these perennially saturated wetlands. This Sphagnum beaked rush peatland (**NC012**) is currently dominated by bog species such as cranberry (*Vaccinium macrocarpon*), rose pogonia (*Pogonia ophioglossoides*), sundew (*Drosera rotundifolia*) and beaked rush (*Rhynchospora alba*). One plant, the Allegheny Glade Gentian (*Gentiana saponaria* var. *Allegheniensis*), was initially characterized from a specimen from this bog. Two other bog species have been introduced: golden club (*Orontium aquaticum*) and pitcher plant (*Sarracenia purpurea*). Some common shrubs include hazel alder (*Alnus serrulata*), arrow-wood (*Viburnum dentatum*), toothed viburnum (*Viburnum dentatum*), winterberry (*Ilex verticillata*) and azalea (*Rhododendron arborescens*).

The bog area also supports many Pennsylvania plant species of special concern (**SP012a**, **SP012b** and **SP012c**). Each species grows at a certain point along the moisture

gradient that extends from the adjacent uplands to the moister areas adjacent to and within the bog. These species rely on the consistent conditions and hydrology within and adjacent to this wetland.

The forested area around the bog supports a forest community dominated by red maple (*Acer rubrum*), white oak (*Quercus alba*), black gum (*Nyssa sylvatica*) and yellow birch (*Betula allegheniensis*). Within a shrub layer mountain laurel (*Kalmia latifolia*), rosebay rhododendron (*Rhododendron maximum*) and blueberry (*Vaccinium stamineum*) grow abundantly. Herbs include skunk cabbage (*Symplocarpus foetidus*) and cinnamon fern (*Osmunda cinnamomea*). Downstream of the bog, Beaver Creek descends through a steep valley. Sandstone outcrops on the slopes furnish habitat to an animal species of special concern (**SA048**). This animal uses the sandstone outcrops for shelter and forages in the nearby, undisturbed, forested area.

Threats and Stresses

The threats to Markleysburg Bog include diversion of the surface or ground water for other uses including industry, recreation and simple maintenance of the lake that is upstream of the bog. Upstream of the bog and below the lake, ATV use and trails have severely impacted the vegetation. The open areas that are next to the bog may encourage invasive plant species to colonize the bog. In the recent past, wetland plants species have been introduced from other bogs that have been eliminated in other parts of the state.

Another threat to this bog would be changes in hydrology. Upstream of the bog is an impounded lake. Additionally, a cement company is drawing water out of the stream. How these water surface water impoundments and withdraws have effected the bog is not known.

Changes in the water table level could affect the wetland making it less suitable to the present flora. Due to the high amount of available moisture, these communities are highly susceptible to colonization of invasive plants such as purple loosestrife (*Lythrum salicaria*).

Requirements for SA048 include an intact forest canopy to maintain microclimate and minimal direct disturbance to the forest floor where nesting occurs. Possible activities that might affect immediate habitat include those that would result in a change in light levels, direct impact to habitat or unplanned trail or road construction.

Recommendations

The landowners are already aware of the presence of the plants and animals here. More studies of the wetland community may help to understand the ecology and the requirements of the bog that occurs here and at Glade Run. Maintaining the landscape to allow the natural hydrology of the bog to be maintained is key to conservation of this natural community. Alternatives to the to the water withdrawals that are occurring should be explored. Additionally, maintaining the landscape within the BDA vegetated with

native species will help to maintain hydrology, reduce runoff, and limit opportunities for invasive species to become established.

Activities within the BDA that could alter the microhabitat, directly impact the rock outcrops, bog or adjoining communities or increase access to the site should be carefully evaluated to reduce potential impacts to the species of concern.

Tub Run Headwaters BDA

Tub Run drains into Youghiogheny Lake. A section of the headwaters is the locations of a wetland complex that includes a shrub community and a small bog. Ponds have been created on the site and capture some of the ground and surface water that flows down slope to the larger shrub community below. In the herbaceous thicket dominated by manna grass (*Glyceria canadensis*), winged-stem (*Vernonia altissima*), Solidago spp. and tearthumb (*Polygonum sagittaria*) lives a Pennsylvania plant species of special concern (**SP049**).

The bog is primarily composed of herbs with scattered shrubs on the edges. Clearing of vegetation and planting of non-native species (blue spruce – *Picea pungens*) has occurred on the slope and around the small bog community. Common shrubs include black willow (*Salix nigra*), arrow-wood (*Viburnum dentatum*), cranberry (*Vaccinium macrocarpon*) and hazel alder (*Alnus serrulata*). Dominant herbs include (*Glyceria canadensis*), (*Vernonia altissima*) and (*Polygonum sagittatum*). Other herbs are cinnamon fern (*Osmunda cinnamomea*), (*Solidago rugosa*), (*Galium aparine*), (*Galium asperellum*), (*Poa palustris*), (*Lycopus virginianum*), water-pennywort (*Hydrocotyle americanum*) and violet (*Viola* spp.).

The forests surrounding the wetland are general young and include trees such as black cherry (*Prunus serotina*) and red maple (*Acer rubrum*). Shrubs which dominate most of the area include (*Rubus hispidus*), hazel alder (*Alnus serrulata*), arrow-wood (*Viburnum dentatum*), winterberry (*Ilex verticillata*), black huckleberry (*Gaylussacia baccata*), and maleberry (*Lyonia ligustrina*). The herbaceous layer is dense and includes a sedge (*Carex striata*), skunk cabbage (*Symplocarpus foetidus*), dwarf St. Johns wort (*Hypericum muticum*), rough bedstraw (*Galium asperellum*), marsh St. Johns wort (*Triadenum virginiana*) and marsh fern (*Thelypteris palustris*).

Threats and Stresses

This bog is threatened by the loss of the habitat and forest around it. This would make the bog an easier target for invasive species and could allow road salt from the nearby US 40 to accumulate in the bog. Changes in hydrology due to impoundment, disruption of groundwater or channelization of the water could adversely affect the big habitat.

The surrounding landscape of the bog and larger wetland community has been disturbed and the hydrology altered. Sections of the wetland are also used for pasture. Continued loss of the natural vegetation and structure of the area will lead to degraded conditions within the wetland. This is particularly true of the bog section of the wetland which has received the most impact and now sits isolated above small impoundments. Loss of vegetation and disturbance to the soil can encourage invasion of aggressive exotic plants and decrease the function of the natural buffer of vegetation. Road salt and other chemicals used in association with road maintenance may impact the wetlands more profoundly if vegetation is lost.

Recommendations

Informing the landowner of the significance and of the plant species would be a good first step in the protection of the significant features of this area. Use of the land for pasture and recreation should be compatible with the protection of the resources present if the landowner understands what the significant features are within the BDA. In general, activities that directly disturb the wetlands or affect the hydrology or recharge zones should be avoided if possible.

Presence of aggressive invasive species should be noted and action taken to remove them as soon as they are noticed. It is much easier to remove or control an invasive species before it has established rather than trying to get rid of it after it has established.

Upper Laurel Run BDA

Laurel Run drains the southern slopes of Sugarloaf Knob and runs into Meadow Run just upstream of where Meadow Run enters the Youghiogheny River. The headwater sections of the stream have numerous wet seepages areas that are the habitat for a Pennsylvania plant species of special concern (**SP071**).

Threats and Stresses

SP071 grows in areas where there is a perennial source of circumneutral groundwater. Loss of canopy, direct disturbance, loss of water quality through increased sediment or nutrient loads or activities affecting the groundwater flow could be detrimental to these plants. Studies have indicated that the water to be withdrawn for local use should not affect the aquifer from which the hillside seepages are discharging.

Recommendations

SP071 requires a constant flow of groundwater. Any activity that affects the recharge zone or lowers the groundwater flow within the aquifer could impact this population. Direct disturbance that impacts the microhabitat should be avoided.

Upper Lick Run BDA

Lick Run flows into the Youghiogheny River at the town of Bidwell. Lick Run originates high on Laurel Ridge, descending in two main branches. Much of this BDA lies within property owned by Western Pennsylvania Conservancy. A Pennsylvania animal species of special concern (**SA013**) lives in association with the stream and lower valley on the eastern branch of Lick Run. Associated with the valley and the animal of special concern is a forest dominated by beech (*Fagus grandifolia*) and red maple (*Acer rubrum*). The understory contains poison ivy (*Rhus radicans*) and herbs such as christmas fern (*Polystichum acrostichioides*), New York fern (*Thelypteris novaboracensis*) and violet (*Viola* spp.). This animal requires overhanging banks next to streams that have high water quality. Undisturbed stream habitat is crucial for this species. Upstream of this location in the headwaters of the stream is plant species of special concern (**SP043**).

Threats and Stresses

Both species of concern are closely associated with the stream and habitats created by the normal and perennial flow water through the valley. Upstream changes in land-use, disturbance to the lower slopes and stream banks, or significant changes in the microclimate present in the valley could all have negative impacts upon these species. Additionally, changes in groundwater and surface water flows and quantities could also change the habitat for these species and lead to negative changes in their populations.

Recommendations

Given the conservation status of the ownership, the opportunity to conduct further inventory and monitor the species known to be present is excellent. Also, water quality of Lick Run and changes to the stream structure, particularly the stream banks, should be monitored to add to the understanding of the species present and the community of which it is a part. A management plan would help to define a program or approach to the conservation of this site and allow actions to be integrated over long periods of time.

Woodcock Hill BDA

Woodcock Hill is one of two "hills" between Chestnut Ridge and Laurel Ridge. The other hill is Humbertson Hill (the location of Markleysburg Bog). Like the downstream habitat of Markleysburg Bog, Woodcock Hill contains sandstone outcrops where an animal species of special concern lives (**SA016**).

Threats and Stresses

SA016 depends upon outcrops and natural rock formations to provide living and nesting habitat. The forest community present on this site provides this animal with forage resources and helps to regulate and stabilize the microclimate(s) present on the site. Direct disturbance to the forest floor or outcrops, or activities that might affect the immediate

habitat including those that would result in a change in light or moisture levels stand to disturb this species. Increased access due to unplanned road or trail construction would likely prove detrimental to this species.

Recommendations

Working with the landowner to make them aware of the presence and requirements of the animals would be a good first step in protecting the species here. More studies to get a better understanding of the species' ecology and distribution will help in furthering their survival over the long term. Activities within the BDA that could alter the microhabitat, directly impact the rock outcrops, or increase access to the site should be carefully evaluated to reduce potential impacts to this species.

Youghiogheny River BDA

The Youghiogheny River BDA is the largest BDA in Fayette County. It extends the length of the Youghiogheny River as it cuts through the Allegheny Mountain province of the county. Home to numerous plant and animal species (Eleven species of plants and one species of animal of special concern), this BDA is the top ranked BDA in Fayette County and has significance at a regional and national level.

Because of its diversity and complexity, the BDA is discussed in several sections below. First is a general description of the river and gorge followed by general threats and recommendations. Next is a discussion of specific areas, called "focus areas" within the BDA that are particularly important or pivotal in the protection of the resources present.

General Description

The character of the BDA and the communities contained within change along the length of the gorge. At the furthest point downstream in the BDA, where the Youghiogheny River exits Chestnut Ridge, there are prominent ice scour communities and several species of rare plants along the banks. All of the plants here depend on the bedrock-based communities for habitat. This lower area is under private ownership and therefore has potential threats due to land use through possible development. Focus area "A" is contained within this section of the BDA.

The middle sections of the BDA extends roughly from just downstream of the confluence of Indian Creek to upstream of the confluence of Bear Run, contain section of the river with a steep gradient. The rapids associated with the drop in elevation makes this section of the river favorable with river recreationists. The forests on the valley slopes are dominated by red oak (*Quercus rubra*), tuliptree (*Liriodendron tulipifera*), scarlet oak (*Quercus coccinea*), chestnut oak (*Quercus prinus*), red maple (*Acer rubrum*), American basswood (*Tilia americana*), and yellow birch (*Betula allegheniensis*). In addition, the more downstream sections of the valley and larger tributaries have sycamore (*Platanus occidentalis*). Common species in the shrub layer include Sassafras (*Sassafras albidum*),

striped maple (*Acer pennsylvanicum*), witch-hazel (*Hamamelis virginiana*), and rosebay rhododendron (*Rhododendron maximum*). Herbs include hay-scented fern (*Dennsteadtia punctilobula*), indian cucumber root (*Medeola virginica*), Virginia waterleaf (*Hydrophyllum virginianum*), marginal shield fern (*Dryopteris marginalis*), round-leaved violet (*Viola rotundifolia*) and Virginia creeper (*Parthenocissus quinquefolia*). Focus Area "B" is contained within this section of the BDA.

Upstream, the river meanders to the south creating the Ferncliff Peninsula. The peninsula harbors some of the rarest species and greatest diversity of plants in the county. It contains the Pennsylvania Bureau of State Parks' Ferncliff Natural Area and is a primary focus of visitation to the park. Bedrock shelves and boulders line the shore and supply critical habitat for several species of concern. Hemlock (*Tsuga canadensis*) grows on the sometimes steep slopes and are a distinguishing feature along this largely deciduous forest section of the river. Focus Area "C" is contains this section of the BDA.

Upstream of the Borough of Ohiopyle the river has a more gentle gradient. The shores of the river are cobbly and have narrower ice-scour zones than the lower sections. Emergent vegetation root in these cobble areas. Common are mats of water-willow (*Justicia americana*). The forests adjacent to the river show a consistent pattern of composition with the near-river forests being dominated by sycamore (*Platanus occidentalis*) and box elder (*Acer negundo*). Farther from the river, the forests transforms to oak (*Quercus* spp.) and maple (*Acer* spp.). Common understory species present include witch-hazel (*Hamamelis virginiana*), spicebush (*Lindera benzoin*) and striped maple (*Acer pennsylvanica*). Focus Area "D" is contained within this section of the BDA.

The species of special concern with this BDA are numerous. Below are those species known from the BDA and the sections with which they are associated.

One of the plant species of special concern (**SP005a**, **SP013**, **SP019a** and **SP022**) is found in seepage areas on the small streams that drain the slopes of the gorge. This species requires a perennial source of circumneutral groundwater for maintenance of its habitat. It is found in focus area D.

A second plant species of special concern (**SP002**, **SP003a**, **SP004b**, **SP006**, **SP014a**, **SP016**, **SP019a**, **SP029**, **SP030**, **SP032**, **SP033**, **SP058** and **SP060**) is found growing on the thin soil in crevices of the rocks next to the riverbank. It requires a regular flooding regime and minimal competition from other plants. It is found in all focus areas.

A third plant species of special concern (**SP015**, **SP018** and **SP041**) is found on the immediate shoreline of the river and on some of the rock crevices. This plant is more common in areas to the south but reaches the northern limit of its range in Fayette County. It is found in focus area C and possibly within focus area B.

A fourth plant species of special concern (**SP003b**, **SP003c**, **SP014b**, **SP020**, **SP028**, **SP034**, **SP062**, **SP077**) is found just above the mean high water mark on the river. It likes a semi-shaded situation and grows in the area favored by Japanese knotweed

(*Polygonum cuspidatum*). Deer browsing is an impact to this plant as well. It is found in all of the focus areas.

The fifth plant species of special concern (**SP011**) is found on the rich lower slopes of the river. It is found in focus area B. This plant likes shaded situations underneath a full canopy. Like the previously described plant deer browsing impacts it.

SP002b and **SP005b** are plant species of special concern that are found on the rivershore of Ferncliff Peninsula (focus area C). This is the only location for these species in the county.

SP003c is a plant species of special concern also found on Ferncliff Peninsula (focus area C) that grows in rich woods. This species is found in several locations in the county and more often in Westmoreland County.

SP004a is found on islands in the Youghiogheny River that are often overwashed by floodwaters. This species was once thought to be extirpated from Pennsylvania but was recently found again in the Ohiopyle area.

SP031 is a plant species of special concern found in the pools of the "river pavement" on the sides of the river. It requires relatively clean water to grow in. As more acid mine drainage is eliminated from the Youghiogheny drainage this species stands to increase in number. It is in the area of focus area C. **SP038** and **SP042** are found in the crevices of rock outcrops in the gorge next to the river in focus area A.

Two animal species of special concern (**SA023** and **SA047**) are found in the gorge. **SA047** was found flying through the area but it is not known if a population exists and reproduces in the area. It was known from the area of focus area B. The steeply sloping bottom of the Youghiogheny River gorge contains numerous outcrops of sandstone. Many of these outcrops have associated groundwater discharge areas or seeps. These moist sandstone outcrops are the habitat for a Pennsylvania animal of special concern (**SA023**). This species requires the fairly undisturbed habitats that these outcrops provide. This species is not known to occur north of the Youghiogheny River in Pennsylvania.

General Threats and Stresses

Altered flooding regimes from damming and metered releases of water are leading to changes in natural communities that have evolved within the floodplain of the river. A number of the unique species within the scour zone of the river depend upon periodic flooding and require open habitats. Scouring from water and ice removes competition from vegetation that would otherwise be unable to exist in these highly active environments.

Habitat modification is an issue for many of the aquatic communities around the commonwealth. The Youghiogheny and its tributaries is no exception. Many water quality issues derive from large land-use changes, and AMD is prominently among them.

However, direct modification of streams and rivers has also contributed significantly to declines in water quality and losses of habitat in our watersheds.

Damming of rivers and creeks for hydroelectric generation, flood control and recreation has flooded (headwater) valleys, changed the in-stream hydrology, and affected numerous physical and chemical characteristics of our streams.

Flooding of valleys is a direct loss of functional river/stream for miles, which also includes riparian habitats. These losses result in the restriction of water infiltration, capture of nutrients and sediments, and the regulation of flow regimes.

Impoundments break the continuum between upstream and downstream habitats through physical blockage, thermal disruption, clarification of water, and removal of detritus. One of the primary results is the alteration and declines in aquatic fauna extending from upstream slack waters, within the impoundment and potentially miles downstream of the impoundment. This is particularly true for large collecting reservoirs from which deep bottom waters are released. Such releases suppress normal seasonal temperature variations far downstream and lead to poorly oxygenated water conditions for moderate distances downstream. Nutrient levels as well as hydrogen sulfide concentrations may be elevated within released waters. Also, reservoirs serve as settling ponds for particulates and sediments which would normally wash downstream and maintain a level of turbidity that balances plant and algae growth and predator-prey relationships.

Invasive species such as Japanese knotweed (*Polygonum cuspidatum*), Japanese spirea (*Spirea japonica*), reed canary grass (*Phalaris arundinacea*), multiflora rose (*Rosa multiflora*) and garlic mustard (*Alliaria petiolata*) are present in many spots along the river. These species stand to threaten the diversity of plant life along the riverbank and adjacent habitats. These species thrive in disturbed situations and in edge areas where light levels are high and competition from woody plants is low. Some of the rare species along the river also favor these habitats but are unable to compete successfully with the invasive exotic species. Another perhaps even more aggressive species than the Japanese knotweed is purple loosestrife (*Lythrum salicaria*). This species is present in the watershed of Meadow Run and is poised to enter the main stem of the river. Individual plants were noted in the lower section of the gorge but no substantial colonies were seen. In addition to shading out rare species, these exotic species, especially Japanese knotweed, shade out nearly all other vegetation, decreasing the stability of stream banks and creating conditions that make these compromised areas more susceptible to erosion.

Direct impact from recreational use is of concern in specific areas. Frequent or intensive use of riverside areas could impact plants of special concern and lead to changes in vegetation cover that would encourage colonization by aggressive exotic species.

General Recommendations

The Youghiogheny Gorge and the natural communities within are unique within the county and beyond. The continuousness and diversity of the habitats and the prominent

natural processes that have and continue to shape the Youghiogheny drainage are the key features of this BDA.

The large issues that confront the river and associated natural communities are detailed in the discussions following. In general, a comprehensive evaluation of the current state of the river, its tributaries, and the unique ecological, recreational, and scenic places within the gorge will be needed to establish a baseline from which to work. Timing and frequency of water releases, spread and control of exotic species, impact of recreational activity, and effects of other activities within the watershed can then be evaluated.

Underlying the protection of this area and others along the river are the natural processes that maintain these riverside communities and species habitats. Flooding, ice scouring, and normal fluctuations in water levels combine to regulate competition and create the open conditions that allow the unique combination of flora and fauna to exist.

Water levels in the river are now, to some large extent, regulated by releases from the Youghiogheny Reservoir. Municipal water supplies downstream demand water. Maintenance of water levels in the Monongahela are a consideration in the release of water. Growing recreational use on the river may play a role in coordinating water releases. Along with the imperatives given to these uses, the maintenance of natural communities and ecological systems need to be taken into consideration with the release of water from the reservoir. The requirements of these natural systems will need to be better researched and evaluated.

The frequency and duration of flooding prior to dam construction may provide guidance in efforts to reestablish some approximation of natural hydrological cycles. Spring releases that bring the river to bank full stage would mimic natural rises in the river. Timing releases with the break-up of winter ice flows would provide the natural mechanical means of scouring the banks.

It will be very difficult to effectively address any of these issues without full participation from all stakeholders in the valley. The large amount of public land, the acknowledged value of this area for recreation and tourism, and the issues common to the entire gorge point toward great comprehensive management opportunities. Rivers Conservation Plans that are being developed for the lower Youghiogheny will be useful here in defining important issues. The Bureau of State Parks, the Pennsylvania Game Commission, Western Pennsylvania Conservancy, The Youghiogheny Trail Corporation, numerous private landowners and businesses will have to cooperate to see goals of the rivers conservation plan met and to develop more specific management goals. All of these stakeholders will need to play a role in educating the public and establishing policies that protect resources and allow maximum use and enjoyment of the gorge.

Because of its size, diversity and ownership, the Youghiogheny River has been divided into four focus areas, A through D, in which to discuss specific management concerns. Area A is located near the western end of the BDA. Area D is the most eastern

and furthest upstream area, located between the Borough of Ohiopyle and the Borough of Confluence.

FOCUS AREA A

Focus area "A" holds an agglomeration of plant species strongly associated with the rock scour community along the river. Direct impacts to the banks, scour zone, and lower slopes of the river could adversely affect the plants and natural community inhabiting this area. Invasion by exotic species, especially Japanese knotweed (*Polygonum cuspidatum*), reed canary grass (*Phalaris arundinacea*), and purple loosestrife (*Lythrum salicaria*), could eliminate substantial habitat for at least several of the species growing here. The critical issue of water flow and flooding regimes applies as critically here as it does to the rest of the river. The issues of invasive species may be inextricably coupled with altered flow regimes and progress in addressing exotic may require that this issue be given attention.

The land in this area is private property making this area more difficult in which to apply a consistent management approach and perhaps more vulnerable to future development. Additionally, this section of the river is near the city of Connellsville and flows through a corridor of active and abandoned industry. Cleanup, reuse, or continued use of these sites could impact adjacent sections of the river corridor that support some of the special concern species. . Also, many places along this stretch are unvegetated or have recently reestablished some vegetation. Such disturbed areas invite exotic species and could serve as establishment nodes and seed sources.

The landowner(s) should be made aware of the significance of what they own and be given information on how to manage for the plants and habitats present here. It may be possible for a group like the Youghiogheny River Council to help in educating landowners and users of the corridor as to the significance of the habitats and plants of concern.

FOCUS AREA B

Focus area B starts above the confluence of Indian Creek and runs to just above the confluence of Bear Run with the Youghiogheny River. This focus area has a similar structure and communities to Focus area A. However, this focus area is contained within either Ohiopyle State Park or within property owned by Western Pennsylvania Conservancy. This ownership provides excellent opportunity for comprehensive management and evaluation of a substantial portion of the river.

Monitoring of the unique plants and natural communities within this focus area could supply the information required to assess the long-term health of the complex of riverside communities throughout the gorge. This focus area could also provide the opportunity to experiment with specific management approaches concerning rare species, exotic species, habitat quality, and natural succession. Results of the work done in this

focus area could be applied to other sections of the river as well as to other drainages within and outside of the county.

FOCUS AREA C

Focus area C centers around Ferncliff Peninsula. Ferncliff is a well-known and studied section of the gorge. Its unique topography, exemplary natural communities, and scenic attributes attract a diversity of people and activities. Whitewater rafting, proximity to Ohiopyle, and the Youghiogheny River bike trail result in more visitation than the other sections of the river.

Ferncliff peninsula supports a density of rare plant species as well as the natural riverside communities associated with scour zones and floodplains. The peninsula itself is a state park natural area and as such receives protection from a number of threats, including development. The Bureau of State Parks is now reviewing is management plans for it's natural areas program and will hopefully bolster the attention and resources devoted to these important areas. However, a significant challenge lies in maintaining a high-quality natural area within a prime recreation and visitation location.

The effects of usage on specific species and natural communities will need to be monitored in order to assess how well programs and management policies are working and to point out future management needs. Specific sections of the peninsula may need to be partitioned to allow evaluation and confer some (temporary) protection if deemed necessary after initial evaluation. Additionally, Ferncliff will have to be watched for the spread of aggressive exotic species. Disturbances associated with intensive use may encourage the colonization and spread of some exotics and it may be possible to gain some insight into that possibility through a research and monitoring program as suggested for the natural area in general.

Some questions that would be important to answer include: are plant colonies negatively impacted after periods of intensive use? Is natural succession changing the structure and composition of the riverside communities? Has a change in the flooding regime led to changes in the riverside communities?

Expanding the area included as Ferncliff Natural Area would provide greater protection to the resources there and could help to given greater attention and protection to upstream and downstream habitats. Additional natural areas within this large park would likewise help to focus attention on important natural resources.

Giving visitors the information that will help them understand and appreciate the resources present at the site will be extremely important for the protection of the natural communities on Ferncliff Peninsula. Educational efforts could involve interpretive signage, naturalist-lead hikes, and state park brochures.

FOCUS AREA D

Focus area D encompasses that part of the Youghiogheny River above the Borough of Ohiopyle. Most of the land lies within Ohiopyle State Park except for the very upper sections. This section of the river is gently sloping, has cobbly banks and several large floodplains. The quality of the natural communities varies within this stretch of the river. Some have been impacted by previous land-use such as in the Victoria Bend area and some have been extensively colonized by the exotic Japanese knotweed (Polygonum cuspidatum). Still, several sections remain in relative good condition.

The first floodplain on the south side of the river moving upstream from Ohiopyle features a rocky shoreline extending to a short bank and a floodplain terrace. Two species of special concern utilize these habitats and at present, this area is relatively free from large colonies of Japanese knotweed. Of the areas along the upper section of the river surveyed, this area stands out as a healthy example of the habitats typical of the upper Youghiogheny. In managing the riverside communities along this portion of the river, this particular area should serve as a reference for restoration efforts. Priority should be given to this section of riverside community to prevent the colonization and spread of knotweed and other aggressive exotics like reed canary grass (*Phalaris arundinacea*) and to maintain a high quality reference location. Sections of riverside communities on both sides of the river could be likewise prioritized – those in best condition maintained in good condition and those with highly compromised communities slated for more extensive management. Again, the lessons and successes gleaned from management and experimentation could be applied to other sections of the river as well as other drainages throughout the region and state.

Youghiogheny River LCA

The Youghiogheny LCA encompasses all of the gorge and immediate watershed of the river between the Youghiogheny dam and the river's exit from the Allegheny Mountains near the town of South Connellsville. This area features a biologically diverse, minimally fragmented, forested corridor of striking beauty and great importance to the natural heritage of the county, Pennsylvania and the eastern United States.

Contained within the LCA are several BDAs including the continuous, linear Youghiogheny River BDA. Together, these BDAs hold a significant portion of unique natural diversity in the county. Because of the ruggedness and remoteness of many sections of this watershed, undoubtedly more is yet to be known and documented about the plants, animals and natural communities present within this large area. In a large way, the forested, relatively unfragmented landscape in this LCA is the common thread that holds all of these unique elements together. Also, in addition to the rarer elements of diversity, this LCA supplies important habitats and opportunities for the host of more common species that live and migrate through the Allegheny Mountains.

Threats and Stresses

One of the most important issues that face the area within this LCA is the fragmentation of the landscape. Given the large amount of public land with the LCA, development and the accompanying infrastructure will be less of a concern, especially in the lower elevation sections. However, the predominately rural agricultural areas on the upper slopes and ridgelines are subject to development pressure that come with recreational use of the valley. Uncoordinated timber harvesting and the necessary access roads and utility ROW's stand as potential land uses that could further fragment the landscape on and off of public lands.

Recommendations

Careful planning within this LCA would benefit both the ecological resources and the people living on the land. Recognizing the river as a prime ecological and recreational resource and the land surrounding it as an important part of that resource may be an initial step in this planning. The Pennsylvania Bureau of State Parks, the Pennsylvania Game Commission, the Pennsylvania Bureau of State Forestry, the many private landowners and the municipalities included in the LCA should come together to consider comprehensive planning for the LCA. Resources available through the county and state such as agency management plans, Rivers Conservation Plans, and other initiatives may help in defining issues and providing some guidance in developing community-based plans for the LCA.

SEVEN SPRINGS QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State

NATURAL HERITAGE AREAS:

LAUREL RIDGE LCA — *Exceptional Significance*

LAUREL RUN BDA — *Notable Significance*

SPECIAL PLANT:	SP008a	G5	S3	N	PT
SPECIAL PLANT:	SP008b	G5	S3	N	TU

ROARING RUN BDA — *High Significance*

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

SPOOK HILL BDA — *High Significance*

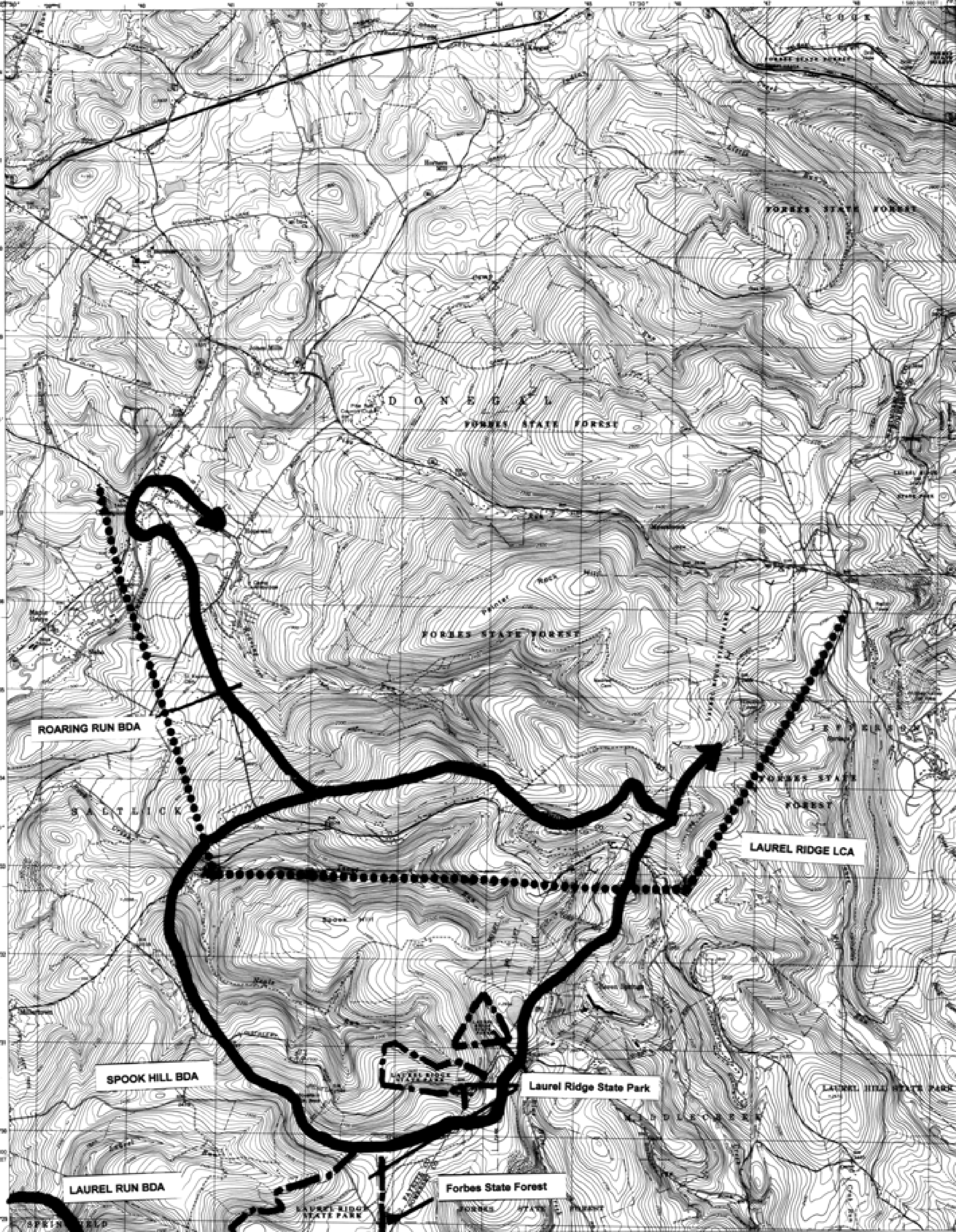
SPECIAL PLANT:	SP031	G5	S3	N	TU
SPECIAL PLANT:	SP032	G5	S3	N	PT
SPECIAL PLANT:	SP033	G5	S3	N	PT
SPECIAL PLANT:	SP034	G5	S3	N	PT
SPECIAL PLANT:	SP035	G5	S3	N	PT
SPECIAL PLANT:	SP036a	G5	S3	N	PT
SPECIAL PLANT:	SP036b	G5	S3	N	TU
SPECIAL PLANT:	SP037	G5	S3	N	PT
SPECIAL PLANT:	SP038	G5	S3	N	PT
SPECIAL PLANT:	SP039	G5	S3	N	PT
SPECIAL PLANT:	SP040	G5	S3	N	PT

MANAGED LANDS: Forbes State Forest
Laurel Ridge State Park

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY

SEVEN SPRINGS QUADRANGLE
PENNSYLVANIA
7.5-MINUTE SERIES (TOPOGRAPHIC)



SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO CONVERT FROM FEET TO METERS, MULTIPLY BY 0.3048

Produced by the United States Geological Survey in cooperation with Pennsylvania Department of Conservation and Natural Resources, Bureau of Topographic and Geologic Survey

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SEVEN SPRINGS, PA
1993

SEVEN SPRINGS QUADRANGLE

This quadrangle covers parts of Somerset, Westmoreland, and Fayette Counties with Fayette County covering about a third. The highest point in Fayette County at 2,994 feet lies within this quadrangle on a section of Laurel Ridge that is part of Seven Springs Resort. Trout, Neals and Laurel Run drain the section of Laurel Ridge within Fayette County – all draining westward to Indian Creek. This quadrangle contains four Natural Heritage areas and two managed lands – **Forbes State Forest** and **Laurel Ridge State Park.**

Laurel Run BDA

This Natural Heritage area is discussed on the Kingwood quadrangle.

Laurel Ridge LCA

Laurel Ridge is a prominent ridge in the Allegheny Mountain section of the Appalachian Mountain 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 of Cambria County. The Laurel Ridge LCA encompasses that section of the ridge in Westmoreland County and the very northern part of Fayette County. 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. In Fayette County only the western portion is represented.

Threats and Stresses

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. Unplanned development of this area 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 a 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 common

sensitive planning which includes 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.

Roaring Run BDA

Roaring Run BDA includes the entire watershed of Roaring Run. Almost all of its area is in Westmoreland County. Like many of the other watersheds to the north it 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 enters Roaring Run.

Roaring run is characterized by a Red oak – mixed hardwood Forest Community that transitions from a forest of red oak (*Quercus rubra*), chestnut oak (*Quercus prinus*), black birch (*Betula lenta*), black cherry (*Prunus serotina*) and red maple (*Acer rubrum*) on the ridgeline and upper watershed to a more mesic, diverse forest with tulip poplar (*Liriodendron tulipifera*), sugar maple (*Acer saccharum*), beech (*Fagus grandifolia*), witch-hazel (*Hamamelis virginiana*), striped maple (*Acer pennsylvanica*) and spicebush (*Lindera benzoin*) at lower elevations and the bottomlands. Ericaceous shrubs such as blueberry (*Vaccinium* spp.) and huckleberry (*Gaylussacia* spp.), greenbrier (*Smilax* spp.), and blackberry (*Rubus* spp.) create a dense ground layer on the uplands and high elevations. Dense stands of hay-scented fern (*Dennsteadtia punctilobula*) 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**, a Pennsylvania Rare plant, grows in less disturbed sections of the forest along Roaring Run. The lower slopes that have rich, mesic soils contain two locations for a Pennsylvania Threatened plant (**SP016B** and **SP017**). Associated with this same part of the watershed are many of the Golden saxifrage – Pennsylvania bitter-cress spring runs (**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 (*Chrysoplenium americanum*), grasses, sedges (*Carex* spp.), and numerous herbs including turtlehead (*Chelone glabra*), bugleweed (*Lycopus* spp.), 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 an 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 to regulate microclimate 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 Golden saxifrage – Pennsylvania bitter cress 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, unplanned trail development or activities outside of the BDA 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. 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 the site.

Spook Hill BDA

Spook Hill is located on the west slope of Laurel Hill west of the Seven Springs Resort. Composed of two drainages, Neals and Trout Run, Spook Hill supports two forest community types: A tuliptree-beech-maple forest along Neals Run and a Hemlock-tuliptree-birch forest along Trout Run.

Common overstory associates at Neals Run include sugar maple (*Acer saccharum*), tuliptree (*Liriodendron tulipifera*), yellow birch (*Betula allegheniensis*) and pignut hickory (*Carya glabra*). In the upper sections there is more black cherry (*Prunus serotina*), a species that takes advantage of disturbance. The understory is dominated by striped maple (*Acer pennsylvanicum*) and hobblebush (*Viburnum alnifolium*). In the lower valley and streamside grows white wood aster (*Aster divaricatus*), turtlehead (*Chelone glabra*), intermediate wood fern (*Dryopteris intermedia*), joe pye weed (*Eupatorium fistulosum*), jewelweed (*Impatiens capensis*) and ground cedar (*Lycopodium flabelliforme*). These forests provide habitat for two Pennsylvania plant species of special concern (**SP036a**, **SP038**, and **SP036b**, **SP037**). **SP036a** and **SP038** grow on rich shaded lower slopes. They require relatively undisturbed woods with an intact canopy. **SP036b** and **SP037** are found in seepage areas where there is a perennial supply of groundwater.

Trout Run is dominated by eastern hemlock (*Tsuga canadensis*), black cherry (*Prunus serotina*), tuliptree (*Liriodendron tulipifera*), red oak (*Quercus rubra*), sugar maple (*Acer saccharum*) and yellow birch (*Betula allegheniensis*). Understory associates include American Basswood (*Tilia americana*), hobblebush (*Viburnum alnifolium*) and American Beech (*Fagus grandifolia*). The moist and shaded forest floor supports jack-in-the-pulpit (*Arisaema triphyllum*), white wood aster (*Aster divaricatus*), black cohosh (*Cimicifuga racemosa*), beech-drops (*Epifagus virginiana*), false solomon's seal (*Smilacina racemosa*) and foamflower (*Tiarella cordifolia*). This habitat also has two Pennsylvania plant species of special concern (**SP031**, and **SP032**, **SP033**, **SP034**, **SP035**). **SP032**, **SP033**, **SP034** and **SP035** grow on mesic rich slopes, while **SP031** requires shallow, perennial seeps and runs. Both of these species could be impacted by changes in the canopy structure, particularly those changes that would significantly alter microhabitat, decrease soil moisture levels, or increase competition by increasing light levels.

Threats and Stresses

Loss of canopy, direct disturbances to the soils or other changes in the microhabitat for the two species could adversely affect the plants. The plants that grow in the seeps need a perennial source of discharging groundwater in order to thrive. Activities that change the hydrology by affecting the recharge zones or lower the groundwater can impact these plants negatively.

Recommendations

Making the landowner aware of the presence of these plants 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. As part of the plan the effects of deer browsing on these plants and the forest communities in general should be monitored and maintained at levels compatible with the ecological health of the forest and the plants of special concern.

SMITHFIELD QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
BROWNFIELD HOLLOW BDA		*High Significance*			
SPECIAL ANIMAL:	SA004	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA005a	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA005b	G3G4	S1	N	PT
SPECIAL PLANT:	SP006	G5	S1	N	PE
RUBLES RUN BDA		*Exceptional Significance*			
SPECIAL ANIMAL:	SA004	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA007	G3G4	S1	N	PT
SPECIAL ANIMAL:	SA008	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA010	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA011	G3G4	S3	N	PT
SPECIAL PLANT:	SP001	G5	S1	N	PE
WAR BRANCH/GEORGES CREEK BDA					
NATURAL COMMUNITY:	NC007				

MANAGED LANDS: Brownfield Hollow DA
State Game Lands #138


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
SMITHFIELD QUADRANGLE
PENNSYLVANIA–FAYETTE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
G E R M A N
N I C H O L S O N
G E O R G E S
S P R I N G H I L L
Smithfield
Fairchance
York Run
Old Frame
Haydentown
White House
State Game Lands #138
WAR BRANCH/GEORGES CREEK BDA
BARTONS/VICTOR HOLLOW WATERSHED BDA
BROWNFIELD HOLLOW BDA
BROWNFIELD HOLLOW DA
RUBLES RUN BDA
Mapped, edited, and published by the Geological Survey
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
SMITHFIELD, PA.
N3945—W7945/7.5
1964
PHOTOREVISED 1979
AMS 5063 IV SE–SERIES V831

Smithfield

Fayette County covers all of this quadrangle, which represents the eastern end of the Pittsburgh Plateau Physiographic province. The western edge of Chestnut Ridge, which includes Brownfield Hollow, crosses into the southwest corner of the quadrangle. Georges Creek, a major tributary to the Monongahela River, drains much of the county contained here. This quadrangle has four Natural Heritage areas and one managed land –State Game Lands #138.

Brownfield Hollow BDA

Brownfield Hollow is owned by Western Pennsylvania Conservancy and includes areas of sandstone cliffs that support a population of a Pennsylvania threatened animal species (**SA005b**). This species requires moist crevices in sandstone formations located within relatively undisturbed forests. In this same area lives another animal species of special concern (**SA004** and **SA005a**). Lower in elevation along Mountain Run is a Pennsylvania plant species of special concern (**SP006**).

The forests of Brownfield Hollow are dominated by, depending on elevation, chestnut oak (*Quercus prinus*), red oak (*Quercus rubra*), red maple (*Acer rubrum*), sassafras (*Sassafras albidum*) and tuliptree (*Liriodendron tulipifera*). Understory associates are consistent throughout and include witch-hazel (*Hamamelis virginiana*), black gum (*Nyssa sylvatica*), cucumber tree (*Magnolia accuminata*) and sweet birch (*Betula lenta*). In the upper elevations there is a fairly well developed shrub layer which includes deerberry (*Vaccinium stamineum*), mountain laurel (*Kalmia latifolia*), greenbrier (*Smilax rotundifolia*) and glaucous brier (*Smilax glauca*). Herbs present include wintergreen (*Gaultheria procumbens*), bracken fern (*Pteridium aquilinium*) and trailing arbutus (*Epigaea repens*).

Western Pennsylvania Conservancy owns a portion of the Brownfield Hollow watershed and manages it as a natural area. This is the portion of the watershed that has received dedicated area status.

Threats and Stresses

SA004 and SA005a depend upon outcrops and natural rock formations to provide living and nesting habitat. The forest community present on this site provides this animal with forage resources and helps to regulate and stabilize the microclimate(s) present on the site. Direct disturbance to the forest floor, activities that might affect immediate habitat including those that would result in a change in light levels and/or direct impact to habitat. Also, the animals could be impacted negatively by increased access afforded by unplanned road or trail construction.

SA005b is restricted to moist sandstone outcrops within relatively undisturbed forests. This species is confined to very few locations in southwestern Pennsylvania, all

within Fayette County. Any disturbance to the outcrops or the crevices in which this animal lives may adversely affect this species. Additionally changes in microhabitat that could result from loss of canopy or upslope activities could negatively impact this animal population.

SP006 grows in wooded areas, often along stream edges, with rich, limestone-based soils. Any changes in the hydrology of the area or changes in microhabitat or light levels could affect this plant. Direct disturbance or alteration in the character of the stream channel would also be detrimental to the plant population.

Recommendations

For the animals in the BDA, activities that directly impact the sandstone outcrops or reduce the moisture present in the rock should be avoided. Working with the Pennsylvania Game Commission to assure that all information collected about this species of special concern, natural communities and landscape features is incorporated into a management plan for this site would help guide recreation or resource management activities for the future. 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 the needs for ultimate protection of this site.

For SP006, any activities such as wells, direct ground disturbance or other disturbances that could affect the hydrology of the streams or change the microhabitats along the stream should be avoided.

Brownfield Hollow DA

Brownfield Hollow DA is located within Brownfield Hollow BDA. The DA includes those areas belonging to Western Pennsylvania Conservancy and does not include the upper slopes included on the BDA. The intention of Western Pennsylvania Conservancy is to manage this area for its ecological values and hence the status of Dedicated Area.

Threats and Stresses

The status of this area as a DA confers a good deal of protection to the natural communities and species of concern present. However, not all known special species locations are within the DA and more information and survey will be required to better understand the extent and distribution of these species within the DA and within the watershed. Again, changes in community structure, direct disturbance to rock outcrops or other specific habitats, or hydrologic alterations in the landscape could all have negative implications for the species of concern living within this area.

Recommendations

A considered and uniform management within the entire Brownfield Hollow Watershed that takes into account the ecological resources present would best assure the long-term protection of this area. Eventually extending the boundaries of the DA to those of the BDA would create an ecological unit and allow more comprehensive management to take place. Work and agreements between the landowners within the watershed could help to establish a management program that would meet the needs of the parties involved and the resources.

Rubles Run BDA

This Natural Heritage area is discussed on the Lake Lynn quadrangle.

War Branch/Georges Creek BDA

This Natural Heritage area is discussed on the Masontown quadrangle.

SMITHTON 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

SMITHTON QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
NW/4 CONNELLSVILLE 15' QUADRANGLE

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

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

UTM GRID AND 1994 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

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

SMITHTON QUADRANGLE

Fayette County covers a small, approximately 10 acre piece of this quadrangle west of the Jacobs Creek confluence with the Youghiogheny River. The Youghiogheny River is a prominent feature on the Fayette portion of this quadrangle. There are no Natural Heritage areas or managed lands present on this quadrangle.

SOUTH CONNELLSVILLE QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
CAMP CARMEL SLOPES BDA		*High Significance*			
SPECIAL ANIMAL:	SA021	G3G4	S1	N	PT
SPECIAL ANIMAL:	SA025	G3G4	S1	N	PT
SPECIAL ANIMAL:	SA030	G3G4	S3	N	PT
SPECIAL PLANT:	SP019	G5	S3	N	TU
SPECIAL PLANT:	SP041	G5	S3	N	PR
CASPARIS MINES BDA		*High Significance*			
SPECIAL ANIMAL:	SA003	G3	S1b, S1	PT	PT
DUNBAR CREEK LCA		*Exceptional Significance*			
SPECIAL ANIMAL:	SA013	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA035	G3G4	S1	N	PT
SPECIAL PLANT:	SP033	G5	S3	N	PR
SPECIAL PLANT:	SP043	G5	S3	N	TU
SPECIAL PLANT:	SP044	G5	S3	N	TU
SPECIAL PLANT:	SP045	G5	S3	N	TU
DUNBAR CREEK CONFLUENCE BDA		*High Significance*			
SPECIAL PLANT:	SP007	G4	S2	N	PT
JOHNS HOLLOW BDA		*Notable Significance*			

SPECIAL ANIMAL:	SA029	G3G4	S3	N	PT
SPECIAL PLANT:	SP001	G5	S3	N	TU

LAUREL RUN SLOPES BDA — *Notable Significance*

SPECIAL ANIMAL:	SA012	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA024	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA032	G3G4	S3	N	PT

LIMESTONE RUN BDA — *High Significance*

SPECIAL ANIMAL:	SA026	G3G4	S1	N	PT
SPECIAL ANIMAL:	SA034	G3G4	S3	N	PT
SPECIAL ANIMAL:	SA036	G3G4	S3	N	PT
SPECIAL PLANT:	SP028	G5	S3	N	TU

MIDDLE MORGAN RUN SLOPE BDA — *Notable Significance*

SPECIAL ANIMAL:	SA008	G3G4	S3	N	PT

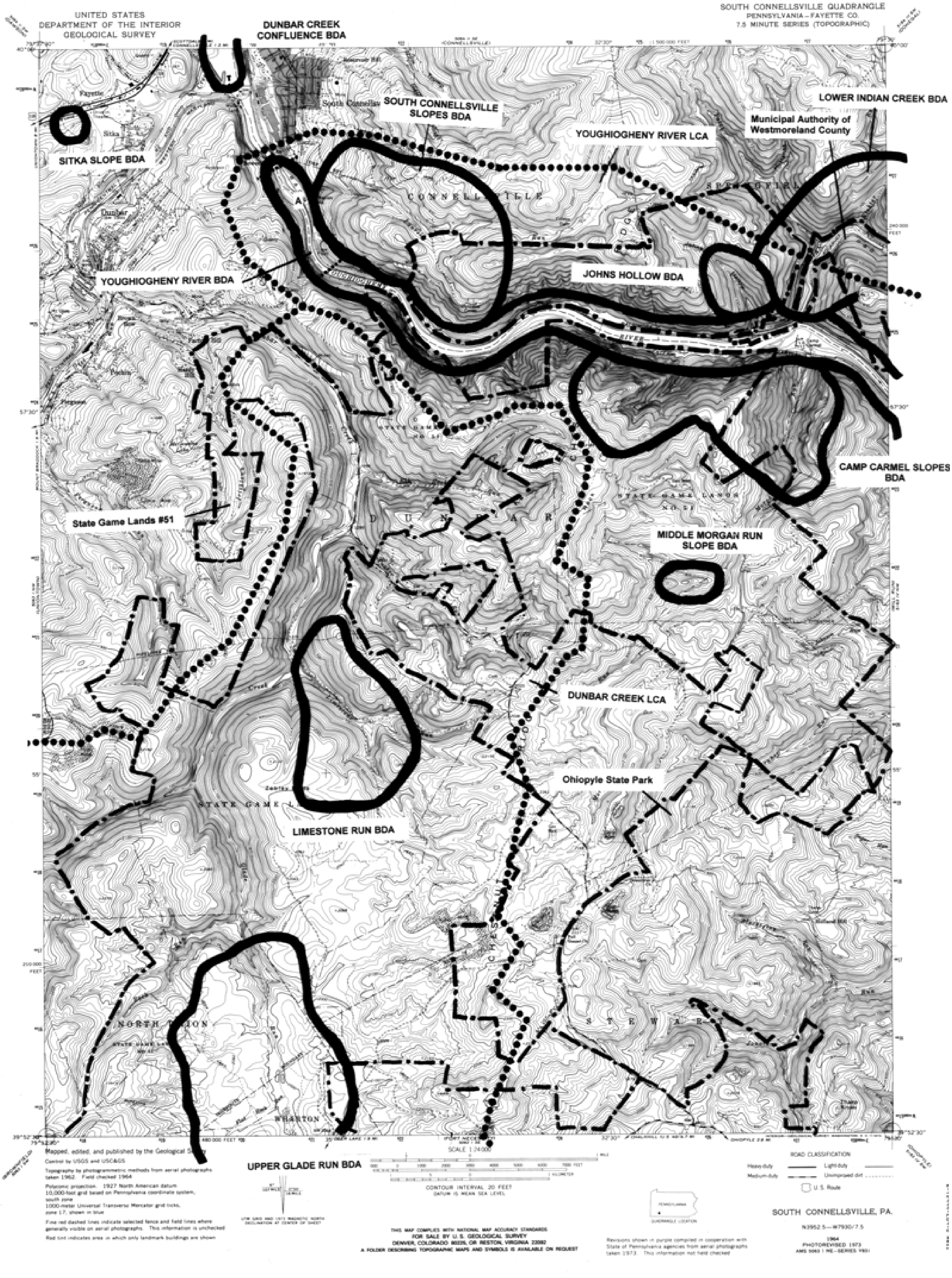
SITKA SLOPE BDA — *Notable Significance*

SPECIAL PLANT:	SP038	G5	S3S4	N	TU

UPPER GLADE RUN BDA — *Exceptional Significance*

NATURAL COMMUNITY:	NC009a				
NATURAL COMMUNITY:	NC009b				
NATURAL COMMUNITY:	NC010				
SPECIAL ANIMAL:	SA022	G3G4	S1	N	PT
SPECIAL ANIMAL:	SA023	G3G4	S1	N	PT
SPECIAL PLANT:	SP004	G5	S1	N	PE

MANAGED LANDS: Ohiopyle State Park
State Game Lands #51


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
SOUTH CONNELLSVILLE QUADRANGLE
PENNSYLVANIA – FAYETTE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
DUNBAR CREEK CONFLUENCE BDA
SOUTH CONNELLSVILLE SLOPES BDA
LOWER INDIAN CREEK BDA
Municipal Authority of Westmoreland County
YOUGHIOGHENY RIVER LCA
SITKA SLOPE BDA
YOUGHIOGHENY RIVER BDA
JOHNS HOLLOW BDA
CAMP CARMEL SLOPES BDA
State Game Lands #51
MIDDLE MORGAN RUN SLOPE BDA
DUNBAR CREEK LCA
Ohiopyle State Park
LIMESTONE RUN BDA
UPPER GLADE RUN BDA
CONNELLSVILLE
DUNBAR
STEWART
NORTH UNION
STATE GAME LANDS
WHARTON
Fayette
Sitka
Dunbar
South Connellsville
SCALE 1:24 000
CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL
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
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
Revisions shown in purple compiled in cooperation with State of Pennsylvania agencies from aerial photographs taken 1973. This information not field checked
ROAD CLASSIFICATION
Heavy-duty
Light-duty
Medium-duty
Unimproved dirt
U. S. Route
QUADRANGLE LOCATION
SOUTH CONNELLSVILLE, PA.
N3952.5—W7930/7.5
1964
PHOTOREVISED 1973
AMS 5063 I NE—SERIES V831

SOUTH CONNELLSVILLE QUADRANGLE

Fayette County covers all of the South Connellsville Quadrangle. The Youghiogheny River cuts through Chestnut Ridge on this quadrangle and flows northwest through the eastern section of the Pittsburgh Plateau. The town of South Connellsville sits in the northwest corner of the quad. This quadrangle has thirteen Natural Heritage areas and three managed lands – Municipal Authority of Westmoreland County, Ohiopyle State Park and State Game Lands #51.

Camp Carmel Slopes BDA

Morgan Run and three smaller unnamed tributaries to the west drain Camp Carmel Slopes BDA. A portion of this BDA lies within State Game Lands #51. The steep slopes support a mesic forest dominated by tuliptree (*Liriodendron tulipifera*), red maple (*Acer rubrum*), slippery elm (*Ulmus rubra*) and yellow birch (*Betula allegheniensis*). Other canopy species include basswood (*Tilia americana*) and eastern hemlock (*Tsuga canadensis*). The understory is primarily composed of striped maple (*Acer pennsylvanica*) with some patches of dense rosebay rhododendron (*Rhododendron maximum*) and wild hydrangea (*Hydrangea arborescens*). Herbs present include Virginia waterleaf (*Hydrophyllum virginianum*), jewelweed (*Impatiens* spp.) and marginal shield fern (*Dryopteris marginalis*).

On the edges of the ridges are outcrops of sandstone that provide habitat for two Pennsylvania animal species of special concern (**SA021**, **SA025** and **SA030**). Both of these species require rock formations in relatively undisturbed forest environments.

In the unnamed tributaries to the Youghiogheny River there are seepages that support a Pennsylvania plant species of special concern (**SP047**, **SP048** and **SP049**). The plants are found within rocky, perennial sections of the seepage runs within a full canopy forest.

Threats and Stresses

SA021 and SA025 are restricted to moist sandstone outcrops within relatively undisturbed forests. This species is confined to very few locations in southwestern Pennsylvania, all within Fayette County. Any disturbance to the outcrops or the crevices in which this animal lives may adversely affect this species. Additionally changes in microhabitat that could result from loss of canopy or upslope activities could negatively impact this animal population as well.

SA030 depends upon outcrops and natural rock formations to provide living and nesting habitat. The forest community present on this site provides this animal with forage

resources and helps to regulate and stabilize the microclimate(s) present on the site. Direct disturbance to the forest floor, activities that might affect the immediate habitat and associated rock outcrops including those that would result in a change in light levels, could adversely impact this animal. Increased access, noise levels or recreational activities in this area could also have detrimental impacts.

SP047, SP048 and SP049 require a perennial source of circumneutral groundwater. Activities that change the hydrology by affecting the recharge zones or lower the groundwater can impact these plants.

Recommendations

The PA Game Commission should be apprised of all information collected about the species of special concern, natural communities and landscape features to allow incorporation into a management plan for this site which would help guide recreation or resource management activities for the future. Other landowners involved within the BDA should be made aware of the significance of the site and may at some point have the opportunity to work in coordination with the Game Commission to consider the comprehensive management of the entire BDA.

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 the needs for ultimate protection of this site.

Casparis Mines BDA

Casparis Mine is an old limestone mine from the 1940's. The mine has experienced substantial human visitation as evidenced by the trash and campfire pits present at the entrance. The old mines serve as a habitat for a Pennsylvania animal species of special concern (**SA003**). These animals rely on the mines for winter quarters.

Threats and Stresses

Although created artificially, the microclimate is beneficial to the animals in the mine. Alteration of the surrounding hydrology or topography that would affect the condition in this case would affect the species of concern. Additionally, animals in the mine could be threatened by human visitation in the winter months. Noise, light and exhaust from vehicles could negatively impact the animals.

Recommendations

Human visitation during the winter months should be kept to a minimum. It is recommended that visitation to the site be controlled and that some education effort be extended to those users of the Game Lands who would choose to access the mines there be controlled visitation to the mines. The vegetative cover above the cave should kept intact

in order preserve the conditions now present in the mine. Activities that stand to alter the temperatures or surrounding landscape, such as mining or forestry should be avoided if possible.

Dunbar Creek LCA

The Dunbar Creek LCA encompasses a large, forested watershed that holds exceptional ecological value due to the individual and specific species and communities it contains and to its size and diversity. This area represents a substantial portion of the natural diversity of the county.

Dunbar Creek drains parts of three different quadrangles and has carved out a gorge in its journey to its confluence with the Youghiogheny River. Starting as seepage wetlands in the headwaters, the stream rapidly descends over waterfalls and then through many riffles and rapids. Along the way it picks up major tributaries such as Limestone Run and Glade Run. There are two BDA's that are part of the LCA; Limestone Run BDA and Upper Glade Run BDA.

Most of the valley is owned by the Pennsylvania Game Commission as State Game Lands #51. Within the parts of the LCA outside of the BDA's are some locations of a Pennsylvania animal species of special concern (**SA035**) and two plant species of special concern, one with three locations (**SP033** and **SP043**, **SP044**, and **SP045**).

Threats and Stresses

The BDA's contained within the Dunbar Creek LCA have their own recognized significance and attributes. The issues involved in their protection apply to the LCA as well. However, because the significance of the LCA lies in its size and contiguousness, the threats that face this area are different. Fortunately a large portion of the land within the LCA is within State Game Lands. Ownership of a large parcel by a resource management agency provides great potential for strong management and protection of the ecological integrity of this watershed.

Activities that would fragment this watershed LCA may be the greatest concern. Linear features like roads and utility right-of-ways can create barriers to migration and movement, particularly for animals with interior forest requirements. Such features can also facilitate the movement of exotic species and "edge" species like raccoon, fox, and domestic cats and dogs. Many interior forest species not adapted to the predatory pressures that are present in edge areas or open country.

Other large-scale disturbances such as mining, quarrying, clear-cutting, and development have fragmenting effects but because of their (potential size), directly eliminate habitat and can lead to substantial changes in microclimate and surrounding areas. In the case of streams, those impacts can be felt along the entire length of the drainage.

Recommendations

Developing management plans that focus on maintaining the range of natural diversity in the LCA will be an important foundation for the long-term conservation of these areas. Birds, terrestrial invertebrates, aquatic macro invertebrates, and plants are among the critical components of diversity that will require attention through further inventory and monitoring. Other landowners, outside of the Pennsylvania Game Commission should be made aware of the significance of the area and included in dialogues concerning the future management and use of the land within the watershed. Ultimately, the many resource values existing in the LCA will need to be balanced to allow the integrity of the landscape and natural communities to be maintained.

Dunbar Creek Confluence BDA

This Natural Heritage area is discussed in the Connellsville quadrangle.

Johns Hollow BDA

Johns Hollow is located to the west of the mouth of Indian Creek. Most of the drainage is in regeneration from heavy timbering. The immediate streamside forest was not timbered and provides a refugia for a Pennsylvania plant species of special concern (**SP001**). On the upper slope of Johns Hollow are outcrops of sandstone. These outcrops support an animal species of special concern (**SA029**).

Threats and Stresses

Loss of canopy, direct disturbances to habitat or other changes in microhabitat could adversely affect the plant population. This species grows in the seepage areas and needs a perennial source of discharging groundwater in order to exist. Activities that change the hydrology by affecting the recharge zones or lower the groundwater can impact these plants.

SA029 depends upon outcrops and natural rock formations to provide living and nesting habitat. The forest community present on this site provides this animal with forage resources and helps to regulate and stabilize the microclimate(s) present on the site. Direct disturbance to the forest floor, activities that might affect immediate habitat including those that would result in a change in light levels and direct impact to habitat would negatively impact this species. In addition increased access due to unplanned trail or road construction would create noise disturbances that would harm the animals.

Recommendations

Activities that alter the hydrology by affecting groundwater flows and recharge zones in the aquifer should be avoided. Any direct disturbance to the plant species of

special concern (SP001) that affects the microhabitat and results in a loss of water quality by increased sediment or nutrient load can be detrimental.

For the animal, activities that directly impact the sandstone outcrops or reduce the moisture present in the rock should be avoided. Working with the Pennsylvania Game Commission to assure that all information collected about this species of special concern, natural communities and landscape features is incorporated into a management plan for this site would help guide recreation or resource management activities for the future. 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 the needs for ultimate protection of this site.

Laurel Run Slopes BDA

Laurel Run Slopes BDA contains three locations of a Pennsylvania animal species of special concern (**SA012**, **SA024**, and **SA032**). This animal requires sandstone outcrops for nesting and shelter. Most of the surrounding forest is a dry oak forest with red oak (*Quercus rubra*), white oak (*Quercus alba*), chestnut oak (*Quercus prinus*) and tuliptree (*Liriodendron tulipifera*).

Threats and Stresses

The animal of special concern depends upon outcrops and natural rock formations to provide living and nesting habitat. The forest community present on this site provides this animal with forage resources and helps to regulate and stabilize the microclimate(s) present on the site. Direct disturbance to the forest floor, activities that might affect the immediate habitat and associated rock outcrops including those that would result in a change in light levels and/or direct impact to habitat. Increased access due to unplanned trail or road construction would raise the noise levels and could degrade the habitat for the animals.

Recommendations

Working with the landowner to make them aware of the presence and requirements of the animals would be a good first step in protecting the species present. More studies to get a better understanding of the species' ecology and distribution will help in furthering their survival over the long term. Activities within the BDA that could alter the microhabitat, directly impact the rock outcrops, or increase access to the site should be carefully evaluated to reduce potential impacts to this species.

Limestone Run BDA

Limestone Run is a major tributary to Dunbar Creek and enters Dunbar Creek above the Borough of Dunbar. Most of the drainage is forested with some scattered

clearcuts and areas managed by the Pennsylvania Game Commission as wildlife food plots.

Major overstory species on the upper slopes include yellow birch (*Betula allegheniensis*), sugar maple (*Acer saccharum*), tuliptree (*Liriodendron tulipifera*), red maple (*Acer rubrum*), red oak (Quercus rubra), and chestnut oak (*Quercus prinus*). Sycamore (*Platanus occidentalis*) is present on the lower slopes. Various wildlife food plots are planted with black walnut (*Juglans nigra*) and chinese chestnut (*Castanea mollissima*). These food plots harbor a large amount of multiflora rose (*Rosa multiflora*); an invasive exotic species. The understory and shrub layer are composed of mostly younger specimens of the canopy species with the addition of witch-hazel (*Hamamelis virginiana*) and spicebush (*Lindera benzoin*). Common herbaceous species include hay-scented fern *(Dennsteadtia punctilobula*), Clinton's lily (*Clintonia umbellulata*) which was quite abundant, indian cucumber root (*Medeola virginiana*), partridge berry (*Mitchella repens*) and great chickweed (*Stellaria pubera*). On sandstone outcrops on the slopes adjoining Limestone Run are two Pennsylvania animals species of special concern (**SA026**, **SA034**, and **SA036**). One of these animals (**SA034** and **SA036**) has two locations in the BDA. It needs these habitats for nesting and browses the nearby foliage of the herbaceous plants. The second species (**SA026**) is found in the moist crevices of the sandstone. A tributary to Limestone Run supports a plant species of special concern (**SP028**). This plant occurs in groundwater seepage wetlands.

Threats and Stresses

SA034 and SA036 depend upon outcrops and natural rock formations to provide living and nesting habitat. The forest community present on this site provides this animal with forage resources and helps to regulate and stabilize the microclimate(s) present on the site. Direct disturbance to the forest floor, activities that might affect the immediate habitat and associated rock outcrops including those that would result in a change in light levels and/or direct impact to habitat. Also noise and increased access from trail or road construction can negatively impact this species.

SA026 is restricted to moist sandstone outcrops within relatively undisturbed forests. This species is confined to very few locations in southwestern PA all within Fayette County. Any disturbance to the outcrops or the crevices in which this animal lives will adversely affect this species. Additionally changes in microhabitat that could result from loss of canopy or upslope activities could negatively impact this animal population.

SP028 may be adversely affected by loss of canopy, direct disturbances to habitat or other changes in microhabitat. This species grows in the seepage areas and needs a perennial source of discharging groundwater in order to exist. Activities that change the hydrology by affecting the recharge zones or lower the groundwater can impact these plants.

Recommendations

For the animals in the BDA, activities that directly impact the sandstone outcrops or reduce the moisture present in the rock should be avoided. Working with the PA Game Commission to assure that all information collected about this species of special concern, natural communities and landscape features is incorporated into a management plan for this site would help guide recreation or resource management activities for the future. 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 the needs for ultimate protection of this site.

For the plants, activities that affect the hydrology, recharge zones or lead to loss of the canopy should be avoided. Direct disturbance to the seepage areas should be avoided.

Lower Indian Creek BDA

This Natural Heritage area is discussed on the Mill Run quadrangle.

Middle Morgan Run BDA

This BDA is located on a slope to the west of Morgan Run. The terrain here is moderately sloping and is dominated mostly by oaks (*Quercus* spp.) and other mixed hardwoods. The sandstone outcroppings here support an animal species of special concern (**SA008**).

Threats and Stresses

SA008 depends upon outcrops and natural rock formations to provide living and nesting habitat. The forest community present on this site provides this animal with forage resources and helps to regulate and stabilize the microclimate(s) present on the site. Direct disturbance to the forest floor, activities that might affect the immediate habitat and associated rock outcrops including those that would result in a change in light levels and direct impact to habitat. Noise and access created by unplanned trail or road construction could have a detrimental impact on the species.

Recommendations

To protect the habitat of SA008, activities that directly impact the sandstone outcrops should be avoided. Working with the Pennsylvania Game Commission to assure that all information collected about this species of special concern, natural communities and landscape features is incorporated into a management plan for this site would help guide recreation or resource management activities for the future. 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 the needs for ultimate protection of this site.

Sitka Slope BDA

This BDA is along the disturbed roadside of US 119 south of Connellsville. On the slope immediate to the roadside lives a Pennsylvania plant species of special concern (**SP038**). This species is generally found as an understory associate in a more mature forest but in this situation it is growing independently in an open situation.

Threats and Stresses

SP038 is growing on a disturbed road bank. Activities associated with maintaining the road may threatened the viability of this population and individual plants. Increased infrastructure or widening of the road may impact the population or eliminate the population. Adding to these threats may be the lack of awareness by the owners, PennDot and local road crews.

Recommendations

Although growing in an atypical and disturbed habitat, this location of a Pennsylvania threatened species has value in maintaining the greater population of this plant in Pennsylvania and in Fayette County. Making the landowner, PennDot maintenance supervisors, and local road crews aware of the significance of these plants will go a long way in conferring some protection. With future management interest, it may be possible to establish more suitable and natural conditions at this site for the maintenance and expansion of this particular population.

Upper Glade Run BDA

This Natural Heritage area is discussed in the Ohiopyle quadrangle.

Youghiogheny River BDA

This Natural Heritage area is discussed on the Ohiopyle quadrangle.

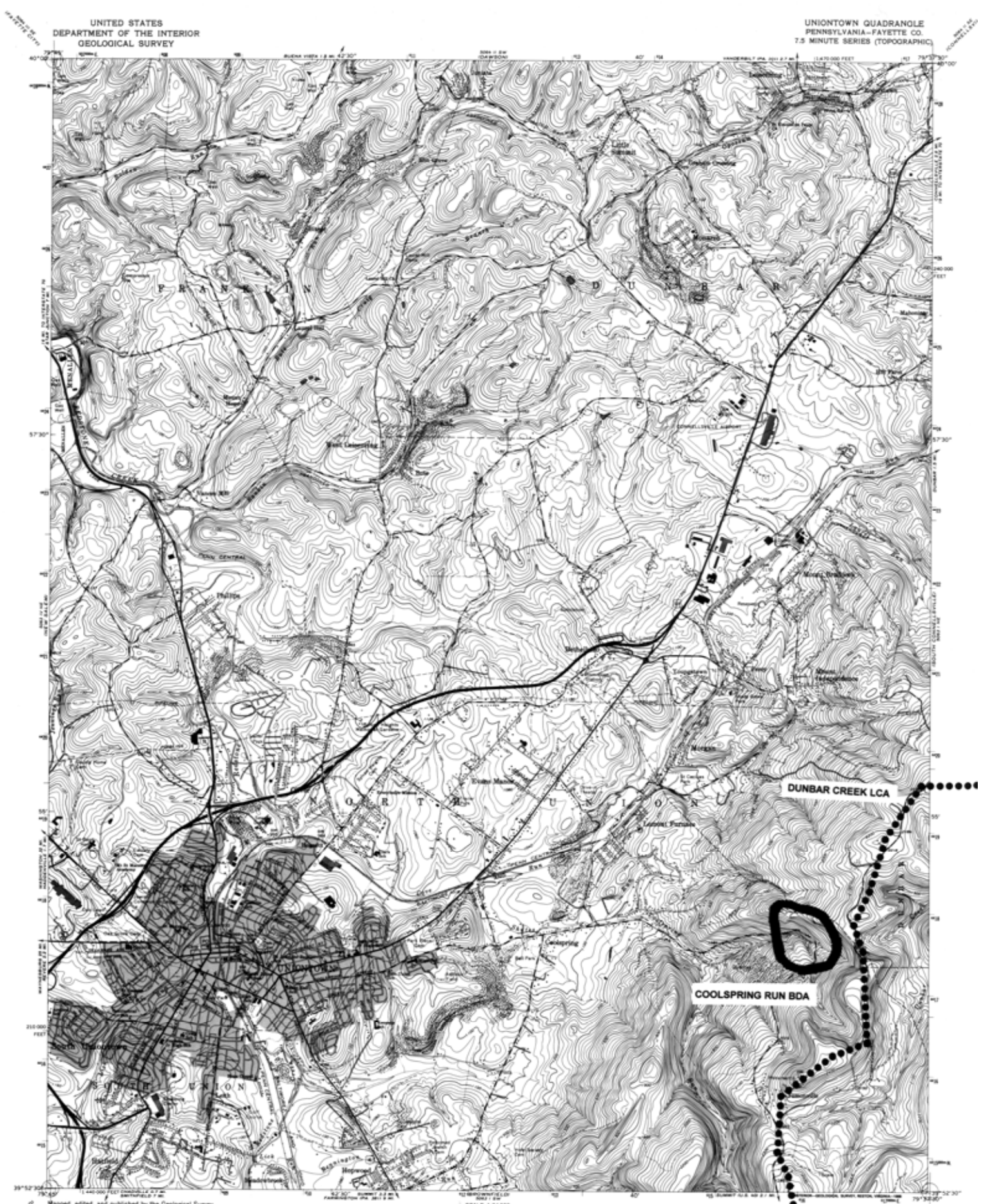
Youghiogheny River LCA

This Natural Heritage area is discussed on the Ohiopyle quadrangle.

UNIONTOWN QUADRANGLE

		PNDI Rank		Legal Status	
		Global	State	Fed.	State
NATURAL HERITAGE AREAS:					
COOLSPRING RUN BDA		*Notable Significance*			
SPECIAL ANIMAL:	SA007	G3G4	S3	N	PT

MANAGED LANDS: Fort Necessity National Battlefield


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
UNIONTOWN QUADRANGLE
PENNSYLVANIA—FAYETTE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
DUNBAR CREEK LCA
COOLSPRING RUN BDA
FRANKLIN
DUNBAR
NORTH UNION
SOUTH UNION
UNIONTOWN
Mapped, edited, and published by the Geological Survey
Control by USGS, USC&GS, and USCE
Topography by photogrammetric methods from aerial photographs taken 1962 and 1963. Field checked 1963
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
To place on the predicted North American Datum 1983, move the projection lines 5 meters south and 19 meters west as shown by dashed corner ticks
SCALE 1:24 000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
ROAD CLASSIFICATION
Light-duty
Unimproved dirt
U.S. Route
State Route
Map photoinspected 1977
No major culture or drainage changes observed
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
Revisions shown in purple compiled in cooperation with State of Pennsylvania agencies from aerial photographs taken 1973. This information not field checked
UNIONTOWN, PA
39079-H6-TF-024
PHOTOINSPECTED 1977
1963
PHOTOREVISED 1973

Uniontown Quadrangle

Fayette County covers this entire quadrangle. Most of the quadrangle lies within the Pittsburgh Plateau section of Fayette County except for a small section in the southeast which lies within the Allegheny Mountain section. The City of Uniontown is a prominent feature of the landscape in the southern part of the quadrangle. Most of the streams on the west side of Chestnut Ridge, such as Lick Run flow into Redstone Creek, a tributary to the Monongahela River. In the southeast corner are the headwaters of Dunbar Creek which flows into the Youghiogheny River upstream of Connellsville. This quadrangle has two Natural Heritage areas and one managed land – **Jumonville Glen** of Fort Necessity National Battlefield.

Coolspring Run BDA

Coolspring Run is a tributary to Shultes Run; a direct tributary to Redstone Creek. Numerous sandstone outcrops extend along the slopes within the Coolspring Valley. The relatively undisturbed forests and rock outcrops furnish habitat for a population of a Pennsylvania animal species of special concern (**SA007**).

Threats and Stresses

SA007 depends upon outcrops and natural rock formations to provide living and nesting habitat. The vegetative material present on this site provides this animal with forage resources and helps to regulate and stabilize the microclimate(s) present on the site. Direct disturbance to the forest floor, activities that might affect the immediate habitat and associated rock outcrops including those that would result in a change in light levels and moisture, could adversely impact this animal. Increased access, noise levels or recreational activities in the area could also have adverse impacts to this animal.

Recommendations

Working with the landowner to make them aware of the presence and requirements of the animals would be a good first step in protecting the species here. More studies to get a better understanding of the species' ecology and distribution will help in furthering their survival over the long term. Activities within the BDA that could alter the microhabitat, directly impact the rock outcrops, or increase access to the site should be carefully evaluated to reduce potential impacts to this species. Any road or trail construction should be planned to avoid this area.

Dunbar Creek LCA

This Natural Heritage area is discussed on the South Connellsville quadrangle.

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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 Fayette 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 database 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 fieldwork 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 Fayette County.

APPENDIX III

FAYETTE 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
TERRESTRIAL FORESTS		
Hemlock (white pine) forest	G5	S3S4
Serpentine pitch pine – oak forest	G2	S1
Serpentine Virginia pine – oak forest	G2	S1
Pitch Pine – mixed oak forest	G?	S3S4
Virginia pine – mixed hardwood forest	G?	S5
Dry white pine (hemlock) – oak forest	G?	S5
Hemlock (white pine) – northern hardwood forest	G?	S5
Hemlock (white pine) – red oak – mixed hardwood forest	G?	S4
Hemlock – tuliptree – birch forest	G?	S4
Rich hemlock – mesic hardwoods forest	G?	S2S3
Dry oak –heath forest	G?	S5
Dry oak – mixed hardwood forest	G?	S3
Red oak – mixed hardwood forest	G?	S5
Northern hardwood forest	G?	S4
Black cherry – northern hardwood forest	G?	S4
Tuliptree – beech – maple forest	G?	S4
Sugar maple – basswood forest	G?	S4
Mixed mesophytic forest	G?	S1S2
Sweet gum – oak coastal plain forest	G?	S1
Red maple (terrestrial) forest	G?	S5
Black-gum ridgetop forest	G?	S4
Aspen/gray (paper) birch forest	G?	S?
Black locust forest	G?	SW
PALUSTRINE FORESTS		
Black Spruce- tamarack peatland forest	G?	S2
Red Spruce palustrine forest	G?	S2
Hemlock palustrine forest	G5	S3
Hemlock – mixed hardwood palustrine forest	G?	S3S4

APPENDIX IV (CONT.)

COMMUNITY NAME	GLOBAL RANK	STATE RANK
Red spruce – mixed hardwood palustrine forest	G?	S2
Bottomland oak – hardwood palustrine forest	G5	S2
Red maple – black-gum palustrine forest	G5	S3S4
Red maple – black ash palustrine forest	G?	S2
Red maple – magnolia Coastal Plain palustrine forest	G?	S1
Great Lakes Region lakeplain palustrine forest	G?	S1
Sycamore – (river birch)- box elder floodplain forest	G?	S2
Silver maple floodplain forest		
Sycamore – (river birch)- box elder floodplain forest	G?	S2
Red maple – elm – willow floodplain swamp	G?	S1
TERRESTRIAL WOODLANDS		
Pitch pine – heath woodland	G4	S2S3
Pitch pine – scrub oak woodland	G4	S2
Red spruce rocky summit	G?	S1
Pitch pine – rhodora – scrub oak woodland	G?	S1
Pitch pine – mixed hardwood woodland	G4	S2
Virginia pine – mixed hardwood shale woodland	G?	S2
Red-cedar – mixed hardwood rich shale woodland	G?	S1S2
Dry oak – heath woodland	G4	S2
Birch (black-gum) rocky slope woodland	G?	S2
Yellow oak – redbud woodland	G?	S2
Great Lakes Region scarp woodland	G?	S2
Great Lakes Region bayberry – cottonwood community	G?	S1
PALUSTRINE WOODLANDS		
Pitch pine – leatherleaf woodland	G?	S2
Black spruce – tamarack palustrine woodland	G?	S2
Red spruce palustrine woodland	G?	S1S2
Red maple – highbush blueberry palustrine woodland	G5	S3
Red maple – sedge palustrine woodland	G5	S3
Red maple – mixed shrub palustrine woodland	G?	S3

APPENDIX IV (CONT.)

COMMUNITY NAME	GLOBAL RANK	STATE RANK
TERRESTRIAL SHRUBLANDS		
Red-cedar – prickly pear shale shrubland	G?	S2
Red-cedar – pine serpentine shrubland	G2	S1
Red-cedar – redbud shrubland	G?	S2
Low heath shrubland	G4	S2
Low heath – mountain ash shrubland	G?	S2
Scrub oak shrubland	G4	S2
Rhodora – mixed heath – scrub oak shrubland	G?	S1
PALUSTRINE SHRUBLANDS		
Buttonbush wetland	G?	S3
Alder – ninebark wetland	G?	S3
Alder – sphagnum wetland	G5	S2S3
Highbush blueberry – meadow-sweet wetland	G5	S2S3
Highbush blueberry – sphagnum wetland	G?	S3
Leatherleaf – sedge wetland	G?	S2S3
Leatherleaf – bog rosemary	G?	S2
Leatherleaf – cranberry peatland	G?	S2
Water-willow (*Decodon verticillatus*) shrub wetland	G?	S2
River birch – sycamore floodplain scrub	G?	S3
Poison sumac – red-cedar – bayberry fen	G2	S1
Buckthorn – sedge (*Carex interior*) – golden ragwort fen	G2G3	S1
Great Lakes Region scarp seep	G?	S1
Great Lakes Region bayberry – mixed shrub palustrine shrubland	G?	S1
TERRESTRIAL HERBACEOUS OPENINGS		
Side-oats gramma calcareous grassland	G2	S1
Calcareous opening/cliff	G?	S1S2
Serpentine grassland	G?	S1
Serpentine gravel forb community	G?	S1
Great Lakes Region dry sandplain	G?	S1

APPENDIX IV (CONT.)

COMMUNITY NAME	GLOBAL RANK	STATE RANK
HERBACEOUS WETLANDS		
Bluejoint – reed canary grass marsh	G?	S3S4
Cat-tail marsh	G?	S3S4
Tussock sedge marsh	G?	S3
Mixed forb marsh	G3G4	S3S4
Herbaceous vernal pond	G?	S3
Wet meadow	G?	S3
Bulrush marsh	G?	S2
Great Lakes Region palustrine sandplain	G?	S1
Prairie sedge – spotted joe – pye – weed marsh	G?	S1
Open sedge (*Carex stricta*, *C. prairea*, *C. lacustris*) fen	G?	S1
Golden Saxifrage – sedge rich seep	G?	S1S2
Skunk cabbage – golden saxifrage forest seep	G?	S3
Serpentine seepage wetland	G?	S1
Golden saxifrage – Pennsylvania bitter-cress spring run	G?	S2
Sphagnum – beaked rush peatland	G?	S2
Many fruited sedge – bladderwort peatland	G?	S2
Water-willow (*Justicia americana*) – smartweed riverbed community	G?	S2
Riverside ice scour community	G?	S1S2
Big bluestem – Indian grass river grassland	G?	S3S4
Pickerel-weed – arrow-arum – arrowhead wetland	G3G4	S3
Spatterdock – water lily wetland	G?	S2S3
SUBTERRANEAN COMMUNITIES		
Solution Cave Terrestrial Community	G?	S3
Solution Cave Aquatic Community	G?	S3
Tectonic Cave Community	G?	S3S4
Talus Cave Community	G?	S2S4
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 no likelihood that it will be rediscovered.

APPENDIX Vc (CONT.)

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 no 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.

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 VI

SPECIAL PLANTS AND ANIMALS OF FAYETTE COUNTY

PLANTS

SCIENTIFIC NAME	COMMON NAME
Aconitum reclinatum Gray	White Monkshood
Aconitum uncinatum L.	Blue Monkshood
Antennaria solitaria Rydb.	Solitary Pussy-Toes
Asplenium pinnatifidum Nutt.	Lobed Spleenwort
Aster radula	Rough Wood Aster
Carex careyana	Carey's Sedge
Chasmanthium latifolium	Sea Oats
Cimicifuga americana	American Bugbane
Clethra accuminata	Mountain Sweet Pepperbush
Delphinium exaltatum	Tall Purple Larkspur
Erigenia bulbosa	Harbinger-of-Spring
Eupatorium coelestinum	Blue Mistflower
Houstonia purpurea	Venus' Pride
Hypericum densiflorum	Bushy St. John's-Wort
Lithospermum latifolium	American Gromwell
Marshalllia grandiflora	Large-flowered Marshallia
Meehania cordata	Meehan's Mint
Myriophyllum heterophyllum	Two-leaf Water-milfoil
Orontium aquaticum	Golden Club
Oxydendrum arboreum	Sourwood
Oxypolis rigidior	Stiff Cowbane
Platanthera permoena	Pride-of-the-peak
Polygala cruciata	Drumheads
Pyrularia pubera	Buffalo nut
Saxifraga micranthidifolia	Lettuce-leaf Saxifrage
Scutellaria saxatilis	Smooth Rock Skullcap
Stylosanthes biflora	Side-beak Pencil Flower
Trautvettaria caroliniensis	Carolina Tassel-Rue
Vitis rupestris	Rock Grape

ANIMALS

SCIENTIFIC NAME	COMMON NAME
Aneides aeneus	Green Salamander

Myotis leibii	Eastern Small-footed Myotis

Appendix VI (Continued.)

SCIENTIFIC NAME	COMMON NAME
Myotis septentrionalis	Northern Myotis
Neotoma magister	Allegheny Woodrat
Sorex palustris	Water Shrew
Tachopteryx thoreyi	Thorey's Dragonfly