

SAWKILL/VANDERMARK CREEK WATERSHED CONSERVATION PLAN EDUCATION SUBCOMMITTEE REPORT

1. *Existing Environmental Education Programs in the Watershed*

- Know Your Watershed Education Campaign for the Sawkill Creek and Vandermark Creek Watersheds - Pike County Planning Department, Pike County Conservation District, Penn State Cooperative Extension, the National Park Service and the Delaware Valley School District received this Water Resources Education Network Grant in 2001 to broaden educational outreach efforts on water resource issues in the Sawkill and Vandermark Creek watersheds. One component of the Campaign is the development of a series of public workshops on surface and groundwater quality, homeowner conservation measures and developing a watershed association. The grant enabled the purchase of an Enviroscape model, which demonstrates non-point source pollution principles. The model has been used at a Home-A-Syst program, watershed association programs and in presentations to local 10th grade students. Other components of the grant include the development of watershed fact sheets and student watershed educational modules.
- Delaware Valley School District -

Delaware Valley High School (DVHS) - The Delaware Valley Environmental Club, under the guidance of Sheila Hodges, DVHS Biology teacher, has participated in the "Adopt-A-Stream" program sponsored by the PA Fish & Boat Commission. Students have adopted the Vandermark Creek. The Club has obtained grants that have enabled them to purchase water-testing equipment. The equipment is used to provide consistent water quality monitoring on selected sites on the Vandermark Creek, contributing to long-term research conducted by the Pike County Conservation District and the National Park Service. In addition, the Club has participated in Water Snapshot 1998, 1999 and 2000 by sampling water quality and benthic macroinvertebrates in the Vandermark Creek.

In addition, Penn State Cooperative Extension and Pike County Conservation District provided Enviroscape and Groundwater Flow Model demonstrations for

DVHS 10th grade biology students in the fall of 2001, and will continue to offer these demonstrations at DVHS in cooperation with Ms. Hodges.

- The Commonwealth of Pennsylvania's Department of Education has approved academic standards for Environment and Ecology (PA EE Standards). All PA schools are now required to develop curricula that incorporate the Standards. Mr. Mark Cykosky, Environmental Science teacher, has developed curriculum for a High School Science 3 Course for 11th and 12th grade students in the Delaware Valley School District. This course, designed as a third year academic elective for students interested in the natural environment that surrounds them, as well as a basic environmental science course, is designed to meet the PA EE Standards. Science 3 will examine the world with respect to the economic, cultural, political and social structure as well as natural processes and systems. The Delaware Valley School Board adopted High School Science 3 in July 1999. Currently, there are a total of 9 classes offered either as academic or basic courses.

Delaware Valley Middle School (DVMS) - Craig Thompson, GIS Coordinator for the Delaware Water Gap National Recreation Area, has developed a power point presentation for DVMS students. This presentation illustrates computer technology and applications to natural resource management and provides an introduction to the National Park Service and its role in resource conservation and management of public lands.

Delaware Elementary School - The Pike County Conservation District provided presentations to elementary level students attending the DV ACE day camp in the summer of 2001. Plans are to continue involvement in this program in the future.

- Delaware Valley Raptor Center - Located in Milford Township, The Center is a non-profit organization dedicated to the conservation of birds of prey. The Center's goals are to provide humane care for injured, ill and orphaned raptors so they can be returned to the wild. In order to support their efforts, the Center has a bird adoption program, memberships and live birds of prey programs. Center grounds are closed to the general public to provide for the well-being and safety of raptors housed at the facility.
- Grey Towers National Historic Landmark - Located in Milford, former home of conservationist Gifford Pinchot, now administered by the United States

Department of Agriculture Forest Service. Conservation education programs for all ages, pre-school through adult, are offered including Reading Ranger, Project Wild, Project Learning Tree, Project Wet and USDA Forest Service conservation programs, including Smokey Bear and Woodsy Owl and teacher training workshops. The majority of the programs meet the core curriculum standards and Forest Service Learner guidelines. In addition, Grey Towers is part of a national network of acid rain monitoring, with staff collecting rainwater every week and conducting tests for conductivity and pH for inclusion in a national database compiled by the National Atmospheric Deposition Program. On-site trails include Tree ID, forestry, conservation history and in the future, an aquatic trail and pond education program along the Vantine Creek near the entrance to Grey Towers.

2. Environmental Education Needs in Watershed

- A watershed follows natural boundaries, networking the water resources within its drainage system. Consistent water quality monitoring, conducted by well-trained, qualified individuals, can provide a means to monitor the health of receiving waters as well as contributing watershed(s). Once they have obtained the necessary knowledge and skills, residents have a vested interest in maintaining and monitoring the quality of the water resources within their watershed. There are currently organizations, agencies and schools providing water quality monitoring and watershed education in the Sawkill/Vandermark Creek Watershed. These efforts are often carried out separately or in small partnerships. Additional opportunities for watershed education and monitoring programs for citizens, educators and students are needed. Examples of programs include the PA Department of Conservation & Natural Resources Watershed Education Program, Global Rivers Environmental Education Network (GREEN), Home-A-Syst, Global Learning & Observations to Benefit the Environment (GLOBE), and Adopt a Watershed. There is also a need for a network of individuals, teachers and students to monitor the watershed. The efforts of this group needs to be coordinated with organizations already monitoring within the watershed so that the same protocols are used and data is not duplicated. A Sawkill Creek/Vandermark Creek Watershed Association would provide overall coordination of existing and future monitoring activities in the watersheds.

3. Goals, Objectives & Recommended Activities for Future Watershed Education

Goal 1: To raise awareness and educate the general public about the Watershed Plan.

To educate the general public, we first have to make them aware of the watershed planning effort and the watershed. This can be accomplished through cooperating organizations and agencies attending events, such as County Fairs, Earth Day celebrations and other community events. Demonstrations using the Enviroscope and Groundwater Flow Models can be provided along with relevant literature. Questions from the general public can also be addressed. These and other water resource education programs can also be provided for the general public and property owners associations through scheduled programming.

Other ways to educate the public would be to hold events such as guided stream walks, volunteer amphibian and bird counts and fishing demonstrations. The amphibian count can be modeled after the New Jersey count. Participation in other amphibian monitoring projects might include the USGS's "Frog Watch", the PA Herpetological Atlas, and vernal pool monitoring programs. Guided stream walks can be conducted by Pocono Environmental Education Center (PEEC) staff or other area naturalists (i.e. John Serrao). A local Trout Unlimited chapter could conduct the fishing demonstrations.

Currently the Pike County Conservation District is having a natural resource education website developed entitled, "The Pike County Natural Resources Learning Site". Completion of the site is scheduled for April 2002.

Goal 2: To educate regional teachers about the watershed

In order to successfully educate school students about watershed issues, we must first start with their teachers. PPL Inc. provides various teacher workshops through the PPL Lake Wallenpaupack Superintendent's office in Palmyra Township. Promised Land State Park and the Pike County Conservation District also provide teacher workshops focusing on soil and water resource conservation and watershed stewardships.

Goal 3: To educate school students.

With the approval of the PA Environment and Ecology Standards, PA schools are now required to provide curriculum that meet these Standards. The Standards include requirements for watershed education. It is important to note, that the

Standards are "knowledge-based" and do not require concurrent field trips or other activities that engage students on relevant issues out in their respective watershed. Where possible, conservation agencies and organizations might consider the opportunity to provide field-based programs and any additional "hands-on", interactive programs for schools and their students.

To educate middle school children, PEEC will create a new watershed class that meets the local school standards. Once this class is established, PEEC's watershed grant, "Much to do about water", can be modeled throughout the watershed. We can also use the Delaware River Basin Commission and PA Department of Environmental Protection's Watershed Snapshot programs to have the children do water quality testing in the watershed.

The Curriculum modules being developed through the "Know Your Watershed Education Campaign for the Sawkill Creek and Vandermark Creek Watersheds" are designed for 10th grade students at Delaware Valley High School. In the future, these curriculum modules can be retrofitted for use at additional grade levels within the school district.

Goal 4: Water quality monitoring

Overall, the water resources of the Sawkill Creek/Vandermark Creek's Watershed provide excellent water quality to support regional flora and fauna while providing residents with a high quality water supply for various domestic uses. In order to maintain this water quality, a database of existing water quality needs to be established. There is a need to develop a watershed-monitoring program utilizing a set of standardized water quality testing protocols. An expanded citizen volunteer monitoring program should be established in the future. Local agencies and organizations that currently provide educational programs, such as the Pike County Conservation District, Pocono Environmental Education Center, and regional watershed groups, should coordinate training sessions to assist the public in learning water quality testing procedures.

Goal 5: Organize a Sawkill Creek/Vandermark Creek Watershed Association

An effective way for citizens to become better educated on issues relating to watershed protection and stewardship is the formation of a watershed organization. A Sawkill Creek/Vandermark Creek Watershed Association would be instrumental in protecting the water resources of the watershed. The Watershed Association could have among its objectives, implementing goals outlined in the Sawkill/Vandermark Watershed Conservation Plan. They could also play an active role in coordinating educational activities within the watershed. A Sawkill Creek/Vandermark Creek Watershed Association would be the first step in developing a local grassroots network committed to protection of the watershed. Future activities of the watershed association could include a Water Snapshot and Citizen Volunteer Monitoring Workshop.

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Tike County Natural Res
Website information
www. learn

Location needed
Educ. Center -
Watershed
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Purposes
Artist - AS
Water - thru
Component -