

BRADFORD COUNTY CONSERVATION DISTRICT ENVIRONMENTAL EDUCATION PROGRAM GUIDE



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Environmental Education Grants Program**

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**Dr. Patricia Vathis
PA Department of Education**

**Kathleen Banski
PA Association of Conservation Districts**

**Dr. Chris Crane
Athens Area Schools**

**Harry Volker
BCCD Education Committee Advisor**

WHO WE SERVE...

- all schools: pre-K – 12th grade (public & private)
- nature clubs & conservation organizations
- Boy Scouts & Girl Scouts
- senior citizens
- 4-H
- church groups
- youth groups
- all Bradford County residents
- community & municipal groups
- libraries

HOW TO SCHEDULE A PROGRAM

JUST CALL 265-5539 EXT. 123

- ◆ Select the program, time and date desired in advance. Please have alternate dates in mind in case your first choice is not available. Please allow ample time to prepare a program, normally at least 1 or 2 weeks advance notice is required.
- ◆ Please tell us of any special requirements that your class or group may have.
- ◆ If scheduling a program at County, State, or local parks, please check for availability of transportation prior to scheduling.
- ◆ Notify us immediately if you have to postpone or cancel due to bad weather or other unforeseen circumstances.

BRADFORD COUNTY CONSERVATION DISTRICT

RR 5 Box 5030C, Towanda PA 18848

(570)265-5539 Ext. 6 / FAX (570)265-7435 / Email: Bradford.County@DEP.State.PA.US

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BRADFORD COUNTY CONSERVATION DISTRICT ENVIRONMENTAL EDUCATION PROGRAM GUIDE

INTRODUCTION

The Bradford County Conservation District is a local unit of State government that provides the link between local citizens and a multitude of local, State and federal natural resource management programs. The Conservation District is governed by a Board of Directors that were appointed by the County Commissioners from nominations received from County-wide organizations. A staff of professionals provides information, technical assistance, financial assistance and educational programs and support at the direction of the Board. The Conservation District utilizes the combined resources of its own professional staff and those of cooperating agencies, non-profit organizations and volunteers to deliver informational and educational programs to a full spectrum of audiences. Since its inception in 1956, the Conservation District has recognized the importance of environmental education in promoting sound natural resource management. This document has been created to help you become familiar with the Conservation District's programs and services. The Conservation District's environmental education program travels throughout the County providing a variety of programs for both indoor and outdoor sites. A full time Education Coordinator is available to help support your environmental needs.

SECTION I – SCHOOL & YOUTH PROGRAMS

*** * * NOTICE TO EDUCATORS * * ***

The different programs that you see here are just a sample of the many programs that are available through the Conservation District. All programs are geared toward helping teachers address the new Standards for Environment and Ecology (E&E) and Science and Technology (S&T) that have been developed by the Department of Education. Programs are designed to promote awareness, appreciation, knowledge and stewardship of natural resources. A variety of pre-visit activities and extension materials have been developed to help classroom teachers reinforce program topics. Please note that each program description includes suggested program lengths and grade levels. Presentations are flexible and are adapted to each grade level.

Conservation District staff members have received intensive developmental training from the Department of Education, Office of Environment & Ecology, and continues to work with the Department on new environmental education initiatives.

KEY

FIELD TRIP – Field trips can be scheduled at a variety of sites in Bradford County where public access is available. Field trips can also be scheduled for outdoor sites located on school property. Mini-grant money is available through the Conservation District to offset transportation costs.



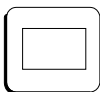
HANDS ON – The hands on format is designed to introduce students to a variety of interdisciplinary instructional activities related to specific natural resource management topics. All presentations are aligned with the Environment & Ecology and Science & Technology Standards. Lectures can be conducted in classrooms or at outdoor sites.



VIDEO – Videos are available for a number of subject areas covered in the Program Guide. They can be used as a follow up classroom presentations or field trips. A comprehensive video list is located on page 15 of this Guide.



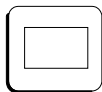
SLIDES – The Conservation District has an extensive slide collection. Each program is presented in an interactive format where students have the opportunity to ask questions and use problem solving skills to help develop a better understanding of natural resource management issues. Slide programs are tailored to each grade level.



PRIMARY (K-3 grades) INTERMEDIATE (4-5 grades)
MIDDLE (6-8 grades) HIGH (9-12 grades)

WILDLIFE PROGRAMS

- 1.) BIRDS OF PREY Primary – High (with adaptations for specific grade levels) 30 minutes to 1 hour.



This program focuses on the importance of eagles, hawks, owls, and falcons in our environment. The Biology and habitats of these predatory birds are also discussed, as well as various environmental factors that are effecting them. A combination of wildlife mounts and colorful slides are used to present this program. Live specimens may also be available through local wildlife rehabilitators.

STANDARDS:

EE

4.3.4C
4.3.7A,C
4.3.10C
4.3.12C
4.5.4A,B,C
4.5.7A
4.5.12A
4.6.4A
4.6.7A,B,C
4.6.10A,B
4.6.12A
4.7.4A,B,C
4.7.7A,B,C
4.7.10A,B,C
4.7.12A,B,C
4.9.4A
4.9.7A
4.9.10A
4.9.12A
ST
3.3.4A,B,C



- 2.) OWL PELLET STUDY Intermediate - Middle 1 hour.



Students explore food chains by dissecting owl pellets and reconstructing various prey animals. The program also focuses on the biology and behavior of several local owl species.

STANDARDS:

EE

4.5.4A,B	4.6.7A	4.7.7A,B,C
4.5.7A,B	4.6.10A	4.7.10A,B
4.6.4A	4.7.4A,B	4.9.7A

ST

3.3.4A,B,C

3.) HABITAT TREK



Primary – Intermediate
1 hour

What is a habitat? What are the four components of wildlife habitat? Students learn about wildlife habitat by exploring their school grounds or local parks. Participants will learn about what plants and animals need in order to survive.

STANDARDS:

EE

4.1.4A,B,C,D

4.2.4A,B,C

4.3.4A,B,C

4.6.4A

4.7.4A,B

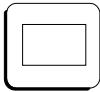
ST

3.1.4A,C

3.3.4A,B



4.) HOME IS WHERE THE HABITAT IS



Primary – High (with adaptations for specific grade levels) 40 minutes

This slide program focuses on the four components of wildlife habitat and discusses the habitat of several wildlife species found in Bradford County.

STANDARDS:

EE

4.1.4C,D

4.1.7C,D

4.1.10C,D

4.1.12D

4.3.4C

ST

3.3.4A,B,C

4.6.4A

4.6.7A

4.6.10A

4.6.12A

4.7.4A,B,C

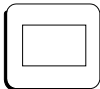
3.3.7A

4.7.7A,B,C

4.7.10A,B,C

4.7.12A,B,C

5.) ENDANGERED & THREATENED SPECIES Primary – High (with adaptations for specific grade levels) 40 minutes



What is an endangered or threatened species? This slide program focuses on PA threatened and endangered species. Learn why various plants and animals become endangered or threatened and what is being done to save many of our vanishing species.

STANDARDS:

EE

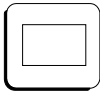
4.7.4A,B,C

4.7.7A,B,C

4.7.10A,B,C

4.7.12A,B,C

6.) NATURE'S WEB FOOD CHAINS Intermediate 40 minutes



This slide program explores a variety of food chains from aquatic to terrestrial habitats. Also discussed are different pollution problems that effect food chains and how man interacts with different food chains.

STANDARDS:

EE

4.1.4C,D,E

4.6.4A

4.9.4A

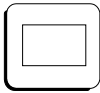
4.3.4A,B,C

4.7.4A,B,C

4.5.4A

4.8.4C

7.) THE CALL OF THE WILD "WOLVES" Intermediate - High 40 minutes



Learn why this large predator has nearly disappeared due to various myths and misunderstandings. This slide program focuses on the biology, behavior and human conflicts with this majestic species.

STANDARDS:

EE

4.6.4A,B,C

4.6.12A,B,C

4.7.10A,B,C

4.6.7A,B,C

4.7.4A,B,C

4.7.12A,B,C

4.6.10A,B,C

4.7.7A,B,C

8.) WILDLIFE TRACKS Primary – High (with adaptations for specific grade levels) 1 hour (classroom or field trip)



Students will learn to identify common animal tracks and learn how animal tracks can serve as the basis for several types of investigations, such as estimating or determining wildlife populations.

Habitat requirements can also be determined by finding animal tracks in certain areas. Students will also discover how animal adaptations help them survive in their habitat.

Students will also have the opportunity to make an animal track T-shirt.

STANDARDS:

EE

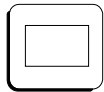
4.7.4A,B

4.7.7A,B

4.7.10A,B



9) THE RATTLESNAKE "SHADOW OF MISUNDERSTANDING"



Intermediate - High 40 minutes

Branded as evil and aggressive, this valuable woodland predator has been senselessly destroyed, the victim of our ignorance and fear. Students will learn what efforts are being used to save this snake from extinction.

STANDARDS:

EE

4.6.4A

4.6.12A

4.7.10A,B,C

4.6.7A

4.7.4A,B,C

4.7.12A,B,C

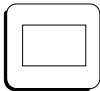
4.6.10A

4.7.7A,B,C

ST

3.3.7A

10.) BALD EAGLES "WE CARE ABOUT EAGLES" Intermediate – High 40 minutes



The program begins by tracing the use of Eagles as symbols of courage, power and freedom from early civilization to the present. The remainder of the presentation is devoted to eagle biology and behavior, as well as factors that have contributed to the Bald Eagle's decline and what is being done to save this species from extinction.

STANDARDS:

EE

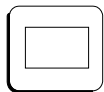
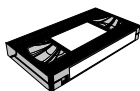
4.7.4A,B,C

4.7.10A,B,C

4.7.7A,B,C

4.7.12A,B,C

11.) SEASON OF THE BATS Primary – Middle (with adaptations for specific grade levels) 40 minutes



This program explores the unseen world of Pennsylvania's bats and offers a new perspective on the superstitions and folklore surrounding them.

The program can either be done with slides or video. Great program for Halloween!!

STANDARDS:

EE

4.1.4D

4.5.4A,B,C

4.5.7A,B

4.6.4A

4.6.7A

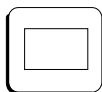
4.7.4A,B,C

4.7.7A,B,C



FORESTRY PROGRAMS

12.) FORESTS ARE MORE THAN TREES



Primary – High (with adaptations for specific grade levels) 1 hour

This program looks at forests as homes for wildlife and as providers of services and products for people. The program discusses environmental issues related to forests and the need to conserve our valuable forest resources. This presentation can either be done in the classroom with slides and visual aids or in a forest setting.



STANDARDS:

EE

4.2.4A,B,C	4.6.4A,C	4.8.10A,B,C,D
4.2.7A,B,C	4.6.7A,C	4.8.12A,B,C,D
4.2.10A,B,C	4.6.10A,C	4.9.4A
4.2.12A,B,C	4.6.12A,C	4.9.7A
4.3.7B	4.8.4A,B,C,D	4.9.10A
4.3.12B	4.8.7A,B,C,D	4.9.12A

13.) RAIN FOREST "THE LAYERS OF LIFE"

Middle – High 40 minutes



Is it too late to save the rain forest? This program explores the delicate balance of life in the rain forests and the diversity of species present. Included in the presentation is a discussion on threatened and endangered species, environmental health, and human interaction with the environment. The program concludes with world wide efforts to protect the rain forests.

STANDARDS:

EE

4.6.7A,B,C	4.6.10A,B,C	4.6.12A,B,C
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AQUATICS PROGRAMS

- 14.) POND, LAKE AND STREAM STUDIES Intermediate – High
1 to 2 hours



Explore a variety of aquatic habitats by studying aquatic life. Learn how macro invertebrates indicate water quality and pollution problems. This hands-on activity allows students to observe and collect a variety of aquatic organisms. Can be done on school grounds if aquatic habitats are available, or at local parks. Water Quality Monitoring Guides are made available for teachers.

STANDARDS:

EE

4.1.4A,B,C

4.1.7C

4.1.10C

4.1.12C

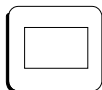
ST

3.3.4A,B

3.3.7A,D



- 15.) WADING INTO WETLANDS Intermediate - High 40 minutes



This slide program teaches students about the importance of wetlands to both wildlife and man. Students will learn how to identify wetlands and learn how man is trying to reduce the loss of wetlands. Wetland protection regulations are also discussed, depending on the grade level. Field trips to local wetlands are also optional.

STANDARDS:

EE

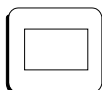
4.1.4A,B,C,D,E

4.1.10B,D,E

4.1.7C,D,E

4.1.12D,E

- 16.) POND AND LAKE MANAGEMENT High 45 minutes - 1 hour



This program explores the various dynamics of pond and lake management. A variety of topics are covered, including watershed management, point and non-point source pollution, aquatic vegetation control, wildlife management, recreation, permit requirements and a variety of water quality issues.

STANDARDS:

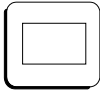
EE

4.1.10A,B,C,D,E

4.3.10B

4.1.12A,B,C,D,E

- 17.) WATER “WE CAN’T LIVE WITHOUT IT” Intermediate – High (with adaptations for specific grade levels) 40 minutes



This program focuses on water as a natural resource and discusses issues related to water usage and government systems in place to manage water resources. The program discusses issues related to water quality, groundwater, wetlands, streams, rivers and reservoirs and how our water resources affect our economy.

STANDARDS:

EE

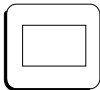
4.1.7B,C,E
4.1.10B,C,E
4.1.12B,C,E
4.2.4A,C
4.2.7A,B,C
4.2.10A,B,C
4.2.12B,C
4.3.4A
4.3.10B
4.3.12B



- 18.) WHAT’S A WATERSHED? Intermediate – High (with adaptations for specific grade levels) 40 minutes



The program focuses on Pennsylvania watersheds and the importance of proper watershed management. Students will learn how to identify and explain what determines the boundary of a watershed by using topographic maps.



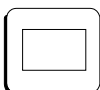
STANDARDS:

EE

4.1.4A,B	4.1.10A,B,C
4.1.7A,B,C	4.1.12A,B,C

LAND USE & MANAGEMENT PROGRAMS

- 19.) FAMOUS CONSERVATIONISTS Middle - High 40 minutes



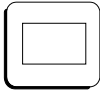
This slide program studies the lives of several famous conservationists that have helped protect our earth and improve the quality of life.

STANDARDS:

EE

4.8.7A,B,C,D	4.8.12A,B,C,D	4.9.8A
4.8.10A,B,C,D	4.9.7A	4.9.12A
<u>ST</u>		
3.8.7A,B	3.8.10A,B	3.8.12A,B

20.) LET'S CLEAR THE AIR – UNDERSTANDING AIR POLLUTION



Intermediate - High 40 minutes

“Let’s Clear the Air” highlights some of the major air pollution problems threatening our world today. The program describes the most common poisonous gases in the air and explains acid rain, its origins and its effects on the environment, people, and wildlife. (slide presentation)

STANDARDS:

EE

4.2.4A

4.8.10C

4.9.10A

4.2.7C

4.8.12A,B,C

4.9.12A

4.8.4C

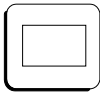
4.9.4A

4.8.7C

4.9.7A



21.) BRADFORD COUNTY’S NATURAL RESOURCES



Intermediate – High (with adaptations for specific grade levels) 40 minutes

Students will develop an understanding of renewable and non-renewable resources. The program focuses on both the past and present land uses in Bradford County and discusses the importance of proper conservation of our natural resources.

STANDARDS:

EE

4.2.4

4.2.12

4.8.7A,B,C,D

4.2.7

4.6.12A

4.8.10A,B,C,D

4.2.10

4.8.4A,B,C,D

4.8.12A,B,C

ST

3.5.4B

3.5.10B,D

3.5.7B

3.5.12B

22.) THE CHESAPEAKE BAY AND SUSQUEHANNA RIVER – “WE ALL LIVE DOWNSTREAM” Intermediate – High (with adaptations for specific grade levels) 40 minutes to 1 hour



This program focuses on the relationship between the Susquehanna River and its influence on the Chesapeake Bay. Students will learn about the various pollution problems affecting the Susquehanna River and the impact that pollution has on the Chesapeake Bay’s fisheries, wildlife and people. The program includes the use of a runoff flow model and a variety of hands on activities. Field trips to the river can be scheduled.

STANDARDS:

EE

4.1.4E	4.1.12A,C,E	4.4.12B
4.1.7B,C,E	4.3.10A,B	4.5.7B
4.1.10A,B,E	4.3.12B	4.5.10B

23.) FARMER THANK YOU PROGRAM Primary – High (with adaptations for specific grade levels) 1 hour



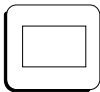
Students will learn how important farming is in our daily lives. The program focuses on Bradford County’s various agricultural products and farming operations. Farmer volunteers will visit your classroom or you can take the classroom to the farm. A variety of agricultural activities will also be conducted from the “Food, Land and People” curriculum

STANDARDS:

EE

4.4.4A,B,C	4.4.10A,B,C	4.8.12B
4.4.7A,B,C	4.4.12A,B,C	

24.) ENVIRONMENTAL REGULATIONS Intermediate – High (with adaptations for specific grade levels) 40 minutes



One of the primary technical roles of the Conservation District is to keep abreast of environmental regulations that affect the management of our natural resources. The Conservation District is a source for written materials, summaries and copies of specific regulations. Students will learn how and why environmental regulations are developed, implemented, and enforced.

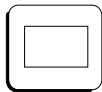


STANDARDS:

EE

4.9.4A	4.9.10A
4.9.7A	4.9.12A

25.) EARTH DAY EVERY DAY Intermediate - Middle 1 hour



Students will learn how they can protect the environment and conserve natural resources. The program focuses on simple conservation practices that can be implemented around the home.

STANDARDS:

EE

4.2.4C,D

4.2.7D

4.2.10D

4.2.12D

4.3.4A,B,C

4.3.7A,B,C



4.3.10A,B

4.5.4A,B,C

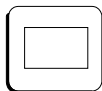
4.5.7A,B,C

4.5.10B,C

4.5.12A

4.8.4C,D

26.) CAREERS IN THE ENVIRONMENT



Interested in a career in the

environmental field? Students gain insight into environmental job opportunities, and the function of the Conservation District and other related agencies, that work with environmental laws and regulations.

STANDARDS:

EE

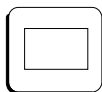
4.8.7D

4.9.10A

4.9.7A

4.9.12A

27.) FRAGILE FRONTIERS "THE ARCTIC AND ANTARCTIC"



Intermediate - Middle 40 minutes

Termed the Final Frontiers, both the Arctic and Antarctic are suffering from a variety of environmental problems resulting from human exploration. The program focuses on the fragile ecosystem and highlights a variety of wildlife species that are adapted to living under extreme conditions.

STANDARDS:

EE

4.3.4A,B,C

4.6.10A,B

4.7.12A

4.3.7A,B,C

4.6.12A,B,C

4.8.4C

4.3.10A,B,C

4.7.4A,B

4.8.7C

4.6.4A,B

4.7.7A,B,C

4.8.10C

4.6.7A

4.7.10A,B

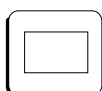
4.8.12C

ST

3.5.4D

3.5.7D

28.) POLLUTION SOLUTIONS Middle - High 40 minutes



How do we solve the world's pollution problems? This program focuses on new technology being used to solve pollution problems, as well as

simple things homeowners can do to reduce non-point source pollution. Also discussed are simple integrated pest management techniques that can be used to reduce pesticide use around the home and on farms.

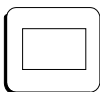
STANDARDS:

EE

4.3.7A,B	4.5.10A,B,C	4.9.12A
4.3.10A,B	4.5.12A,B	
4.3.12A,B	4.9.7A	
4.5.7A,B,C	4.9.10A	



29.) THIS IS YOUR LAND “PUBLIC LANDS” Middle - High 40 minutes



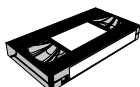
Every American has a common land inheritance – the public lands. Today the Federal government owns approximately 740 million acres. Students learn about the many laws that govern these lands and different land management agencies that are responsible for administering them. The program also focuses on usage issues related to managing public lands.

STANDARDS:

EE

4.2.10A,B,C	4.4.10B	4.7.12C
4.2.12A,B,C	4.4.12B	4.9.7A
4.3.10B	4.7.7C	4.9.10A
4.4.7A,B	4.7.10A	4.9.12A

30.) DIRT & GRAVEL ROADS PROGRAM Middle - High 40 minutes



Bradford County has over 1,200 miles of dirt and gravel roads that make up one of the primary transportation systems in the County. Municipal



officials are responsible for building and maintaining them. The Dirt & Gravel Roads Program provides information and educational opportunities for these activities and training on minimizing the environmental effects of them. Students will learn about techniques used to stabilize dirt and gravel roads. Written materials and videos are available.

STANDARDS:

EE

4.1.7B,C

4.3.7A,B

4.8.7B,C,D

4.1.10B

4.3.10A,B

4.8.12A,B

4.1.12C

4.3.12A.,B

ST

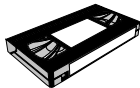
3.8.7A,B

3.8.10B

31.) FLOOD PLAIN MANAGEMENT Middle - High 40 minutes



Flooding is a serious concern with streams and rivers in Bradford County. Under current State law, municipalities are responsible for managing flood plain areas. The program focuses on proper flood plain management and environmental regulations. Books, brochures and videos are also available.



STANDARDS:

EE

4.1.7B

4.8.10C,D

4.9.12A

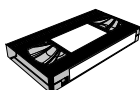
4.1.10A,B,C

4.9.7A

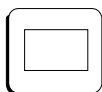
4.8.7B,C,D

4.9.10A

32.) EROSION & SEDIMENTATION CONTROL Middle - High 40 minutes



In much of Pennsylvania, sedimentation is the number one pollutant. The Conservation District can provide site specific as well as general programs on the principles and regulations regarding erosions and sedimentation control. Written materials and videos available.



STANDARDS:

EE

4.1.7B

4.2.12B

4.6.7A

4.1.10B,C

4.3.7B

4.6.10A

4.1.12C

4.3.10A,B

4.6.12A

4.2.7A,B,C

4.3.12B

4.8.7D

4.2.10B,C

4.4.7B,C

4.8.10C

ST

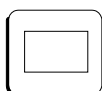
3.5.7A

3.5.10B

33.) WETLAND IDENTIFICATION & REGULATION Middle - High 40 minutes



The Conservation District offers classes on the identification and regulation of wetlands. Students will learn about the designation of



various wetland plant species, learn how to identify hydric soils, and how to classify different wetland types.

STANDARDS:

EE

4.1.7D,E	4.6.10A	4.7.12A,B,C
4.1.10D,E	4.6.12A	4.9.7A
4.1.12D,E	4.7.7A,B,C	4.9.10A
4.6.7A	4.7.10A,B,C	4.9.12A

34.) **STORMWATER MANAGEMENT** Middle - High 40 minutes



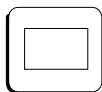
The Conservation District works with the County Planning Commission and State and Federal resource management agencies to provide information on stormwater management principles. Students will learn the importance of proper stormwater management as it relates to development.

STANDARDS:

EE

4.1.7B,C,D,E	4.3.10B	4.9.7A
4.1.10B,C,D,E	4.3.12B	4.9.10A
4.1.12B,C,D,E	4.8.7B	4.9.12A
4.3.7B	4.8.10C	

35.) **WATERSHED AND STREAM MANAGEMENT** Middle – High 40 minutes



Addressing environmental issues, specifically those related to streams, usually involves the cooperation and coordination of the entire watershed community. Classroom presentations are available on a variety of topics related to watershed management. Topics include stream management and regulation, watershed organization, watershed planning, watershed dynamic, and watershed components.



STANDARDS:

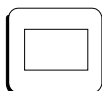
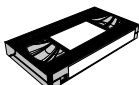
EE

4.1.7A,B,C,D,E	4.9.7A
4.1.10A,B,C,D,E	4.9.10A
4.1.12A,B,C,D,E	4.9.12A

ST

3.8.7B	3.8.10B	3.8.12B
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36.) **NUTRIENT MANAGEMENT** Middle - High 40 minutes



Since the passing of the PA Nutrient Management Act, the Conservation District has served as the point of contact for information and technical

assistance. The Conservation District provides training on the regulations and management concepts of nutrient management. Written brochures, videos and guides are also available.

STANDARDS:

EE

4.3.7A,B	4.4.10A,B,C	4.9.10A
4.3.10A,B	4.4.12A,B,C	4.9.12A
4.3.12B	4.5.10B	
4.4.7A,B,C	4.9.7A	

37.) BIO-SOLIDS Middle - High 40 minutes



The Conservation District currently has an agreement with the State to provide information and assistance regarding the land disposal of bio-solids. Written materials and classroom presentations are available on bio-solids management.

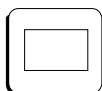
STANDARDS:

EE

4.3.7A,B	4.4.10A,B,C	4.9.10A
4.3.10A,B	4.4.12A,B,C	4.9.12A
4.3.12B	4.5.10B	
4.4.7A,B,C	4.9.7A	

SOILS PROGRAMS

38.) SOIL "WE CAN'T GROW WITHOUT IT" Primary – High (with



adaptations for specific grade levels) 1 hour

This program reminds us of the importance of soil and our responsibility to conserve it. The program focuses soil's significance to plants, animals, and people, its importance to agriculture, how it has been used and abused, and what is being done to conserve it. The program is presented with a combination of audio visual aids, hands-on activities, and soil samples or profiles.

STANDARDS:

EE

4.2.7C	4.4.7B	4.8.10A,B,C,D
4.2.10C	4.4.10B	4.9.4A
4.3.4A	4.6.4A	4.9.7A
4.3.7B	4.6.7A	4.9.10A
4.3.10A,B	4.6.12A	4.9.12A
4.3.12B	4.8.4A,B,C,D	
4.4.4B	4.8.7A,B,C,D	

ST

3.5.4A,B	3.5.10B
3.5.7A	3.5.12A

39.) HOW TO USE A SOIL SURVEY Middle - High 40 minutes – 1 hour



Students will learn the importance of soils to our every day lives, and how to use a soil survey to identify different soil types and their physical characteristics. Field trips are optional to explore different soil types.

STANDARDS:

EE

4.2.7C

4.3.7B

4.3.10A,B

4.4.7B

4.6.7B

4.6.12A

ST

3.5.7A,B



3.5.10A,B

3.5.12A,B

OTHER SERVICES	
❖ <u>OUTDOOR CLASSROOMS:</u> We will gladly assist in developing an on-site outdoor classroom area.	❖ <u>EARTH DAY PROJECTS:</u> District staff is available to help set up Earth Day projects in area schools.
❖ <u>GRANT WRITING ASSISTANCE:</u> Do you have a great idea for a school or community program, but have no idea on how to get funding? We can help prepare grants and find funding sources.	❖ <u>ENVIRONMENTAL STUDIES MINI-GRANT PROGRAM:</u> This program is open to any Bradford County school, public or private. Any teacher, class or school may submit a grant proposal. Funding is limited and will be distributed on a first come first serve basis.
❖ <u>SPECIAL PROGRAM REQUESTS:</u> Tell us about your environmental education needs and we will help develop activities. We can also help organize special events.	❖ <u>SPECIAL EDUCATION:</u> All programs can be tailored for people with physical and mental disabilities.

ENVIRONMENTAL EDUCATION CURRICULUM

Conservation District staff members have received specialized training through the Dept. of Education and several other sponsoring agencies on the use of a variety of environmental education curriculum. There are literally hundreds of hands on classroom curriculum and activities that teachers can use to help integrate environmental education into standard classroom subject areas such as science, math, and reading. The following section outlines a variety of environmental education curriculum and opportunities for teacher training and in-service workshops.

TEACHER TRAINING AND IN-SERVICE WORKSHOPS

To receive the materials for Project Learning Tree; Project WET; K.A.R.E.; Project Wild; and Project Food, Land and People, teachers must attend a workshop to be trained on using the various guides. Act 48 hours are available in each of these programs through the sponsoring agencies. Many of the guides can be obtained by setting up a 6-8 hour in-service teachers workshop. A 3 credit/5 day Penn State course is also offered in June to obtain Project Learning Tree, Project WET, Keystone Aquatic Resource Education, and Project Wild. The Conservation District, through Penn State's Northern Tier Campus, also offers a one credit, two day Project Food Land and People course in June. For more information, contact Penn State's Northern Tier Campus or the Bradford County Conservation District.

Conservation District staff can also facilitate in-service workshops at no charge to the school district. Special requests for training on a variety of subjects are also available from staff.



Project Learning Tree – This program is sponsored and funded by the Department of Education Office of Environment & Ecology Bureau of Curriculum & Academic Services. Since its introduction in the early 1970s, Project Learning Tree has been recognized as one of the premier environmental education programs in the world. Project Learning Tree is a comprehensive environmental education curriculum. It is not just about trees, it's about the total environment – land, air, and water. It is local, national, and global in scope. Project Learning Tree's pre-K through 8th grade activity guide is arranged under five major themes – Diversity, Interrelationships, Systems, Structure & Scale, and Patterns of Change. Each theme covers the areas of environment, resource management & technology, and society and culture. The Project Learning Tree activities integrate the themes within science, language arts, social studies, art, music, and physical education. Project Learning Tree focuses on developing critical thinking skills. It doesn't try to teach children what to think about the environment. It gives teachers the tools they need to help children to learn how to think about the environment.



Project WET – This program is sponsored and funded by the Department of Education Office of Environment & Ecology Bureau of Curriculum & Academic Services. The “Project WET Curriculum and Activity Guide”, for kindergarten through twelfth grades, is a collection of innovative, water-related activities that are hands-on, easy to use, and fun! Project WET activities incorporate a variety of formats, such as large and small group learning, whole-body activities, laboratory investigations, discussion of local and global topics, and involvement in community service projects. Project WET was developed, field-tested, and reviewed by hundreds of educators and resource managers around the country. People’s relationships to water are a major theme of the “Project WET Curriculum and Activity Guide”. Providing a thorough water education program, the guide also addresses water’s chemical and physical properties, quantity and quality issues, aquatic wildlife, ecosystems, and management strategies. Project WET activities promote critical thinking and problem-solving skills and help provide young people with the knowledge and experience they will need to make prudent decisions regarding water resource use. The “Project WET Curriculum and Activity Guide” is available to all formal and non-formal educators through workshops provided by State Project WET coordinators or trained facilitators.



K.A.R.E. – K.A.R.E. is an environmental education program on water resources – our streams, lakes, rivers and their aquatic life forms – sponsored and funded by the PA Fish and Boat Commission. It addresses subjects such as water quality and its importance; wetlands; Pennsylvania’s fish, reptiles and amphibians; acid rain; protecting aquatic habitat; and other topics related to the aquatic resources of Pennsylvania.

The K.A.R.E. program has been approved by the Pennsylvania Department of Education for use in schools. Its use will assist teachers at all levels in meeting the environmental education requirements for schools.

The program has materials for all age groups. It is targeted for use by schools, but can be easily adapted for camps, clubs, youth groups and adult organizations.

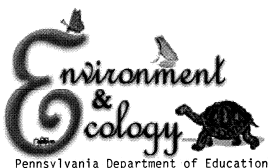
Training workshops are offered throughout the State to provide the materials and show how to use them most effectively. Participants receive materials and training at no charge since the program is funded in part by Federal Aid dollars. (In some instances there may be charges for facility use, university or I.U. credits and/or lodging.)



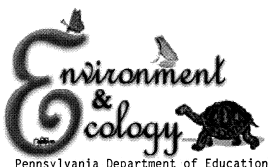
Project WILD – Project WILD is sponsored by the PA Game Commission. The Project WILD Program has been approved by the PA Department of Education for use in schools. Its use will assist teachers at all levels in meeting the environmental education requirements for schools. Project WILD’s primary audience is teachers of kindergarten through high school students. The goal of Project WILD is to assist learners of any age in developing awareness, knowledge, skills and commitment to result in informed decisions, responsible behavior and constructive actions concerning wildlife and the environment upon which all life depends. Project WILD is designed to prepare young people for decisions affecting people, wildlife, and their shared home – Earth.



Project Food Land and People – This program is sponsored and funded by the Department of Education Office of Environment & Ecology Bureau of Curriculum & Academic Services. This program is a K-12, multi-disciplinary, fully integrated, hands-on, activity-driven approach to agriculture education, developed by a non-profit organization made up of agriculture related specialists and teachers. Pennsylvania has been involved in the national Food, Land and People program development by providing teachers as part of the national writing teams and by pilot-testing some of the more than 100 activities. Food, Land and People is a comprehensive agriculture program that incorporates important environmental lessons into all areas of the curriculum. It can be infused into other areas beside environment and ecology, like science, language, arts, social studies, reading, mathematics, economics, technology, the arts, etc. The program uses a variety of skills to teach students how to apply the knowledge base they have learned about food and fiber into their every day lives. Food, Land and People materials are available through a six-hour, teacher training workshop. A two-day, one graduate credit, Penn State Teachers Workshop is held annually by the Bradford County Conservation District. One day is devoted to classroom instruction, the second day includes field trips to area farms.



Agriculture K-12 Curriculum Supplement Act 26 – This publication has been developed for general integrated use in the classroom by the Department of Education Office of Environment & Ecology, Bureau of Curriculum and Academic Services. This manual is a supplement to the Food, Land, and People Guide. The manual covers a variety of topics identified in Act 91 of 2001, which was passed by the Pennsylvania legislature. These issue topics are: pest control, soils and nutrient management, food, fiber and distribution, wetlands, food safety, waste management, animal health, farmland preservation, the farm and it’s buildings, and



statutory and regulatory protections of the right to farm. The publication is available at no charge from the PA Dept. of Education Office of Environment & Ecology, Bureau of Curriculum and Academic Services, 333 Market Street, 8th Floor, Harrisburg, PA 17126-0333. Contact Patricia Vathis (717)783-6994.



“Sustaining Penn’s Woods – A Sound Use of the Land” –

Pennsylvania has 17 million acres of forest land. It covers 59% of the State. One in every 10 of the State’s manufacturing jobs is in the wood products industry. It’s one of our largest industries. And there are specific ways to provide wood products today and have trees for tomorrow.

This curriculum material is designed to help you and your students in grades five through ten meet Pennsylvania’s new Academic Standards for Environment & Ecology.

Equally important, it is what teachers have been asking for – information specific to Pennsylvania forest issues. You will receive information on these and other topics:

- Historical perspectives
- Pennsylvania forest types & influences
- Technology & economic issues
- Forest management & harvesting
- forest benefits & bio-diversity
- Ecosystem management
- Land stewardship
- Government regulation
- Landowner issues
- Industry careers & products

The material is boxed and includes an interactive CD-ROM, a poster, two video tapes (one on forestry issues and one on deer issues) and five folders of material with background, hands-on interdisciplinary activities, student pages, references and a glossary.

This unique project is the result of underwriting and collaboration led by the PA Department of Education in partnership with the Hardwood Lumber Manufacturers Association of PA, the Hardwoods Development Council at the PA Department of Agriculture and other interested individuals and organizations. Kits are available through the Conservation District office. To order a kit, call 570/265-5539 Ext. 123.

RESOURCE DIRECTORY – An Environmental Resource Directory is available to teachers to help them locate professionals who are willing to assist them in the classroom. Sixteen agencies and organizations related to natural resource management are included in the Directory, as well as profiles on each agency and a list of programs that are available. Call for a free copy.

ENVIROTHON PROGRAM – The Envirothon is a competitive event for high school students, sponsored by the local County Conservation Districts, PA Association of Conservation Districts, and the State Conservation Commission. Teams of five students each represent their schools in local competition to determine a County champion. The County champions are then eligible to attend the State competition. The Envirothon program is designed to test high school students' knowledge of Pennsylvania's natural resources in five categories: Soils, Forestry, Wildlife, Aquatics, and current environmental issues. The overall goal of the competition is to cultivate a desire to learn more about our natural environment through competitive events.

MANCHESTER MEMORIAL SCHOLARSHIP – The Ernest Manchester Memorial Scholarship is open for application to Bradford County students enrolled in a Pennsylvania college or university in an agricultural or natural resource management related field. It is provided through a memorial fund established to perpetuate the memory and contributions of Ernest Manchester, who was a strong supporter of Conservation District activities. Students must be in their 3rd or 4th year of a four year program, or the 2nd year of an associates program.

WILDLIFE/FISH MOUNTS – The Conservation District currently has a collection of 30 bird and mammal mounts and four fish mounts. The mounts are used in a number of classroom presentations, as well as in field days and displays.

ENVIRO-MODELS – Several different classroom models are used by Conservation District staff to emphasize proper land management and pollution prevention. Models include the Enviroscape watershed model, the ground water flow model, soil erosion runoff boxes, and infiltration tubes.

FIELD DAYS – Conservation field days have been held for area schools for the past 10 years in Bradford County. Normally between 8 and 10 stations are set up for groups of students to rotate through during the day. Field days can be held indoors or outdoors and at local schools or parks. They are geared toward 5th or 6th grade students. Various programs include presentations on bats, bees, wildlife conservation, wildlife rehabilitation, water quality, the Chesapeake Bay, forest products, tree identification, wetlands, recycling, hazardous wastes, bio-solids, agricultural products, soil conservation, aquatic life, energy conservation, electricity, maple syrup production, gardening, earth worms, and composting. One of the primary goals of the field days is to help school districts to work with community organizations and agencies that are currently active in the areas of conservation and education. Call for a free copy of the Field Day Guide.

WOODLAND RESOURCE ADVENTURE CAMP – Do you know a student between the ages of 12 and 15 who has an interest in the outdoors? Why not recommend them for the Woodland Resource Adventure Camp. Each summer the Endless Mountains Resource Conservation and Development Council holds the camp at Keystone College in LaPlume, PA. The youth camp is a 5 day, 4 night program which introduces students to the basics of forestry management. Exercises are conducted in both the classroom and the field. A variety of topics are covered at the Camp including tree identification, woodland management, urban forestry, wildlife management and stream dynamics. Campers also learn how to conduct a stream survey, band birds and fell a tree, along with a variety of other activities. There is also a night time nature walk and an evening under the stars with a local astronomy club. A variety of recreational activities are also planned each day. For more information on the camp, contact the Endless Mountains RC&D at 570-265-3409 Ext. 204 or the Bradford County Conservation District at 570/265-5539 Ext. 205.

CONSERVATION POSTER CONTEST – Each year the Bradford County Conservation District hosts a poster contest to help stimulate students' interest on relevant environmental topics that directly affect them. The annual poster contest usually focuses on the same theme used by the National Wildlife Federation for National Wildlife Week. All first place posters are then submitted to the annual PA Association of Conservation Districts poster contest. The contest allows students to express their feelings toward conservation and environment through art. To assist in making this activity more meaningful Conservation District staff can give a short slide program to your class on the current contest theme. Rules and information on the contest are available from the Conservation District.

TEACHERS NETWORK NEWSLETTER –

The newsletter provides timely information to educators on environmental education teaching resources that are available. The newsletter helps to centralize information provided by numerous agencies, organizations, and groups working with environmental issues. A regular column in the newsletter is devoted to agency/organization profiles and updates, what they provide and who to contact. A second column focuses on selected resource programs and activities. Events, trainings, and upcoming workshops are also highlighted in the newsletter.

**FREE TEACHERS
NETWORK
NEWSLETTER
CALL 265-5539 EXT. 6
TO ADD YOUR NAME TO
THE MAILING LIST**

INTERNSHIP OPPORTUNITIES

OVERVIEW:

The Bradford County Conservation District fully recognizes the value of real life natural resource management experiences have for students looking toward a career in the field. Being the local point of contact for both landowners and resource providers, the Conservation District is able to offer a full range of interactive involvement.

The Bradford County Conservation District works with a variety of colleges and universities to offer student internships rangingd from 1 to 12 credits. It also partners with Penn State University to offer an annual 3 credit graduate course in environmental education.

OPPORTUNITIES:

The Bradford County Conservation District develops each internship to fit the degree program the student is pursuing. For example: a geography major would be focused on mapping resource areas; a biology major may be assigned to macro invertebrate studies of specific streams; an engineering major may be working on stream restoration. The Conservation District is involved in a broad range of natural resource issues.

The Conservation District also assures opportunities for students to interact and work with a number of local, state and federal natural resource agencies. Such exposure help identify potential career direction as well as future curriculum needs. Some of those agencies include:

- | | |
|-------------------------------------|-----------------------------------|
| --Local and County Planning Offices | --PA Department of Transportation |
| --State & Federal Forestry Agencies | --USDA Natural Resources |
| --PA Dept. of Environ. Protection | Conservation Service |
| --PA Department of Agriculture | --USDI Fish and Wildlife Service |
| --PA Department of Conservation | --Federal Emergency Management |
| and Natural Resources | Agency |
| --PA Fish and Boat Commission | --US Army Corp of Engineers |
| --PA Game Commission | |

PROCEDURE:

- ◆ As a general rule, the Conservation District prefers third or fourth year students or graduate students.
- ◆ Make an initial contact with the Bradford County Conservation District to discuss general opportunities for the target internship period.
- ◆ Students meet and arrange for internship with their respective advisors and faculty.
- ◆ Students meet with the Bradford County Conservation District to discuss specific project and activities for the internship.
- ◆ All final paperwork should be completed prior to start of internship. A mid-term and final evaluation by the Conservation District is the norm.
- ◆ Stipends may be available for internship but are not guaranteed. Stipend and the amounts are contingent on available project funding.

CONTACT INFORMATION:

Bradford County Conservation District
Stoll Natural Resource Center, RR 5 Box 5030C, Towanda, PA 18848
570-265-5539 Ext. 6 email address: Bradford.County@DEP.State.PA.US

ENVIRONMENTAL EDUCATION REFERENCE LIBRARY – Thanks to the numerous contributions from the agencies, organizations and individuals involved, along with an initial grant from the PA Clean Water Fund, a special Environmental Education Resources Section has been set up at the Bradford County Library. References, videos, field guides, computer programs, and slide/tape programs cover a wide variety of natural resource topics. The materials are also available through the Book Mobile system. Following is a list of references:

REFERENCE	BY
A Crow's Journey	David Cunningham
A Drop of Water: A Book of Science and Wonder	Walter Wick
A Field Guide to Eastern Trees	George A. Petrides
A Guide to Animal Tracking and Behavior	Donald Stokes
A Guide to Amphibians and Reptiles	Thomas F. Tynning
A Guide to Bird Behavior, vol. I	Donald Stokes
A Guide to Bird Behavior, vol. II	Donald Stokes
A Guide to Bird Behavior, vol III	Donald Stokes
A Guide to Enjoying Wildflowers	Donald Stokes
A Guide to Nature in Winter	Donald Stokes
A Guide to Observing Insect Lives	Donald Stokes
A Home for Pearl (Video)	
A Key-Guide to Mammal Skulls and Lower Jaws	Aryan I. Roest
A New Tree Biology	Alex L. Shigo
A New Tree Biology Dictionary	Alex L. Shigo
A Tree's Tale	Lark Carrier
Activities for Environmental Learning	PA Dept. of Environment
Adventures With Freshwater Animals	Richard Headstrom
All About Owls	Jim Arnosky
Amazing Mammals, Part 1	Ranger Rick's Naturescope, National Wildlife Federation
Amazing Mammals, Part 2	Ranger Rick's Naturescope, National Wildlife Federation
An Industry Committed to the Forest Resource	Pennsylvania Hardwood
An Introduction to Soils of Pennsylvania	Betsie Blumberg, Pennsylvania State University
Apples (Video)	Susan DeBeck
Astronomy Adventures	Ranger Rick's Naturescope, National Wildlife Federation
Backyard Safaris: 52 Year-Round Science Adventures	Phyllis S. Busch
Bats Bugs and Biodiversity: Adventures in the Am	Susan Goodman

REFERENCE	BY
Bats: Swift Shadows of the Twilight	Ann C. Cooper, Denver Museum of Natur
Baybook	Maryland State Soil Cons
Before and After: A Book of Nature Timescapes	Jan Thornhill
Birds, Birds, Birds	Ranger Rick's Naturescope, National Wildlife Federation
Birds of Pennsylvania	Merrill Wood, PA State Univ.
Birds of Prey	
Botany For All Ages	Jorie Hunken
Bottle Biology	
Cactus Desert	Donald M. Silver
Caterpillarology	Michael Elsohn Ross
Cave	Donald M. Silver
Chattanooga Sludge	Molly Bang
Common Ground: The Water, Earth, and Air We Share	Molly Bang
Compost: Growing Gardens From Your Garbage	Linda Glaser
Conservation Directory of Pennsylvania	PA Dept. of Environment
Conserving Soil	National Assoc. of Conservation Districts
Creepy Crawlies and the Scientific Method	Sally Stenhouse Kneidel
Creepy Crawly Caterpillars	Margery Facklam
Cricketology	Michael Elsohn Ross
Crinkleroot's Guide to Knowing Animal Habitats	Jim Arnosky
Crinkleroot's Guide to Knowing Butterflies and M	Jim Arnosky
Cycling Back to Nature With Bio-Degradable Polym	Penn State Cooperative Extension
Decision: Earth	Proctor & Gamble Educa
Dictionary of Environmental Science and Technology	Andrew Porteous
Digging Into Dinosaurs	Ranger Rick's Naturescope, National Wildlife Federation
Discovering Deserts	Ranger Rick's Naturescope, National Wildlife Federation
Diving Into Oceans	Ranger Rick's Naturescope, National Wildlife Federation
Down Comes the Rain	Franklyn Mansfield Branley

REFERENCE	BY
Down to Earth: Garden Secrets! Garden Stories!	Harcourt Brace
EarthCare: An Activity Based Science Program	Dr. James E. Wild, Texas A&M Univ.
Earth Day Every Day – You Can Make a Difference	National Wildlife Federation
Earthways	Carol A. Petrash
Eastern Forest Insects	Whitford L. Baker, US Dept. of Agriculture
Ecology	Richard Spurgeon
Edible? Incredible? Pondlife	Marjorie Furlong
Education Goes Outdoors	Frank A. Johns
Endangered Species: Wild and Rare	Ranger Rick's Naturescope, National Wildlife Federation
Environmental Education: Teacher Resource Handbook	
Environmental Science Activities Kit	Michael L. Roa, Center for Applied Research
Fall Color: Trees of the Eastern Forests (Video)	Laurel Hill Press Natural
Field Guide to Tracks of North American Wildlife	Myron Chase
Fireflies, Fireflies, Light My Way	Jonathan London
Flush: Treating Wastewater	Karen Mueller Coombs
Forestry: An Intricate Balance (Video)	Penn State Coop. Extension
Free & Cheap Things For Nature Lovers	Marcus Schneck
Friendly Forest Club: Wolves (Video)	Forest Productions
Frogs, Toads, Lizards, and Salamanders	Nancy Winslow Parker
Fruit Key & Twig Key to Trees and Shrubs	William M. Harlow, Ph.D.
Garbage in America: It's In The Can	Refuse Industry
Garbage in America: Keeping America Beautiful	Refuse Industry
Garbage in America: Meet Ricky and Roxanne	Refuse Industry
Garbage in America: Reduce Reuse Recycle	Refuse Industry
Garbage in America: Resourceful Rick and Roxanne	Refuse Industry
Garbage in America: Ricky and Roxanne Recycle	Refuse Industry
Garbage in America: Ricky and Roxanne Return	Refuse Industry
Garbage in America: The Choice Is Yours	Refuse Industry
Garbage in America: You Make the Choice	Refuse Industry
Geology: The Active Earth	Ranger Rick's Naturescope, National Wildlife Federation
Getting Involved	Commonwealth of Pennsylvania

REFERENCE	BY
Give Water a Hand: Community Site Action Guide	Nat'l 4-H Council
Give Water a Hand: Home Site Action Guide	Nat'l 4-H Council
Give Water a Hand: Farm and Ranch Site Action Guide	Nat'l 4-H Council
Give Water a Hand: Leader Guidebook	Nat'l 4-H Council
Give Water a Hand: School Site Action Guide	Nat'l 4-H Council
Green Fun: Plants as Play	Marianne Haug. Gjersvik
Helping Wildlife: Working with Nature	Delwin E. Benson
Incredible Insects	Ranger Rick's Naturescope, National Wildlife Federation
How Mountains Are Made	Kathleen Weidner Zoehfeld
How Seeds Travel	Cynthia Overbeck
How to Implement a Plastics Recycling Program	Council for Solid Waste
Insect Biology: 49 Science Fair Projects	H. Steve Dashefsky
Insectlopedia: Poems and Paintings	Douglas Florian
Insects and Spiders and Mites Oh My (Video)	Pennsylvania State University
Into the Wild (Video)	Amway Corp.
Investigating Nature Through Outdoor Projects	Vinson Brown
It's Happening Today on the Chesapeake Bay (Video)	Facob & Annita France
Kid Style Nature Crafts: 50 Terrific Things to Make	Gwen Diehn
Kid's Book	Christine R. Raabe, Denver Museum of Natur
Kids, Wildlife and Their Environment	Lou Hoffman, National Wildlife Federation
Ladybugology	Michael Elsohn Ross
Let's Hear It For He	Ranger Rick's Naturescope, National Wildlife Federation
Macmillan Encyclopedia of the Environment	Macmillan Library
Magic Muck: The Complete Guide to Compost	Lady Muck
MicroCosmos (Video)	Buena Vista Pictures
Monteverde: Science and Scientists in a Costa R	Sneed B. Collard
Nature's Keeper: The New Science of Nature mana	Stephen Budiansky
Nature Specialist: A Complete Guide to Programs	Lenore Hendler Miller, American Camping Assoc.
Nature Through Science and Art	Susie Gwen Criswell
Outside and Inside Birds	Sandra Markle
Over Under In The Garden: An Alphabet Book	Pat Schories
Papermatcher	American Paper Institute

REFERENCE	BY
Pennsylvania Earth Week Classroom Program	PA Dept. of Environment
Pennsylvania Municipal Recycling Costs	Pennsylvania Soft Drink Assoc.
Pennsylvania Recycling and Waste Reduction	PA Dept. of Environment
Pennsylvania Recyclable Materials Market Develop	Dept. of Environmental Resources
Pennsylvania Recycled Materials Markets Director	Dept. of Environmental Resources
Pennsylvania Used Oil Recycling Program	PA Energy Office
Pollution: Problems and Solutions	Ranger Rick's Naturescope, National Wildlife Federation
Pond	Donald M. Silver
Pond Life	George K. Reid
Questions and Answers About Forest Animals	Michael Chinery
Rain Forests: Tropical Treasures	Ranger Rick's Naturescope, National Wildlife Federation
Recycling Works: A How-to Guide for Pennsylvania	Dept. of Environmental Resources
Recycling Works For Your Business (Video)	PA Dept. of Environmental Resources
Restoring Our Earth	Laurence Pringle
Return From Forever: The Osprey (Video)	Wild Resource Conservation Fund
Richard Orr's Nature Cross-Sections	Richard Orr
Save Our Plant: 750 Ways You Can Help Clean Up	Diane MacEachern
Science Fair Projects: The Environment	Robert L. Bonnet
Science in Your Backyard	
Sea Turtles	Gail Gibbons
Seed to Seedling	Sacramento Tree Foundation
Simon & Schuster Children's Guide to Birds	Jinny Johnson
Snailology	Michael Elsohn Ross
Solid Waste Management Plan	Northern Tier Solid Waste Authority
Spiders Are Not Insects	Allan Fowler
Spring Wild Flowers of the Eastern Forests (Video)	Laurel Hill Press Natural
Squishy, Misty, Damp & Muddy: The In-Between Wo	Molly Cone
Suburban Nature Guide	David Mohrhardt
Survival: Could You Be A Deer	Roger K. Tabor
Survival: Could You Be A Fox	Fiona Pragoff
Survival: Could You Be A Mouse	John Norris Woods
Survival: Could You Be An Otter	Fiona Pragoff
Survival: Could You Be A Squirrel	Fiona Pragoff
Swallows In The Birdhouse	Stephen R. Swinburne
The Amateur Naturalist's Handbook	Vinson Brown

REFERENCE	BY
The Basic Essentials of Map & Compass	Cliff Jacobson
The Big Book of Nature Projects	Thames and Hudson
The Complete Recycling Education Kit-In-A-Can	Steel Can Recycling Inst.
The Environmental Career Guide	Nicholas Basta
The Garden of Happiness	Erika Tamar
The Global Ecology Handbook	Beacon Press
The Gourmet Guide to Energy Education	PA Energy Office
The Great Glass Caper	Glass Container Industry
The Great Kapok Tree: A Tale of the Amazon Ra	Lynne Cherry
The Great Midwest Flood	Carole Garbuny Vogel
The Homecoming (Video)	Wild Resource Conservation Fund
The Kids' Wildlife Book	Warner Shedd
The Modern Ark: Saving Endangered Species	Daniel Cohen
The Recyclable Aluminum Can	Aluminum Co. of America
The Simple Act of Planting a Tree	TreePeople
The Timber Rattlesnake: Shadow of Misunderstan (Video)	Wild Resource Conservation Fund
The Tree Identification Book	George W. D. Symonds
The Tree In The Ancient Forest	Carol Reed-Jones
The Tree That Would Not Die	Ellen Levine
There's Still Time: The Success of the Endanger	Mark A. Galan
To The Young Environmentalist: Lives Dedicated	Linda Leuzzi
Trash Collection and Recycling	Property Management
Trees	Jonathan Pine
Trees are Terrific	Ranger Rick's Naturescope, National Wildlife Federation
Up River	Frank Asch
Wading Into Wetlands	Ranger Rick's Naturescope, National Wildlife Federation
Washing the Willow Tree Loon	Jacqueline Briggs Martin
Water, Stones & Fossil Bones	Nat'l Science Teachers A
Water: We Can't Live Without It	National Wildlife Federation
Water Wise: Lessons in Water Resources	Elizabeth C. Moran, Cornell Coop. Extension
WEE Recyclers Resources	Wisconsin Dept. of Natur
Wetlands	Pamela Hickman
Wetlands and Wildlife	Robert P. Brooks, Penn State College of Ag
What Do You Do When Something Wants To Eat You?	Steve Jenkins
What Rot: Nature's Mighty Recycler	Elizabeth Ring

REFERENCE	BY
What's Alive	Kathleen Weidner Zoehfeld
Where Once There Was a Wood	Denise Fleming
Wild About Weather	Ranger Rick's Naturescope, National Wildlife Federation
Wild & Crafty	National Wildlife Federation
Wild In The City (Video)	Wild Hare Media

REFERENCE	BY
Wildlife Educational Aids	Lou Hoffman, PA Game Commission
Wildlife, Forests, and Forestry	Malcolm L. Hunter
Woodland Ecology	Leon S. Minckler
Woodlands and Wildlife	Pennsylvania State University
Woods	Donald M. Silver
Wormology	Michael Elsohn Ross
You & Your Aquarium	Dick Mills

VIDEO LIST VHS

The video library is continually updated. If you are looking for a special subject area call to see if a video is available on the topic.

Following videos available for loan through the Conservation District office:

The Timber Rattlesnake, "Shadow of Misunderstanding" – produced by the PA Wild Resource Conservation Fund, 27 minutes

Return From Forever "The Osprey...A Gift From The Past...A Treasure For The Future" – produced by the PA Wild Resource Conservation Fund, 27 minutes

Season of the Bat – produced by the PA Wild Resource Conservation Fund, 27 minutes

On the Trail of Pennsylvania's Black Bears – produced by the PA Game Commission, 100 minutes

All Things Are Connected – produced by the North Carolina Wildlife Resources Commission, Division of Conservation Education, 12 minutes

The Wealth in Wetlands – produced by the National Association of Conservation Districts, 23 minutes

Wetlands: Maligned Treasures – produced by PA Department of Environmental Protection, 24 minutes

(Video List, Cont.)

The Riparian Zone – produced by Mercer County Conservation District

Northeast Network—Potatoes: More Than Meets The Eye – produced by the Department of Education, 14 minutes

Northeast Network—The Changing Rural Landscape: Who Decides? – produced by the Department of Education, 16 minutes

“Social Capital and Sustainability” The Community and Managing Change In Agriculture – produced by Iowa State University Extension, 22 minutes

“Bio-Solids: Recycling a Valuable Resource” – produced by the Dept. of Environmental Protection, 10 minutes

“The Treatment of Wastewater” – produced by PA Department of Environmental Protection/Department of Community Affairs, 18 minutes

“Rare & Endangered Wildflowers” – produced by Wild Resource Conservation Fund, 30 minutes

“The Susquehanna River” North Branch: Heart of the Endless Mts. – produced by PA Environmental Council, 10 minutes

Farm Safety, A Second Chance – produced by Dow Elanco, 15 minutes

Sustaining America’s Agriculture: High Tech and Horse Sense – produced by USDA, Natural Resources Conservation Service & Environmental Protection Agency

“Riparian Forest Buffers the Link Between Land & Water” – produced by University of Maryland Cooperative Extension Service, 21 minutes

“Pennsylvania Elk: Reclaiming the Alleghenies” – produced by PA Game Commission, 85 minutes

SECTION II - MUNICIPAL PROGRAMS

Municipal officials are vital to the very foundation of government in Pennsylvania. Their role is increasing in responsibility and sophistication. The Bradford County Conservation District places a high priority on providing informational and educational services for municipalities. The following are summaries of current activities in the educational and informational area. The Conservation District remains open and flexible to adapting any programs to municipal needs.

1 - DIRT & GRAVEL ROADS PROGRAM

Bradford County has over 1,200 miles of dirt and gravel roads. The Dirt & Gravel Roads Program provides information and educational opportunities for these activities and training on minimizing the environmental effects of them. Workshops have been provided in a semi-formal manner providing certification, or in an informal workshop manner. Written materials and videos are available.



2 - FLOOD PLAIN MANAGEMENT

Under current State law, municipalities are responsible for managing flood plain areas. The Conservation District is working with the State to bring both municipality specific and general training to those in positions of responsibility. Staff is available to meet with municipal officials at their convenience. Books, brochures and videos are available.

3 - EROSION & SEDIMENTATION CONTROL

In much of Pennsylvania, sedimentation is the number one pollutant. Many municipalities have working agreements with the Conservation District to review development plans to assure that the risk of off site sedimentation is minimized. The Conservation District has provided site specific as well as general workshops on the principles and regulations regarding erosions and sedimentation control. These have been done for municipal officials, planning and zoning officers, building officials, engineers, contractors or the general public. Written materials and videos available.

4 - WETLAND IDENTIFICATION & REGULATION

The Conservation District offers training and workshops on the identification and regulation of wetlands. Programs have varied from full day training to informational sessions.



5 - STORMWATER MANAGEMENT

The Conservation District has worked with, and continues to work with, the County Planning Commission and State and Federal resource management agencies to bring information and workshops on stormwater management principles.

6 - ENVIRONMENTAL REGULATIONS

One of the primary technical roles of the Conservation District is to keep abreast of the environmental regulations that affect the management of natural resources. The Conservation District is a source for written materials, summaries and copies of specific regulations. Workshops for large and small groups are available. Conservation District staff are available to attend municipal meetings.

7 - NUTRIENT MANAGEMENT

Since the passing of the PA Nutrient Management Act, the Conservation District has served as the point of contact for information and technical assistance. The Conservation District provides group and individual municipality training on regulations and general concepts of nutrient management. Written brochures, videos and guides are also available on nutrient management.

8 - BIOSOLIDS

The Conservation District currently has an agreement with the State to provide information and assistance regarding the land disposal of bio-solids. Written material, demonstrations, workshops and tours are available through the Conservation District.

9 - WATERSHED AND STREAM MANAGEMENT

Addressing environmental issues, specifically those related to streams, involves the cooperation and coordination of the entire watershed community. The Conservation District offers group trainings, facilitation of watershed meetings, workshops, and small planning session assistance, as well as written and video information. Topics include stream management and regulation, watershed organization, watershed planning, watershed dynamic, and watershed components.

SECTION III - GENERAL PUBLIC PROGRAMS

The Conservation District offers a large variety of programs that address the County's diverse natural resources and relative issues. The following is a list of general public programs available to County residents.

- ❖ **WATERSHED GROUPS** - Provide visioning and goal setting facilitation assistance; speaker bureau; watershed planning workshops; written and video materials.
- ❖ **LAKE & POND OWNERS** - Sponsor the Bradford County Lake and Pond Management Organization; publish quarterly newsletter for lakes and ponds; provide workshops and tours; lending library; management classes offered; site programs and workshops; limited individual information and assistance.
- ❖ **SERVICE CLUB / ORGANIZATIONS** - Provide a full range of topical program topics requested by groups; co-sponsorship of educational and informational activities such as Earth Day or Arbor Day; participate as presenters at camps or field days.
- ❖ **SPORTSMEN'S CLUBS** - Workshops on wildlife habitat enhancement; written and video materials; camp and field day presentations; resource management topic materials and presentations.
- ❖ **SENIOR CITIZENS** - Provide a full range of topics for presentations, films and written materials; project development.
- ❖ **CHURCHES & RELIGIOUS GROUPS** - Provide free materials (posters, bulletin covers, bookmarks, lesson outlines, litany, etc.) as part of Soil Stewardship week; co-sponsorship of environmental festivals; youth and adult programs; activities at camps and schools; field day activities.
- ❖ **ENGINEERS, DEVELOPERS & CONTRACTORS** – Workshops are available to provide information on program requirements, regulations, and best management practices. A variety of printed materials and videos are available at the Conservation District office.
- ❖ **BANKERS, REAL ESTATE & INSURANCE PROFESSIONALS** - Special workshops on topics such as wetlands, regulations, environmental liabilities, laws; co-sponsor environmental awards; presentations at regular meetings.
- ❖ **BUSINESSES & CHAMBERS OF COMMERCE** - Co-sponsorship of activities such as River Sojourns, festivals and displays; co-sponsorship of educational materials for schools and other target groups; presentations on topics as requested.

- ❖ **NATURE & WILDLIFE CLUBS** - Provide presentations on local, state and national issues and resource management policy; presentations on wildlife and its management; camp programs and presentations; written and video programs; co-sponsorship of programs.
- ❖ **FESTIVALS & SPECIAL EVENTS** - The Conservation District has supported numerous activities including: Arbor Day and Earth Day activities; camp presentations and activities; local fairs and festivals. Displays are available for special events.
- ❖ **RESOURCE CONSERVATION PLANNING** - The Conservation District provides specialized training for groups and individuals in the development of resource conservation plans for agriculture, forestry, lakes and ponds, wildlife areas, greenways, and riparian zones. The Conservation District is also available to assist with information on certain aspects of land use planning.
- ❖ **WATER QUALITY MONITORING** - The Conservation District provides workshop, group and individual training on setting up and implementing a water quality monitoring program. Print and video materials are available.
- ❖ **STREAM MANAGEMENT** - The Conservation District provides training and workshops on stream regulation, best management practices, stream dynamics, stream classification, and stream inventories. Group training on assessment can be coordinated, developed and delivered.
- ❖ **TOWN & URBAN PROGRAMS** - Programs and training are available on topics such as Backyard Conservation, Wildlife attraction and controls, Land use, Flood protection, Greenway development, Park development, etc..
- ❖ **MISCELLANEOUS MATERIALS** - The Conservation District has an extensive inventory of fact sheets, printed material, and videos.



SECTION IV - CROSS AGENCY PROGRAMS

As the Bradford County Conservation District has grown over the years, so to has its expertise. As the organization assigned the task of coordinating resources and keeping abreast of environmental laws and regulations, it sometimes finds itself in the position of instructor. The Conservation District has offered, and continues to offer, information and education to other agencies and organizations on topics of mutual interest. These groups have included such as other Conservation Districts, Municipalities, Assessors, Natural Resources Conservation Service staff, Planning Commission staff and others. The Conservation District is dedicated to continuing this cooperative effort.

- ❖ **ENVIRONMENTAL LAWS & REGULATIONS** - The Conservation District has provided, and continues to provide, numerous workshops, group presentations and written material on the laws and regulations it is familiar with. These include areas such as: erosion and sedimentation control; stream and wetland regulations; water quality regulation; nutrient management; flood plain protection; and bio-solids.
- ❖ **WETLANDS IDENTIFICATION & REGULATION** - The Conservation District provides class and field experiences in wetland identification. The tools available for remote office reviews and the specific criteria of field identification can be presented. Regulatory aspects relate to various activities are also topics for presentation.
- ❖ **STREAM DYNAMICS** - The Conservation District can provide overview training in the use of stream dynamics, classification and data collection. Training has been delivered to municipal officials and other agency personnel and can be customized to any audience.
- ❖ **LAKE & POND MANAGEMENT** - The Conservation District is a leader in providing information on lake and pond management in the State. Workshops, group presentations and program development assistance are provided to related agencies and organizations.



COOPERATING AGENCIES

FARM SERVICE AGENCY

Lyle Harding, Co. Executive Director, RR 5, Towanda, 570-265-3146 (Ext. 109)
Sheryl Potocek, Farm Loan Manager, RR 5, Towanda, 570-265-3146 (Ext. 110)

PENN STATE EXTENSION 570-265-2896

Lehan Power, Co. Ext. Director & Area Farm Mgt. Agent, PO Box 69, Towanda
Robert Hansen, Forester, PO Box 69, Towanda
Tom Maloney, County Agent, PO Box 69, Towanda
Mark Madden, Agronomy Agent, PO Box 69, Towanda
Gary Hennip, Agricultural Agent, PO Box 69, Towanda

BUREAU OF FORESTRY, DCNR

Roy Siefert, Dist. Forester, Box 94, Wellsboro, 570-724-2868
James Lacek, Service Forester, RR 5, Box 5030B, Towanda, 570-265-9845

BUREAU OF COMMUNITY ENVIRONMENTAL CONTROL, DEP

Ron Russell, 600 Gateway Drive, Mansfield 16933-9000, 570-662-0830

BRADFORD COUNTY SANITATION COMMITTEE

Stan Parks, RR 5, Box 5001B, Towanda, PA 18848, 570-265-9811
Bill Tilley, RR 5, Box 5001B, Towanda, PA 18848, 570-265-9811

PA FISH COMMISSION 570-477-5717

Terrance Deibler, Waterways Cons. Officer, RR 1, Box 334, Muncy Valley 17758
Bryan Bendock, Waterways Cons. Officer, RR 2, Box 2271, Halstead 18822

PA GAME COMMISSION 570-675-1143 or 1144

Rich Lupinsky, Land Manager, PO Box 40, E. Smithfield 18817
W. A. Bower, Game Protector, 153 Redington Ave., Troy 16947
Vernon Perry, Game Protector, RR 1, Box 117, Monroeton, 18832
Matt Grebeck, Game Protector

BRADFORD COUNTY OFFICE OF COMMUNITY PLANNING AND GRANTS

Ray Stolas, County Planner, Courthouse, Towanda, PA, 570-265-1715

NATURAL RESOURCES CONSERVATION SERVICE

John C. George, Dist. Conservationist, RR 5, Towanda, 570-265-6969 (Ext. 103)

DEPARTMENT OF TRANSPORTATION

William C. Hutchison, Dist. Eng., PO Box 218, Montoursville, PA, 570-368-4224
David Delose, Maintenance Manager, PO Box 30, Towanda, 570-265-2181

RURAL DEVELOPMENT

Mike Angerson, RR 5, Towanda, PA 18848, 570-265-6163 (Ext. 131)
Beatrice Elliott, RR 5, Towanda, PA 18848, 570-265-6163 (Ext. 132)

ENDLESS MOUNTAINS RESOURCE CONSERVATION & DEVELOPMENT

C. Wayne Ray, Coordinator, RR 5, Towanda, PA 18848, 570-265-3409(Ext. 118)

BUREAU OF WATER QUALITY PROTECTION

Bill Kahler – 208 W. 3rd St., Suite 101, Williamsport, PA 17701, 570-327-0526