LITTLE NESCOPECK CREEK WATERSHED CONSERVATION MANAGEMENT PLAN

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WILDLANDS CONSERVANCY

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Little Nescopeck Creek Watershed Conservation Management Plan

A project of

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EXECUTIVE SUMMARY

Introduction

The Little Nescopeck Creek watershed is located in southern Luzerne County, Pennsylvania. The drainage basin of the Little Nescopeck Creek encompasses approximately 14 square miles and lies within Sugarloaf and Butler Townships, the Borough of Conyngham and a very small portion of Hazel Township. The stream flows from its headwaters in Butler Township approximately 10 miles to its confluence with the Nescopeck Creek in Sybertsville.

The Little Nescopeck Creek, a tributary to Nescopeck Creek, is severely impacted by a water-quality-impaired discharge from the adjacent mined watershed. This project is unique in that the impacted watershed is not directly affected by mining activities. A water level drainage tunnel, the Jeddo, which was constructed to dewater deep mine coal measures in the Eastern Middle Anthracite Field, has interconnected the natural watersheds of the Little Nescopeck and the Hazleton area mining operations. After the collapse of the deep mining industry, the Jeddo Tunnel continues to drain the abandoned mine workings.

The Jeddo Tunnel, which drains 32.24 square miles and discharges an average of 40,000 gallons per minute into the Little Nescopeck Creek, is one of the largest mine water discharges in the anthracite region. Abandoned mine drainage discharge from the Jeddo Tunnel is the major identified source of non-point-source pollution in the Little Nescopeck Creek watershed. Little Nescopeck Creek receives all the flow from the Tunnel. For this reason, significant attention is directed in this plan toward the Jeddo Tunnel system.

The Little Nescopeck Creek is classified as a High Quality-Cold Water Fishery (HQ-CWF) stream above the tunnel discharge, as is Nescopeck Creek upstream from its confluence with the Little Nescopeck. The quality-impaired Little Nescopeck Creek joins Nescopeck Creek, which eventually enters the Susquehanna River near Berwick, Pennsylvania. The impacts of the Little Nescopeck Creek are evident in the Nescopeck Creek, the Susquehanna River and the Chesapeake Bay.

Wildlands Conservancy has received a Pennsylvania Rivers Conservation Program Planning Grant for the Little Nescopeck Creek. A study of the Little Nescopeck Creek and the preparation and publication of a comprehensive Little Nescopeck Creek Watershed Conservation Plan were the intended outcomes of the grant. The Pennsylvania Rivers Conservation Program was created by the Pennsylvania Department of Conservation and Natural Resources (DCNR). The

objective of the program is to conserve, restore and enhance Pennsylvania's rivers through partnership, education, awareness and stewardship.

The primary goals of the Little Nescopeck Creek Project are to restore the physical and biological health of the stream; establish management practices to prevent additional degradation of the stream; preserve critical cultural and natural resource areas within the watershed; and, ultimately, have the Little Nescopeck Creek listed on the Pennsylvania Rivers Registry. Inclusion on the Registry will qualify the Little Nescopeck Creek watershed for technical and financial assistance from the state for restoration and improvement projects.

In order for the Little Nescopeck Creek to be included on the Registry, the management plan must identify the historical, cultural, natural and physical resources along the creek. The plan must also characterize the water quality and aquatic life of the stream, as well as identify any problem areas in the watershed. In addition, the plan must contain recommendations for conservation and preservation of the Little Nescopeck Creek based on information collected as part of this project and input from public hearings and informational meetings with municipalities.

Resource Inventory

Physical Resources

Geology: The Little Nescopeck Creek watershed is located in the mountain region of the Valley and Ridge Physiographic Province. The valley-forming Mauch Chunk Formation underlies the majority of the watershed. The absence of limestone in the watershed results in very low levels of alkalinity in the Little Nescopeck and inhibits the creek from buffering its acidic pollution.

Topography: A narrow valley bounded on the north and south by high ridges typifies the watershed. Nescopeck Mountain forms the northern boundary and Buck Mountain forms the southern boundary. Elevations range from 850 feet in the western portion of the valley to 1800 feet at the eastern tip of the watershed boundary along Nescopeck Mountain.

Aquatic Resources

Surface Water: The Little Nescopeck Creek is approximately 10 miles long with a drainage area of about 14 square miles. The creek has 10 unnamed tributaries. Approximately 2.5 miles from its headwaters, the Little Nescopeck receives an average 40,000-gallon-per-minute acidic discharge from the coal-mined watershed to the south via the Jeddo Tunnel. From this point to the confluence with the Nescopeck Creek, the Little Nescopeck is devoid of all aquatic life.

Groundwater: The Mauch Chunk Shale is one of the most productive water-bearing formations in the area. Its low-lying topographic position, between high

ridges and a generally shallow water table, make it favorable for groundwater development.

Biological Resources

Flora: The flora of the Little Nescopeck Creek watershed is representative of the Ridge and Valley Province through much of Pennsylvania. Agricultural areas have been utilized for various field and forage crops. The woodland plant community and, ultimately, residential developed areas that have re-vegetated naturally are made up of various hardwoods, conifers, grasses, legumes and both wild and domestic herbaceous plants.

Fauna: Little Nescopeck Creek is classified as a High Quality-Cold Water Fishery above the Jeddo Tunnel and fish and macro-invertebrate sampling has supported that classification. The stream supports native brook trout, sunfish and bass, but, 2.5 miles downstream from the headwaters and throughout the remaining length of the creek, macro-invertebrate and fish communities are non-existent. Herpetological, avian and mammalian studies are included in this management plan.

Cultural Resources

Historical significance: The early history of the watershed is dominated by the Lenni Lenape and traces back to the passage of the Great Southern Trail of the Iroquois. The most significant historical events related to the watershed's current environmental condition revolve around the anthracite mining industry of the Eastern Middle Coalfield. Many of the historical sites and museums in the area surrounding the Little Nescopeck are devoted to early Native American history and to the rise and fall of the anthracite industry.

Socio-economic background: The immediate watershed of the Little Nescopeck is approximately 14 square miles and is dominated by small agricultural lands and suburban developments. Economic resources tied to the watershed are therefore predominantly located in the surrounding areas of Hazleton and Wilkes-Barre. The restoration of clean water as an economic resource for industry, recreation and drinking must be an extremely high priority for all economic development agencies in the region.

Recreational Resources

Currently the area supports modest systems of golf courses and small public parks in various unnatural stages. Due to the environmental condition of the Little Nescopeck, recreational activities such as swimming, boating, canoeing and white water rafting are currently either limited or made inhospitable. Rail-to-Trail conversion projects are becoming increasingly popular in the area.

Institutional Resources

Several government agencies exist to deal with the issues of mining and abandoned mine drainage in Pennsylvania and include the Office of Surface

Mining, the Pennsylvania Department of Environmental Protection (Pa. DEP) Bureau of Mine Reclamation and the Pa. DEP Bureau of Abandoned Mine Reclamation. Programs that exist to address abandoned mine drainage and mine land reclamation issues include the Regional Watershed Support Initiative, the Clean Streams Initiative and the Reclaim PA project.

Several programs and agencies also exist to assist landowners in land preservation and protection goals. Sources of information pertaining to farmland and open space preservation include Wildlands Conservancy, the Bureau of Farmland Protection, the Land Trust Alliance and the Natural Resources Conservation Service.

There are also a number of agencies and programs dedicated to historic preservation, restoration and education, including the Pennsylvania Historic and Museum Commission and Preservation Pennsylvania.

The Little Nescopeck Creek watershed has a strong need for increased citizen involvement in its protection. With the exception of the small grassroots organization Friends of the Nescopeck, there appears to be very little involvement in the Little Nescopeck clean-up effort by the local community.

Watershed Issues

The Jeddo Tunnel

The Jeddo Tunnel is the largest mine drainage tunnel in the Eastern Middle Anthracite Field and is the primary source of acid-mine and fine-grained coal waste pollution to the Little Nescopeck Creek. It drains an approximately 32.24 square mile area underlain by abandoned deep mines and discharges an average of 40,000 gallons of abandoned mine drainage per minute into the Little Nescopeck near its headwaters, affecting the stream for most of its length.

Water Quality

Water quality has been analyzed for the Little Nescopeck and Nescopeck Creeks, the Jeddo Tunnel and the Susquehanna River. The analysis of these samples shows values typical of waters impacted by Abandoned Mine Drainage in eastern Pennsylvania. High acidity levels, high concentrations of sulfide minerals, the absence of significant carbonate minerals and excessively high concentrations of dissolved metals were evident in the water quality analysis. Average values in the Little Nescopeck Creek between 1996 and 1998 include: acidity, 26.63; pH, 4.86; aluminum, 4.03; iron, 2.01; sulfate, 130.87; manganese, 1.83 and zinc, 0.31 mg/L.

Land Use

Predominant land uses include small to mid-sized farms and existing and future suburban housing developments. The area is also covered with several sections

of woodlands and the Little Nescopeck and Nescopeck Creeks are well insulated by substantial riparian buffers throughout most of their lengths.

Management Options

❶ Improve Water Quality in the Little Nescopeck Creek and its Tributaries

Abate abandoned mine drainage and restore mine-scarred land. Establish an effective channel network for draining surface water out of the Jeddo Tunnel watershed by re-establishing perimeter drains, constructing new channels outside mined lands, connecting discontinuous drainage ways and reducing their potential for infiltration and filling and sealing closed depressions and pits in the land surface.

Remine and reclaim abandoned mine land that cause abandoned mine drainage by closing and backfilling mine openings, backfilling open pits and eliminating dangerous highwalls. Use Title IV and other SMCRA funding to reclaim priority sites that are causing Acid Mine Drainage.

Control urban non-point source pollution by utilizing both structural and non-structural control methods.

Revise storm water management practices, restore and establish riparian buffers and increase public involvement in non-point and point source pollution control.

❷ Preserve and Protect Valuable Land Resources

Preserve farmland and critical open space by utilizing state, federal and local preservation programs.

Preserve wetlands. They are a very sensitive part of the ecosystem and perform many functions to benefit the Little Nescopeck Creek corridor. Better compliance with wetland regulations is needed to protect these sensitive areas.

Ordinances structured to encourage stewardship of creek resources, protect wellhead areas, protect riparian zones and limit land uses and activities within the stream corridors and floodplains should be created or adopted.

❸ Preserve Historical Resources and Develop Heritage Tourism

Identify and preserve regionally and nationally significant historic sites and landscapes within and related to the Little Nescopeck Creek watershed by supporting watershed heritage tourism and program development.

Conduct a systematic survey of the watershed to identify and list potential national registry sites and structures and utilize the training available from the Bureau of Historic Preservation.

Educate residents of the Little Nescopeck Creek watershed about its heritage and value by reaching out to children, elected officials and key individuals.

Build better communities through preservation by strengthening preservation planning, expanding the use of preservation as an economic development strategy and making technical assistance more available to citizens and local governments.

❹ Document Water Quality and Biological Characteristics

Conduct water quality monitoring and regular stream walks through combined efforts of volunteer organizations, educational institutions and individuals in order to monitor physical changes, identify problem areas and note adjustments that should be made in management practices.

Conduct biological monitoring and maintain records of the stream corridor and habitat and vegetative, aquatic and wildlife species present within the corridor in order to recognize and assess threats that may disrupt the balance of the ecosystem.

Establish an efficient system of data management and distribution in order to provide concerned individuals with appropriate contact and reporting information and improve public awareness and communication between conservation groups and educational institutions.

❺ Enhance and Increase Watershed Recreational Opportunities

Implement Rails-to-Trails conversion projects by supporting existing projects, conducting feasibility studies regarding potential projects and examining associated economic benefits. Study the feasibility of developing a greenway along the Little Nescopeck Creek corridor.

Develop a comprehensive plan in order to help guide the development of the Bishop Property recreational area in an environmentally sound and educational manner. Address non-point source pollution, erosion and sedimentation in Whispering Willows Park.

❻ Increase Environmental Awareness, Knowledge, Skills and Stewardship Commitment

Provide environmental, heritage and cultural education opportunities to school groups, the general public and local government and business leaders by documenting the entire length of the Little Nescopeck Creek and its biological resources, posting educational signs and developing educational materials that promote public environmental awareness.

Clean up the stream corridors within the watershed on a regular basis. Clean-up activities should be utilized in educational efforts and municipalities and local businesses should sponsor public river corridor clean-up days.

Hold frequent and well-advertised public meetings, utilize local newspapers to focus on public relations and stewardship of the Little Nescopeck Creek and hold periodic seminars on environmental topics affecting the Little Nescopeck Creek.

Summary and Conclusions

The Little Nescopeck Creek watershed is a valuable and unique resource. The headwaters of the creek are designated a High Quality-Cold Water Fishery and support a native brown trout population and its riparian corridor provides excellent woodland habitat to a wide variety of wildlife. The management options have been developed in an attempt to restore, preserve and enhance the value of these resources.

The primary source of degradation to the Little Nescopeck Creek involves more than a century of subsurface and surface mining activities that have left a legacy of physical and chemical contamination of mine water draining the Eastern Middle Coalfield through the Jeddo Tunnel and into the Little Nescopeck. The quality of this water has been greatly affected through contact with acid-producing minerals present in the coal and associated rock when exposed to infiltrating water. The water from the Jeddo Tunnel is predominantly acidic and metal concentrations commonly exceed maximum contamination levels. A reduction in abandoned mine drainage at the mouth of the Jeddo Tunnel will decrease the negative impact on the Little Nescopeck and Nescopeck Creeks and the Susquehanna River.

The abatement of abandoned mine drainage to the Little Nescopeck Creek, along with the implementation of other management practices, would provide significant benefits for its numerous resources, including dramatic improvement of water quality and aquatic life, expansion of wildlife habitat and enhanced scenic and recreational value.

The actions called for in the management plan cannot be effectively implemented without proper education of the public. Education is critical to a healthy watershed. Knowledgeable and concerned citizens and institutions must share information with their neighbors and other contacts in order to strengthen the conservation effort on a watershed-wide basis. By establishing partnerships, resources can be shared and utilized more effectively. Partnerships and open lines of communication among concerned institutions and individuals are essential to the successful restoration and preservation of the Little Nescopeck Creek watershed.

TABLE OF CONTENTS

LIST OF MAPS

LIST OF PHOTOGRAPHS

LIST OF TABLES