PROGRAMMATIC ENVIRONMENTAL ASSESSMENT FOR IMPLEMENTATION OF THE CONSERVATION RESERVE ENHANCEMENT PROGRAM AGREEMENT FOR PENNSYLVANIA

Final

U.S. Department of Agriculture
Farm Service Agency

May 2004

ACRONYMS AND ABBREVIATIONS

2002 Farm Bill	Farm Security and Rural Investment Act of 2002
AQI	Air Quality Index
BEA	Bureau of Economic Analysis
BLS	Bureau of Labor Statistics
CAA	Clean Air Act
CCC	Commodity Credit Corporation
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CFRP	The Center for Rural Pennsylvania
COE	U.S. Army Corps of Engineers
CO	carbon monoxide
CP	conservation practice
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
CWA	Clean Water Act
DCNR	Pennsylvania Department of Conservation and Natural Resources
DEP	Department of Environmental Protection
EI	erodibility index
EO	Executive Orders
EOS	edge of stream
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FSA	Farm Service Agency
FWS	U.S. Fish and Wildlife Service
HEL	highly erodible land
NAAQS	National Ambient Air Quality Standards
NRHP	National Register of Historic Places
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
O_3	ozone
Ohio River CREP	Ohio River Basin CREP
Pb	lead
PEA	Programmatic Environmental Assessment
PEIS	Programmatic Environmental Impact Statement
PHMC	Pennsylvania Historical Museum Commission
PM_{10}	particulate matter less than 10 microns in diameter
ROI	Region of Influence
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	sulfur dioxide
SRR	soil rental rate
TCP	traditional cultural properties
USCB	U.S. Census Bureau
USDA	U.S. Department of Agriculture
WRP	Wetlands Reserve Program

Finding of No Significant Impact

Programmatic Environmental Assessment for the
Proposed Implementation of Pennsylvania's Ohio River Basin
Conservation Reserve Enhancement Program Agreement

In accordance with the National Environmental Policy Act (NEPA) and Farm Service Agency's environmental regulations at 7 CFR 799, implementing the regulations of the Council on Environmental Quality, 40 CFR 1500-1508, I find that the project described in the attached Environmental Assessment, implementing Pennsylvania's Conservation Reserve Enhancement Program (CREP) Agreement, is not a major Federal action significantly affecting the quality of the human environment. Therefore, no Environmental Impact Statement will be prepared. Once lands eligible for enrollment in the CREP are identified, site specific NEPA analysis will be completed to evaluate potential impacts.

APPROVED: _____ _____

James Fortner, Environmental Compliance Manager Date

EXECUTIVE SUMMARY

This Programmatic Environmental Assessment (PEA) describes the potential environmental consequences resulting from the proposed implementation of Pennsylvania's Ohio River Basin Conservation Reserve Enhancement Program (CREP) agreement. The environmental analysis process is designed: to ensure the public is involved in the process and informed about the potential environmental effects of the proposed action; and to help decision makers take environmental factors into consideration when making decisions related to the proposed action.

This PEA has been prepared by the United States Department of Agriculture, Farm Service Agency (FSA) in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality regulations implementing NEPA, and 7CFR 799 *Environmental quality and Related Environmental Concerns – Compliance with the National Environmental Policy Act.*

Purpose and Need for the Proposed Action

The purpose of the proposed action is to implement Pennsylvania's CREP agreement. Under the agreement, eligible farmland in the Ohio River Basin would be removed from production and approved conservation practices, such as tree planting, installation of riparian buffers, and wetland restoration, would be implemented. Landowners would receive annual rental payments and would be eligible for one time payments to support the implementation of conservation practices.

The Ohio River CREP agreement is needed to meet the following CREP goals:

- improve water quality,
- protect drinking water,
- control soil erosion,
- protect threatened and endangered species, and
- assist the state in complying with environmental regulations that are related to agriculture in specific important geographic regions.

Proposed Action and Alternatives

The proposed action would implement Pennsylvania's CREP agreement. Under this agreement, 65,000 acres of eligible farmland in the following 16 counties in the Ohio River Basin would be enrolled in CREP: Allegheny, Armstrong, Beaver, Butler, Clarion, Crawford, Erie, Fayette, Forest, Greene, Lawrence, Mercer, Venango, Warren, Washington, and Westmoreland.

Landowners would enter 10 to 15 year contracts with FSA to install conservation practices would be established on enrolled lands and would maintain those practices for periods between 10 and 15 years.

Highly erodible land (HEL) and riparian areas would be targeted for enrollment in the proposed CREP. HEL would be eligible for the following conservation practices: establishment of permanent introduced grasses and legumes; establishment of permanent native grasses, permanent wildlife habitat, establishment of permanent vegetative cover, and wildlife food plots. Shallow water areas for wildlife, filter strips, wetland restoration, marginal pastureland wildlife habitat buffer, and marginal pastureland wetland buffers could be established on riparian lands enrolled in CREP.

In return for installing and maintaining these practices, landowners would receive annual rental payments for the duration of the contracts as well as financial and technical support for implementing and maintaining the practices. For lands enrolled in CREP, annual rental payments would be the sum of the base soil rental rate, an incentive payment, and an annual maintenance rate.

This PEA documents the analysis of the proposed action and the No Action Alternative. Under the No Action Alternative, no lands would be enrolled in CREP. None of the conservation practices or rental payments described above would be implemented.

Summary of Environmental Consequences

It is expected that there would be both positive and minor negative impacts associated with implementation of the proposed action. A summary of the potential impacts is given in Table ES-1.

Resource	Proposed Action	No Action Alternative
Biological Resources	The proposed action is expected to contribute to vegetation and wildlife diversity. Positive impacts to threatened and endangered species, species of concern, and their habitats are expected.	Continued degradation of terrestrial and aquatic habitats and potential for occurrence of exotics species.
Cultural Resources	There is high potential for encountering archaeological resources. Site specific archaeological and historic architectural surveys and coordination with SHPO are recommended prior to the installation of conservation practices. Consultation with several tribes that have traditional ties to the Ohio River valley may be required once sites are selected.	No major impacts are expected though negative impacts to cultural resources could result from changes in existing farming practices which disturb previously undisturbed land.

Resource	Proposed Action	No Action Alternative
Water Resources	Significant long term positive impacts to surface and ground water quality are expected. Wetlands acreages are expected to increase as a result of the proposed conservation practices. Temporary minor impacts to existing wetlands and localized surface water quality may result from runoff during activities associated with the installation of the proposed conservation practices.	Continued degradation of surface and ground water and wetlands is expected to result if the proposed action is not implemented.
Earth Resources	Positive impacts to localized topography and soils are expected to result from implementation of the proposed action	Continued erosion is expected to result if the proposed action is not implemented.
Air Quality	No impacts to attainment status or violations of State Implementation Plan standards would result from the proposed action. However, localized temporary minor impacts to air quality may result from ground disturbing activities and the use of heavy equipment during the installation of conservation practices.	No change from current conditions is expected.
Recreational Resources	Positive long term effects on recreational resources are expected. The proposed conservation practices are expected to increase habitat for game and non-game species. Water quality improvements would result in better recreation fishing and other water-related recreation.	No change from current land-based recreational opportunities is expected; however, continued water quality degradation may affect game fish or other water related recreation.
Socioeconomics and Environmental Justice	Increased land values and a loss of farm labor jobs and expenditures are expected to result from the implementation of the proposed action. Because the project area is not considered an area of concentrated poverty or minority population, there are no environmental justice issues.	No change in current trends in socioeconomic conditions is expected.

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1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

The United States Department of Agriculture (USDA) Farm Service Agency (FSA) proposes to implement the Conservation Reserve Enhancement Program (CREP) agreement for the state of Pennsylvania. This Programmatic Environmental Assessment (PEA) has been prepared to analyze the potential environmental consequences associated with the proposed action and No Action Alternative in accordance with the requirements of the National Environmental Policy Act (NEPA); the Council on Environmental Quality (CEQ) regulations; and 7 CFR 799 *Environmental Quality and Related Environmental Concerns – Compliance with the National Environmental Policy Act.*

1.2 BACKGROUND

The Farm Service Agency and Conservation Reserve Program

FSA was established during the reorganization of USDA in 1994. The mission of FSA is to "ensure the well being of American agriculture, the environment and the American public through efficient and equitable administration of farm commodity programs; farm ownership, operating and emergency loans; conservation and environmental programs; emergency and disaster assistance; domestic and international food assistance and international export credit programs."

FSA's Conservation Reserve Program (CRP) is the Federal government's largest private land environmental improvement program. CRP is a voluntary program that supports the implementation of long term conservation measures designed to improve the quality of ground and surface waters, control soil erosion, and enhance wildlife habitat on environmentally sensitive agricultural land.

Conservation Reserve Enhancement Program

CREP was established in 1997 under the authority of CRP. The purpose of CREP is to address agriculture related environmental issues by establishing conservation practices (CPs) on farmlands using funding from state, tribal, and Federal governments as well as nongovernment sources. Federal funding is provided by the Commodity Credit Program (CCC). CREP addresses high priority conservation issues in specific geographic areas such as watersheds. Owners of lands eligible for inclusion in CREP receive annual rental payments in exchange for implementing approved CPs. In addition, landowners may receive monetary support for establishing these practices.

Statewide CREP agreement proposals are developed by teams that can consist of state, tribal, Federal and local government agency representatives, producers, and other stakeholders. CREP proposals are

submitted to FSA by the state's governor. An interagency panel then reviews the proposal. The final CRP agreement is set into practice through a Memorandum of Agreement between USDA and the state's Governor. CRP programs are limited to 100,000 acres per state.

In 2003, a final Programmatic Environmental Impact Statement (PEIS) was prepared for the proposed nationwide CRP, authorized under the Farm Security and Rural Investment Act of 2002 (2002 Farm Bill) (FSA 2003). The PEIS contained the results of detailed analyses of the impacts of implementing CRP nationwide including the CREP component. The analyses of the impacts of implementing Pennsylvania's Ohio River Basin CREP (Ohio River CREP) agreement that are presented in this PEA tier from the nationwide PEIS. The Ohio River CREP agreement would remove 65,000 acres of eligible farmland from production and establish approved CPs on the land. Specific lands which would be enrolled in the program have not yet been identified. Once eligible lands are identified, site specific NEPA analysis would be completed to evaluate potential impacts.

Pennsylvania CREP Goals

CREP agreements are designed to meet specific regional conservation goals and objectives that are related to agriculture. For the Ohio River CREP, these goals and objectives include the following:

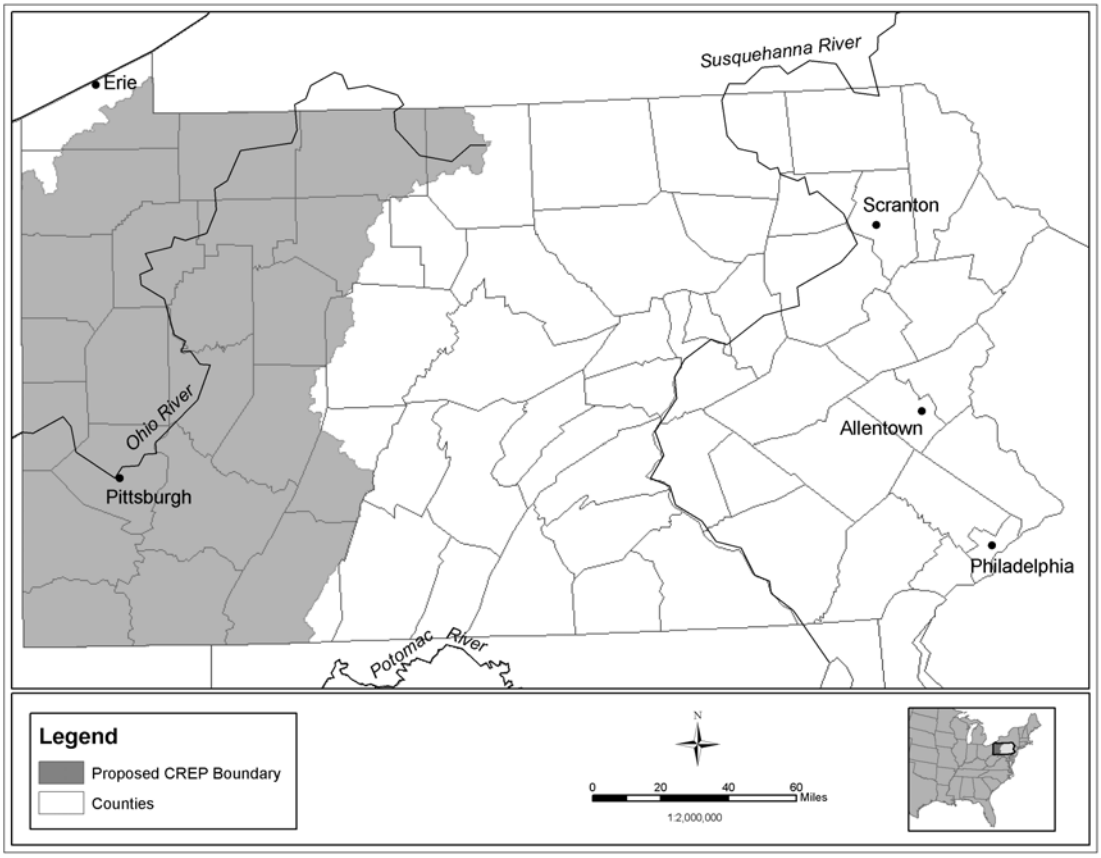
- Permit western Pennsylvania farmers to voluntarily restore and protect wetlands, highly erodible land (HEL), riparian areas, and grasslands;
- Reduce edge of stream sediment loading into the Ohio River and ultimately the Gulf of Mexico by an estimated 12 metric tons per year;
- Reduce edge of stream nitrogen and phosphorous loading of the Ohio River and Gulf of Mexico by an estimated 458 and 19 metric tons per year, respectively;
- Restore 10,000 acres of riparian, in stream, and wetland wildlife habitat by providing herbaceous and woody cover along streams, stabilizing stream banks and floodplains, reducing water temperature, increasing time to runoff, and facilitating groundwater recharge;
- Restore up to 55,000 acres of HEL to protect water quality and create wildlife habitat, particularly grassland habitat for song and ground nesting birds, by planting native grasses, creating field borders, and protecting intact habitats;
- Protect and improve threatened and endangered species and their habitats; and
- Improve environmentally related recreational opportunities, such as hunting, fishing, hiking, and birding.

Pennsylvania's Ohio River Basin

Within Pennsylvania's 15,600 square mile portion of the Ohio River drainage basin there are 21 counties lying within four major sub basins: the Beaver, Monongahela, Allegheny, and Upper Ohio. Sixteen of these counties, Allegheny, Armstrong, Beaver, Butler, Clarion, Crawford, Erie, Fayette, Forest, Greene,

Lawrence, Mercer, Venango, Warren, Washington, Westmoreland, cover approximately 77 percent of Pennsylvania's portion of the Ohio River basin. These are the counties targeted for enrollment in CREP (see Figure 1.2-1) (WPC 2003).

Figure 1.2-1 Proposed Ohio River Basin CREP Area



Nearly 60 percent of the Ohio Basin CREP area is rural. Of the 16 proposed CREP counties, just six have urban populations of 50 percent or greater. These counties are either a part of, or are adjacent to the Pittsburgh or Erie metropolitan areas. The remaining 10 counties have an average rural population of over 73 percent. Twenty percent of the region's land area is considered urban, 56 percent is forested, and 24 percent is classified as agricultural land. The forested and agricultural land use/land cover data of the Ohio Basin CREP area mirrors that of Pennsylvania's statewide land use data, which has a landscape dominated by forest cover (65 percent) and followed by agricultural land use/land cover (27 percent). The region's most prolific agricultural lands are located in the western, northwestern, and southwestern counties of the Ohio Basin CREP area (WPC 2003).

Agriculture in the proposed CREP area is primarily forage (dry and greenchop alfalfa and other hay), corn, and livestock (primarily cattle and calves). Crawford, Armstrong, Butler and Erie Counties have

more than 5,000 acres planted in oats. Westmoreland, Butler, Mercer, Erie, and Lawrence have more than 2,000 acres of winter wheat (PDA 2001).

1.3 PURPOSE AND NEED FOR THE ACTION

The purpose of the action is to implement Pennsylvania's CREP agreement. Under the agreement, eligible farmland in the Ohio River Basin would be removed from production and approved CPs, such as tree planting, installation of riparian buffers, and wetland restoration, would be implemented. Landowners would receive annual rental payments and would be eligible for one time payments to support the implementation of CPs.

The Ohio River CREP agreement is needed to meet the following CREP goals: to improve water quality, protect drinking water, control soil erosion, protect threatened and endangered species, and to assist the state in complying with environmental regulations that are related to agriculture in specific important geographic regions.

1.4 REGULATORY COMPLIANCE

This PEA is prepared to satisfy the requirements of NEPA (Public Law 91-190, 42 United States Code 4321 et seq.); its implementing regulations (40 CFR 1500-1508); and FSA implementing regulations, *Environmental Quality and Related Environmental Concerns – Compliance with the National Environmental Policy Act* (7 CFR 799). The intent of NEPA is to protect, restore, and enhance the human environment through well informed Federal decisions. A variety of laws, regulations, and Executive Orders (EO) apply to actions undertaken by Federal agencies and form the basis of the analysis presented in this PEA. These include but are not limited to:

- Endangered Species Act
- National Historic Preservation Act
- Clean Air Act
- Clean Water Act
- EO 11514, Protection and Enhancement of Environmental Quality
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations

1.5 ORGANIZATION OF THE PEA

This PEA assesses the potential impacts of the proposed action and the No Action Alternative, on potentially affected environmental and economic resources. Chapter 1.0 provides background information

relevant to the proposed action, and discusses its purpose and need. Chapter 2.0 describes the proposed action and alternatives. Chapter 3.0 describes the baseline conditions (i.e. the conditions against which potential impacts of the proposed action and alternatives are measured) for each of the resource areas while Chapter 4.0 describes potential environmental impacts of the proposed action and alternatives on these resources. Chapter 5.0 includes analysis cumulative impacts. Chapter 6.0 is a list of the preparers of this document and Chapter 7.0 lists persons and agencies contacted during the preparation of this document. Chapter 8.0 contains references and Chapter 9.0 is a glossary of terms used in the PEA.

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2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

FSA proposes to implement Pennsylvania's Ohio River CREP agreement. The agreement would enroll 65,000 acres of eligible farmland in 16 counties in the Ohio River Basin in CREP. Approved CPs would be established on these lands and landowners would receive support for the costs of installing and maintaining such practices as well as annual rental payments for lands enrolled in the program.

Eligible Lands

The Ohio River CREP agreement would enroll 65,000 acres of environmentally sensitive agricultural land in a 16 county region in Pennsylvania's Ohio River Basin over the next five years. Table 2.1-1 shows the percentages of agricultural land, agricultural acreages, and anticipated acreage enrolled in CREP for each county in the proposed Ohio River CREP area. Participation in CREP is voluntary, therefore, the anticipated by county enrollment in Table 2.1-1 is estimated. The location, size, and number of tracts that would be enrolled in CREP would be determined by individual enrollment.

Table 2.1-1 Acreage of Agricultural Land Eligible for Enrollment in CREP

County	Anticipated CREP Enrollment (acres)	Agricultural Land (%)	Agricultural Land (acres)	Cropland and Hayland (%)	Pastureland (%)	Other (%)
Alleghany	984	7	26944	50.6	23.5	25.9
Armstrong	4371	29	119579	57.1	17.1	25.8
Beaver	1960	21	53774	51.8	22.2	26
Butler	4537	25	118547	59.6	18.1	22.3
Clarion	3400	25	94086	55.1	18.3	26.6
Crawford	7699	33	207215	54.1	21.3	24.6
Erie	6294	32	167634	59.2	17	23.8
Fayette	4063	21	108612	47.1	28.8	24.1
Forest	159	2	5362	45.5	14.8	39.7
Greene	5059	34	130926	26.9	51.5	21.6
Lawrence	3529	37	87177	60.6	21.5	17.9
Mercer	6362	38	166616	57.7	19.8	22.5
Venango	1560	12	46186	49.7	18.9	31.4
Warren	1990	12	64498	38	24.6	37.4
Washington	7459	37	186190	43.4	37.9	18.7
Westmoreland	5574	24	147823	56.5	20	23.5
Total	**65000**		**1731169**	**50.8**	**23.5**	**25.7**

Source: WPC 2003

Lands within these counties that are eligible for enrollment in the proposed CREP would be those that have been planted with an agricultural commodity during four of the six years between 1996 and 2001 and have been held by the landowner for at least 12 months. Fifty five thousand acres of lands enrolled in CREP would be those designated HEL, those lands that require great conservation effort in order to reduce erosion and to maintain soil that will sustain crops. HEL eligible for enrollment would meet the following criteria:

- agricultural land within 180 feet of a stream regardless of its erodibility index (EI);
- cropland within 1,000 feet of a stream with an EI of greater than or equal to 8 and less than 12; or
- cropland further than 1,000 feet from a stream with an EI of greater than 12.

The proposed Ohio River CREP would enroll 10,000 acres in riparian CPs. If after December 31, 2005, 10,000 acres have not been enrolled in riparian CPs, that acreage would be available for other practices. Lands eligible for establishment of these practices would meet the following criteria:

- all streams and tributaries running thorough or within 180 feet of active agricultural land or pasturelands, or
- agricultural lands with appropriate soils are eligible for wetland restoration.

Establish Conservation Practices

Those CREP CPs that are proposed for implementation under the Ohio River CREP agreement are listed in Table 2.1-2. Also shown are the anticipated number of acres that would be enrolled in each practice, lands eligible for each practice as defined above and the durations of contracts.

Descriptions of these practices, including their purposes and maintenance guidelines, are available in Appendix A (FSA 2003, USDA 2003b). Preparation of lands for the installation of CPs may include: removal of existing vegetation or rocks through the use of tilling, burning or approved agricultural chemicals; use of temporary covers; earthmoving to construct dams, levees, or dikes; installation of structures to regulate water flow; installation of firebreaks, fencing, and roads.

Table 2.1-2 Pennsylvania's Proposed Conservation Practices

Conservation Practice		Anticipated Enrollment (acres)	Eligible Lands	Contract Duration (years)
CP1:	Establishment of Permanent Introduced Grasses and Legumes	32,500	HEL	10
CP2:	Establishment of Permanent Native Grasses	10,010	HEL	10
CP4D:	Permanent Wildlife Habitat, Noneasement	540	HEL	10
CP10:	Vegetative Cover – Grass – Already Established	10,270	HEL	10
CP9:	Shallow Water Areas for Wildlife	540	Riparian	10
CP12:	Wildlife Food Plot[1]	540	HEL	10 to 15[6]
CP15A:	Establishment of Permanent Vegetative Cover	530	HEL	10
CP21:	Filter Strips[2]	540	Riparian	10 to 15[6]
CP22:	Riparian Buffer[3]	5,200	Riparian	10 to 15[6]
CP23:	Wetland Restoration[4]	540	Riparian	10 to 15[6]
CP29:	Marginal Pastureland Wildlife Habitat Buffer[5]	3,250	Riparian	10 to 15[6]
CP30:	Marginal Pastureland Wetland Buffer[2]	540	Riparian	10 to 15[6]

Source: USDA 2003b, WPC 2003
[1]Authorized in conjunction with CP1, CP2, CP3, CP3A, CP4D, CP10, CP11
[2]Not authorized in conjunction with CP9, CP22, CP23
[3]Not authorized in conjunction with CP9, CP21, CP23
[4]Not authorized in conjunction with CP9, CP21, CP22
[5]Not authorized in conjunction with CP9, CP22, CP23, CP30
[6]The producer elects contract period between 10 and 15 years

Provide Financial Support to Landowners

Owners of lands enrolled in the Ohio River CREP would enter 10 to 15 year contracts with FSA. Landowners would be eligible for yearly rental payments for the duration of the contracts as well as financial support for implementing and maintaining CPs.

For lands enrolled in CREP, annual rental payments would be the sum of the base soil rental rate (SRR), an incentive payment, and an annual maintenance rate. The SRR for a parcel would be the current (or FY2003 if higher) weighted averages of the posted CRP county SRR for the three predominant soils on that parcel. Incentive payments available under the CREP are listed below:

- HEL enrolled in CP1, CP2, CP4D, CP10 and CP12 would be eligible for between 0.75 and 2.25 the SRR based on the EI of such land.

- Implementation of CP9, CP15A, CP21, CP22, CP23, CP29, and CP30 to protect or restore riparian wildlife habitat, wetland habitat, and stream habitat or water quality would be eligible for 1.5 times the SRR.
- Signing Incentive Payment: equal to $10 per acre times the number of years acreage is enrolled in CP21, CP22, CP29, and CP30 ($100-150 per acre).
- Practice Incentive Payment: equal to 40 percent of the eligible cost of installing certain CPs.

The estimated cost of implementing the proposed Ohio River CREP agreement is $145.6 million, with an estimated Federal commitment of $98.9 million and a state and local contribution of $46.7 million. Table 2.1-3 contains a breakdown of projected costs for the proposed CREP.

Table 2.1-3 Pennsylvania Ohio River CREP Projected Costs

	Funding Source	Cost per acre	Acres	Duration (years)	Yearly Cost	Total Cost
Conservation Practice Implementation*	Federal	$135	65,000	5	$1,755,000	$8,775,000
Land Rental Payment – HEL	Federal	$87.50	55,000	15	$4,812,500	$72,187,500
Land Rental Payment – Riparian	Federal	$87.50	10,000	15	$875,000	$13,125,000
Practice Maintenance Payments	Federal	$5	65,000	15	$325,000	$4,875,000
Monitoring, Public Outreach, Technical Assistance	State/ Local	n/a	n/a	15	$9,343,000	$46,715,000

Source: WPC 2003
**50 percent cost reimbursed for establishment of CP1, CP2, CP4D, CP9, CP10, CP12, CP15A, CP21, CP22, CP23*

2.2 ALTERNATIVES

Alternative A – Preferred

Under Alternative A, the Ohio River CREP agreement would be fully implemented as described above. Sixty-five thousand acres of eligible farmland in 16 counties in the Ohio River Basin would be removed from production. CPs would be established on those lands and landowners would receive one time and annual payments.

Alternative B - No Action

Under the No Action Alternative, the state of Pennsylvania's CREP agreement would not be implemented. No land would be enrolled in CREP and the goals of CREP would not be met. Though

eligible lands could be enrolled in CRP or other conservation programs, the benefits of CREP – targeting land in the Ohio River watershed for enrollment, providing financial incentives to landowners, using non-Federal financial resources – would not be realized. This alternative will be carried forward in the analysis to serve as a baseline against which to assess the impacts of the Preferred Alternative.

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3.0 AFFECTED ENVIRONMENT

This Chapter describes relevant existing conditions for the resources potentially affected by the proposed action. In compliance with guidelines contained in NEPA and CEQ regulations, the description of the affected environment focuses on those aspects potentially subject to impacts.

3.1 BIOLOGICAL RESOURCES

3.1.1 Definition of Resource

Biological resources include living plant and animal species and the habitats within which they occur. For this analysis, biological resources are divided into the following categories: vegetation; wildlife including terrestrial and aquatic species; and threatened, endangered, and sensitive species and their defined critical habitat. Vegetation, wildlife, and aquatic species refer to the plants and animal species, both native and introduced, which characterize a region. Threatened, endangered, and sensitive species refer to those species which are protected by the Endangered Species Act (ESA) or similar state laws. Critical habitat is designated by the U.S. Fish and Wildlife Service (FWS) as essential for the recovery of threatened and endangered species and like those species, is protected by ESA.

3.1.2 Region of Influence

The region of influence (ROI) for biological resources is the area encompassed by the proposed Ohio River CREP agreement as well as the Ohio River and its tributaries that lie within the proposed CREP area and the waters downstream from the proposed CREP area.

3.1.3 Affected Environment

Vegetation

Ecoregions are defined as areas of relatively homogenous ecological systems, that is, those with similar soils, vegetation, climate, and geology. North America is divided into four levels of Ecoregions based on level of detail. The natural vegetation of the nine Level IV Ecoregions in the proposed CREP area (see Figure 3.1-1) are described below.

The Mosquito Creek/Pymatuning Lowlands and the Low Lime Drift Plain are located in the northwestern portion of the proposed CREP area (see Figure 3.1-1). On well drained soils , the natural vegetation in the Mosquito Creek/Pymatuning Lowlands is primarily Northern Hardwoods, forests dominated by sugar maple (*Acer saccharum*), yellow birch (*Betula alleghaniensis*), beech (*Fagus spp*.) and hemlock (*Tsuga canadensis*.). On less well drained sites and Beech-Maple Forests are found. Marshes, shrub swamps,

and swamp forests cover large areas. Common marsh species include cattails (*Typha spp*.), bullrushes (*Cladium jamaicensis*), sedges (*Carex spp*.), and reed grass (*Phragmites communis*). Shrub swamps support species such as buttonbush (*Cephalanthus occidentalis*), swamp rose (*Rosa palustrus*), and silky dogwood (*Cornus ammomum*). Swamp forsts contains such tree species as red maple, white pine (*Pinus strobus*), and larch (*Larix laricina*). Northern hardwoods and Beech-Maple Forests are also common in the Low Lime Drift Plain. Marshes, swamps, and bogs occur in areas of poor drainage. One of the best examples of a northern kettlehole bog is located in Warren County. The area has a floating peat mat of sphagnum, sedges, sundew (*Drosera rotundifolia*), tamarack (*Larix laricinia*), and hemlock.

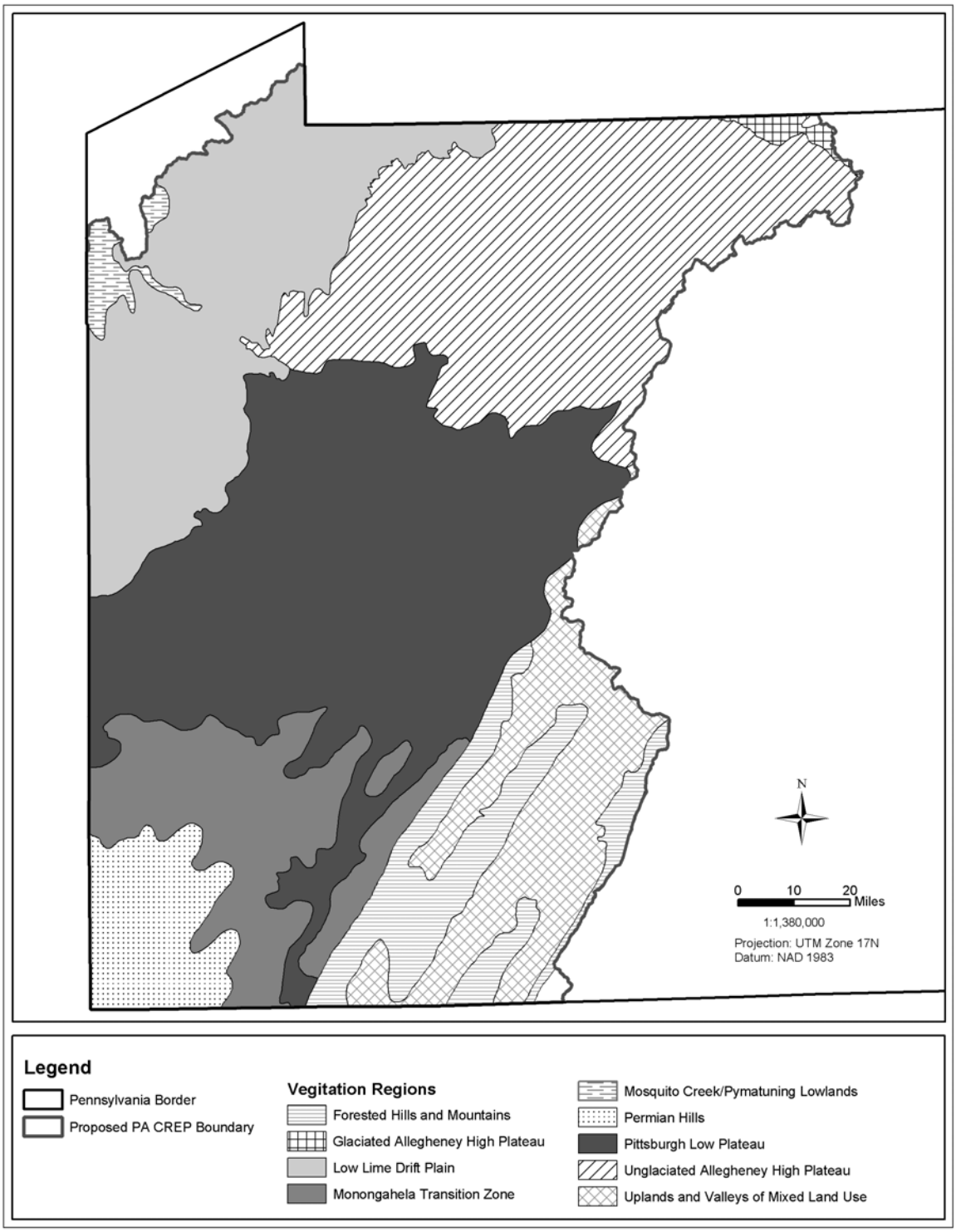
The Glaciated and Unglaciated Allegheny High Plateau Ecoregions lie in the northeastern corner of the proposed CREP area (see Figure 3.1-1). These regions are characterized by Northern Hardwood Forests with intermixed bogs, swamps and marshes as described above as well as Appalachian Oak Forests, dominated by red oak (*Quercus rubra*) and white oak (*Q. alba*).

The southeastern portion of the proposed CREP area is in the Forested Hills and Mountains and Uplands and Valleys of Mixed Land Use Level IV ecoregions (see Figure 3.1-1). The Forested Hills and Mountains ecoregion is characterized by Appalachian Oak Forests, Northern Hardwoods, and Mixed Mesophytic Forest. Mixed Mesophytic Forests are dominated by oaks and hickories (*Carya spp*.) Conifer belts dominated by red spruce (*Picea rubens*) and hemlock can be found at higher elevations. The Uplands and Valleys of Mixed Land Use ecoregion is characterized by Appalachian Oak and Mixed Mesophytic Forests with scattered glades with sphagnum, black spruce (*P. mariana*), and tamarack.

The Permian Hills, Monongahela Transition Zone, and Pittsburg Low Plateau cover the central and south western portions of the proposed CREP area (see Figure 3.1-1). The natural vegetation of the Permian Hills region is the Appalachian Oak Forest, the Monongahela Transition Zone is Mixed Mesophytic Forest and the Pittsburg Low Plateau is characterized by both forest types.

It is estimated that 2,103 species of native plants comprise slightly less than 62 percent of the flora of Pennsylvania (PBS 1998). Exotic plant species are a significant threat to the native flora in the Ohio River CREP area and throughout Pennsylvania. Those known to occur in the proposed CREP area include purple loosestrife (*Lythrum salicaria*), kudzu (*Pueraria lobata*), and ox-eye daisy (*Chrysanthemum leucanthemum*).

Figure 3.1-1 Ecoregions of the Proposed Ohio River Basin CREP Area



Terrestrial and Aquatic Wildlife

The level of wildlife diversity in the Ohio River CREP area is comparable to that of the statewide due to the varying physiography; moderate climate; geologic history; and abundance of streams, natural lakes, and wetlands in the area. The Ohio River CREP area contains 311 bird and waterfowl species, 55 mammalian species, 34 species of reptiles, 36 species of amphibians, 130 species of fish, and 53 species of freshwater mussels. The aquatic biodiversity in the Ohio River CREP area is exceptional; it contains 28 more fish species than are found in the Delaware basin and 46 more species than found in Pennsylvania's portion of the Chesapeake Bay drainage. In addition, the Ohio River CREP area contains the most biologically rich populations of freshwater mussels in the state (WPC 2003).

Whitetail deer and black bear are the primary big game animals in the Ohio River CREP area. These species account for the highest harvest statistics that are maintained by the Pennsylvania Game Commission (PGC 2003). Important game birds in the area include pheasant, turkey, dove, and waterfowl.

There are five exotic bird species that regularly nest in the Ohio River CREP area and throughout the state. The Rock Dove (Pigeon), European Starling, and House Sparrow are abundant and widespread pests. The Mute Swan and Ring-necked Pheasant were introduced as ornamental waterfowl and for upland game bird hunting. There are two exotic mammal species in Pennsylvania: Norway rat and house mouse. Although a native species in Pennsylvania, the shorthead garter snake is considered an exotic reptile species in the Ohio River CREP area because it was moved to an area of the state where it did not naturally occur. There are 11 exotic fish species in the Ohio River CREP area; some were purposely introduced for recreational fishing and others were introduced accidentally or illegally (PBS 1998).

Threatened, Endangered, and Sensitive Species and Critical Habitat

Approximately 30 percent of the native plants in Pennsylvania are listed as plants of special concern and an additional 20 percent are classified as endangered (288 species), threatened (80 species), rare (52 species), or vulnerable (three species). Another 93 species are classified as undetermined, pending assignment to a specific status (PBS 1998). Eighteen plant species in Pennsylvania are federally listed and nine occur in the Ohio River CREP area.

There are six mammals, 14 birds, one amphibian, four reptiles, 42 fishes, and eight species of invertebrates, either federally or state listed as threatened or endangered that occur within the proposed CREP area. Table 3.1-1 shows these species and their state or federal status.

Table 3.1-1 List of Federal and State Threatened and Endangered Species that Could Occur in the Proposed CREP Area

Common Name	Scientific Name	Federal Status	State Status
Mammals			
Eastern small-footed myotis	*Myotis leibii*		T
Social myotis	*M. sodalis*	E	E
Allegheny woodrat	*Neotoma magister*		T
Southern water shrew	*Sorex palustris punctulatus*		T
Gray wolf (Eastern distinct population segment)	*Canis lupus*	T	
Eastern puma	*Puma concolor cougar*	E	
Birds			
American Bittern	*Botaurus lentiginosus*		E
Least Bittern	*Ixobrychus exilis*		E
Bald Eagle	*Haliaeetus leucocephalus*	T	E
Osprey	*Pandion haliaetus*		T
Peregrine Falcon	*Falco peregrinus*		E
King Rail	*Rallus elegans*		E
Piping Plover	*Charadrius melodus*	E	
Upland Sandpiper	*Bartramia longicauda*		T
Common Tern	*Sterna hirundo*		E
Black Tern	*Childonias niger*		E
Short-eared Owl	*Asio flammeus*		E
Yellow-bellied Flycatcher	*Empidonax flaviventris*		T
Sedge Wren	*Cistothorus platensis*		T
Dickcissel	*Spiza americana*		T
Amphibians			
Geen salamander	*Aneides aeneus*		T
Reptiles			
Bog turtle	*Clemmys muhlenbergii*		E
Kirtland's snake	*Clonophis kirtlandii*		E
Rough green snake	*Opheodrys aestivus*		T
Eastern massasauga	*Sistrurus catenatus catenatus*		E

Table 3.1-1 List of Federal and State Threatened and Endangered Species that Could Occur in the Proposed CREP Area *(cont'd.)*

Common Name	Scientific Name	Federal Status	State Status
Fish			
Northern brook lamprey	*Ichthyomyzon fossor*		E
Mountain brook lamprey	*I. greeleyi*		T
Lake sturgeon	*Acipenser fluvescense*		E
Spotted gar	*Lepisosteus oculatus*		E
Goldeye	*Hiodon alosoides*		T
Mooneye	*H. tergisus*		T
Skipjack herring	*Alosa chrysochloris*		T
Hickory shad	*A. mediocris*		E
Gravel chub	*Erimystax x-punctatus*		E
Redfin shiner	*Lythrurus umbratilis*		E
Silver chub	*Macrhybopsis storeriana*		E
Bridle shiner	*Notropis bifrenatus*		E
River shiner	*N. blennius*		E
Ghost shiner	*N. buchanani*		E
Ironcolor shiner	*N. chalybaeus*		E
Bigmouth shiner	*N. dorsalis*		T
Blackchin shiner	*N. heterodon*		E
Southern redbelly dace	*Phoxinus erythrogaster*		T
Longnose sucker	*Catostomus catostomus*		E
Smallmouth buffalo	*Ictiobus bubalus*		T
Bigmouth buffalo	*I. cyprinellus*		E
Spotted sucker	*Minytrema melanops*		T
Black bullhead	*Ameiurus melas*		E
Mountain madtom	*Noturus eleutherus*		E
Tadpole madtom	*N. gyrinus*		E
Brindled madtom	*N. miurus*		T
Northern madtom	*N. stigmosus*		E
Cisco	*Coregonus artedi*		E
Burbot	*Lota lota*		E
Threespine stickleback	*Gasterosteus aculeatus*		E

Table 3.1-1 List of Federal and State Threatened and Endangered Species that Could Occur in the Proposed CREP Area *(cont'd.)*

Common Name	*Scientific Name*	Federal Status	State Status
Fish			
Banded sunfish	*Enneacanthus obesus*		E
Warmouth	*Lepomis gulosus*		E
Longear sunfish	*L. megalotis*		E
Bluebreast darter	*Etheostoma camurum*		T
Iowa darter	*Etheostoma exile*		E
Spotted darter	*E. maculatum*		T
Eastern sand darter	*E. pellucida*		E
Tippecanoe darter	*E. tippecanoe*		T
Channel darter	*Percina copelandi*		T
Gilt darter	*P. evides*		T
Longhead darter	*P. macrocephala*		T
Invertebrates			
Orangefoot pimpleback	*Pleurobema cooperianus*	E	
Clubshell	*P. clava*	E	E
Rough pigtoe	*P. plenum*	E	
Cracking pearlymussel	*Hemistena lata*	E	
Dwarf wedgemussel	*Alasmidonta heterodon*	E	
Pink ring	*Obovaria retusa*	E	
Pink mucket	*Lampsilis abrupta*	E	
Northern riffleshell	*Epioblasma torulosa rangiana*	E	E

E = Endangered
T = Threatened
Source: Pennsylvania Biological Survey 2003

3.2 CULTURAL RESOURCES

3.2.1 Definition of Resource

Cultural resources consist of prehistoric and historic sites, structures, districts, artifacts, or any other physical evidence of human activities considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. Cultural resources can be divided into three major

categories: archaeological resources (prehistoric and historic), architectural resources, and traditional cultural properties (TCP). Archaeological resources are locations and objects from past human activities. Architectural resources are those standing structures that are usually over 50 years of age and are of significant historic or aesthetic importance to be considered for inclusion in the National Register of Historic Places (NRHP). Traditional cultural resources hold importance or significance to Native Americans or other ethnic groups in the persistence of traditional culture.

The significance of such resources relative to the American Indian Religious Freedom Act, the Archaeological Resources Protection Act, Native America Graves Protection and Repatriation Act, EO 13007, and/or eligibility for inclusion in the NRHP is considered a part of the EA process. The regulations and procedures in 36 CFR 800, which implements Section 106 of the National Historic Preservation Act (NHPA), requires federal agencies to consider the effects on properties listed in or eligible for inclusion in the NRHP. Prior to approval of the proposed action, Section 106 requires that the Advisory Council on Historic Preservation be afforded the opportunity to comment.

3.2.2 Region of Influence

The ROI for cultural resources is the counties where lands eligible for enrollment in the proposed Ohio River CREP agreement are located: Alleghany, Armstrong, Beaver, Butler, Clarion, Crawford, Erie, Fayette, Forest, Greene, Lawrence, Mercer, Venango, Warren, Washington, and Westmoreland.

3.2.3 Affected Environment

3.2.3.1 Archaeological Resources

Due to its rich cultural history, thousands of archaeological sites are recorded in the Commonwealth of Pennsylvania, many of which are found in the western part of the state. As of November 2003, approximately 18,000 prehistoric and historic archaeological sites are included in the archaeological database at the Pennsylvania Historical Museum Commission (PHMC), Bureau for Historic Preservation, which serves as State Historic Preservation Office (SHPO). The following reviews the principal prehistoric and historic periods relevant to the overall Ohio River CREP agreement area.

Prehistoric Period

The prehistory of western Pennsylvania is typically divided into three periods: Paleo-Indian, Archaic, and Woodland. The Paleo-Indians (ca. 12,000–8,000 B.C.) were the first people to occupy what is now western Pennsylvania, moving into the region following retreat of glaciers during the last ice age. They lived in small, mobile groups whose subsistence was based on hunting and gathering. Paleo-Indians hunted large and small game, some of which are now extinct, and consumed nuts from deciduous trees. Paleo-Indian artifacts, often found on surfaces, consist of stone tools including knives, scrapers, gravers,

and fluted and unfluted lanceolate spear points. In Washington County, the NHRP listed Meadowcroft Rockshelter is located on a tributary of the upper Ohio River; the site contains evidence of Paleo-Indian occupation dating to 11,000 B.C (PHMC 2003a).

The Archaic period (ca. 8000–1000 B.C.) is divided into three subperiods – Early, Middle and Late. Archaic groups were increasingly efficient at exploiting deciduous forest food resources, including white-tailed deer, birds, squirrels, fish and mollusks, and a greater variety of plant foods. Early Archaic technologies indicate a new way of hafting spear points and the atlatl (spear thrower) came into use. Grinding and pitted stones reveal methods of processing wild plant foods. During the Middle Archaic (ca. 6000–3000 B.C.) long term base camps indicate increasing sedentism. Rapid population growth occurred during the Late Archaic (ca. 3000–1000 B.C.), as sites appear in greater number. Stone mortars, pestles, nutting stones, and grinders imply greater utilization of plant resources. Woodworking implements (axes, adzes, celts), bone and antler tools (awls, fishhooks), shell ornaments (beads, pendants, gorgets), and raw copper are found in the archaeological record. Late Archaic sites have also yielded evidence of long distance trade, ritualism, small scale cultivation of native plants, and some social ranking.

The Woodland period (ca. 1000 B.C. – A.D. 1000) is also divided into three sub periods – Early, Middle, and Late. The adaptive cultural trends from the Late Archaic became more intensified and there was greater diversification of food sources, increased sedentism, long distance trade, and emergence of social ranking. The Early Woodland in the upper Ohio valley corresponds to what is called the Adena complex, known from burial mounds and related sites centered in the Ohio River Basin. Burial mounds were typically conical, sometimes located within an earthen walled enclosure, or over a burned house or log tomb. Characteristic Adena artifacts include carved stone pipes, decorative stone tablets and reel shaped gorgets, implements of marine conch shell, and a variety of bone, antler, and copper ornaments.

The Middle Woodland (ca. 100 B.C. – A.D. 500) represents an elaboration of the characteristics of the Early Woodland and is largely represented by the Hopewell culture. The Hopewell culture had elaborate ceremonial, mortuary, and exchanges systems and long distance trade. During the Late Woodland (ca. A.D. 500–1000), mortuary ceremonialism and interregional trade declined sharply while settlements became larger. Late Woodland habitation sites are found in most river and large creek valleys. In Greene County, the NRHP listed Late Woodland Fisher site produced bird bone beads, bone and antler awls and chisels, a shale pendant, a turtle shell cup, a celt, and cord marked pottery (PHMC 2003a).

Late Prehistoric period (ca. A.D. 1000–1600) cultures shifted from generalized food gathering to specialized food production with maize, beans, and squash as dietary staples, supplemented by hunting, fishing, and wild plant food. Societies were largely sedentary with villages located primarily along the terraces of large stream and river valleys on fertile, well drained soils. In Westmoreland County, the

NRHP listed Squirrel Hill site was a Late Prehistoric Johnston Phase, Monongahela village located in the upper Ohio valley drainage. The site contained bone and stone tools, shell tempered pottery, charred matting, hematite, and a flexed burial (PHMC 2003a).

Protohistoric and Historic Period

During the Protohistoric period (ca. A.D. 1600–1750) European trade goods, including glass beads and pieces of brass or iron, are found on Native American sites. Permanent settlements declined during the 17th century due to hostilities between native groups and spread of diseases from European communities. By the early to mid 18th century, various Native American groups, including the Shawnee and Delaware, moved into the Ohio River valley from other areas. The PHMC divides the Historic period in western Pennsylvania into five periods: *Pre 1681, The Eve of Colonization*; *1681-1776, The Quaker Province*; *1776-1861, Independence to Civil War*; *1861-1945, Era of Industrial Ascendancy*; and *1945-1995, Maturity* (PHMC 2003b).

During the 17th century, the fork of the Ohio, Allegheny, Monongahela rivers was a wilderness crossroads were Native Americans traded furs with French and British frontiersman. France and England struggled to establish empires in North America extracting profits from the fur trade. The territory claimed for New France included western Pennsylvania as well as the Great Lakes, the Ohio, and Mississippi rivers, while the British settled the eastern seaboard. However, eastern colonists actively sought land and furs west of the Allegheny Mountains in areas claimed by the French who established forts along interior waterways. As the frontier moved westward, the Ohio River became a vital link in trade and communication between the eastern cities, the Mississippi valley, and the Great Lakes region (WQED 2003).

The French Longueuil and Celoron expeditions in 1739 and 1749 traversed western Pennsylvania and French efforts to establish control over the upper Ohio valley led to the French and Indian War (1754-1763). French forts at Erie (Fort Presque Isle), Waterford (Fort LeBoeuf), Pittsburgh (Fort Duquesne), and Franklin (Fort Machault) threatened all the middle colonies. During the war, General Braddock's British and colonial army was slaughtered on the Monongahela in 1755, but General Forbes captured the site of Pittsburgh in 1758. After the war, the Indians rose up against the British colonies in Pontiac's War, but in 1763, they were defeated at Bushy Run by Colonel Henry Bouquet, ending the threat to the frontier (PHMC 2003b). The Bushy Run Battlefield located in Westmoreland County is a National Historic Landmark (PHMC 2003a).

Western Pennsylvania was initially settled and developed as a result of agriculture production, which by the late 1700s was its main business. At first, farmers were limited to subsistence farming then gradually began to produce surplus, which was bartered for other goods. The population was well distributed throughout the countryside, including the Ohio River valley. In 1796, Pittsburgh had a population of 300 that included skilled craftsmen who processed raw materials from the region's farmers into goods for

Pittsburgh merchants. Products produced on local farms included wool for cloth; livestock for meat, leather, and lard; and grain for food and alcohol.

During the Civil War, western Pennsylvania played an important role in preserving the Union. Regional industrial enterprise and natural resources were essential factors in its economic strength. Its railroad system, iron and steel industry, and agricultural wealth were vital to the war effort. Following the discovery of oil near Titusville in 1859, production and marketing of this product began. The oil producing counties extended from Tioga west to Crawford and south to West Virginia, and by 1891, Warren and Venango counties had established leadership in production. Anthracite coal was the main fuel used to smelt iron until the 1880s and the bituminous and coke industries were responsible for the late 19th century industrial growth of western Pennsylvania. During the early industrial period, the manufacture of steel and iron products was the largest single industry in western Pennsylvania. The U.S. Steel Corporation was the largest steel manufacturer utilizing local sources of oil, coal, coke, limestone, and iron ore. By 1900, sixty percent of the nation's steel production came from western Pennsylvania (PHMC 2003b).

Archaeological Sites

Eight prehistoric archaeological sites are listed in the NRHP within the CREP area counties, although many other sites within the CREP area counties are eligible for inclusion in the NRHP (Table 3.2-2). Three of the sites are located in Fayette County, two in Greene County, and one each in Venango, Washington, and Westmoreland counties.

Twenty nine historic period sites are listed in the NRHP within the CREP area counties. The sites range from contact period through the early industrial period. Contact period sites may include material remains from European traders, settlers, soldiers, and missionaries and Native Americans. Historic archaeological sites represent areas of large settlements or individual residences, homesteads, remnant of transportation systems, abandoned mines, or other early industrial activities, educational, religious, social, or commercial structures, ditches, dams, refuse dumps, and cemeteries or family burial plots.

3.2.3.2 Historic Architectural Resources

Historic architectural resources in western Pennsylvania include traditional centers of communities – town halls, main streets, and neighborhoods that have been at the heart of cities and towns for generations. Individual homes within rural areas also provide links to individuals important to Pennsylvanian history. Many showcase architectural styles and building materials that are distinctive to particular regions in the state. Western Pennsylvania has a very strong agricultural heritage and farmhouses, barns, silos, and other outbuildings are considered important architectural resources.

Table 3.2-2 NRHP Listed Archaeological Sites located in the CREP Area Counties

County	NRHP Listed Archaeological Sites	County	NRHP Listed Archaeological Sites
Allegheny	3	Forest	0
Armstrong	1	Greene	4
Beaver	4	Lawrence	0
Butler	0	Mercer	3
Clarion	0	Venango	2
Crawford	1	Warren	0
Erie	1	Washington	2
Fayette	3	Westmoreland	5
		Total:	**29**

Source: PMHC 2003c.

Within the CREP area counties there are numerous National Historic Landmarks, Historic Districts, and individual Historic Properties listed in the National Register (3.2-3). However, many NRHP Districts are located within historic towns or urbanized areas, which would typically be outside of CREP areas.

3.2.3.3 Traditional Cultural Properties

A TCP is defined as a property that is eligible for inclusion in the NRHP because of its association with cultural practices or beliefs of a living community that are rooted in that community's history and are important in maintaining the continuing cultural identity of the community. In most cases, TCP are associated with Native Americans but may also be associated with other sociocultural or ethnic groups. TCP may be difficult to recognize and may include a location of a traditional ceremonial location, a mountaintop, a lake, or a stretch of river, or culturally important neighborhood (DOI 2003). There are currently no federally recognized Native American tribes in Pennsylvania, although numerous tribes no longer present in the Commonwealth have traditional ties to the region.

Very few TCPs have been identified in western Pennsylvania, and the PHMC does not maintain a list of TCPs within the Commonwealth (Strattan [PHMC] 2003). Existing federally recognized tribes with traditional ties to the Ohio River valley include the Shawnee Tribe, Delaware Nation, and Seneca Nation (Federal Register 2002).

Table 3.2-3 Numbers of National Historic Landmarks, NRHP Listed Historic Districts, and Individual Historic Properties in CREP Area Counties

County	National Historic Landmarks	NRHP Listed Districts	NRHP Listed Properties
Allegheny	8	26	187
Armstrong	0	0	14
Beaver	3	5	17
Butler	1	2	9
Clarion	0	0	2
Crawford	0	2	20
Erie	0	7	40
Fayette	4	16	63
Forest	0	2	4
Greene	0	3	41
Lawrence	0	1	8
Mercer	0	1	15
Venango	1	5	17
Warren	0	1	10
Washington	3	12	89
Westmoreland	1	14	46
Total	**21**	**97**	**582**

Source: PMHC 2003c

3.3 WATER RESOURCES

3.3.1 Definition of Resource

The Clean Water Act (CWA) is the primary Federal law that protects the nation's waters including lakes, rivers aquifers, wetlands, and coastal areas. For this analysis, water resources include surface water, groundwater, wetlands, and floodplains. Surface water includes lakes, ponds, streams, and rivers including impaired waters. Impaired waters are defined by the Environmental Protection Agency (EPA) as those surface waters with levels of pollutants that exceed water state water quality standards. Every two years, states must publish lists of impaired rivers: those streams and lakes that do not meet their designated uses because of excess pollutants (EPA 2004a). Wild and Scenic Rivers are addressed in Sections 3.6 and 4.6, Recreational Resources.

Groundwater refers to subsurface hydrologic resources, such as aquifers, that are used for domestic, agricultural and industrial purposes. In this analysis, groundwater includes sole source aquifers. Wetlands are defined by the U.S. Army Corps of Engineers (COE) as areas which are characterized by a prevalence of vegetation adapted to saturated soil conditions. Wetlands can be associated with groundwater or surface water and are identified based on specific soil, hydrology, and vegetation criteria defined by COE. For this analysis floodplains will be defined as 100 year floodplains, designated by the Federal Emergency Management Agency (FEMA) as those low lying areas that are subject to major flooding once every 100 years.

3.3.2 Region of Influence

The ROI includes the surface waters, groundwater, and wetlands in the proposed CREP area as well as surface waters downstream.

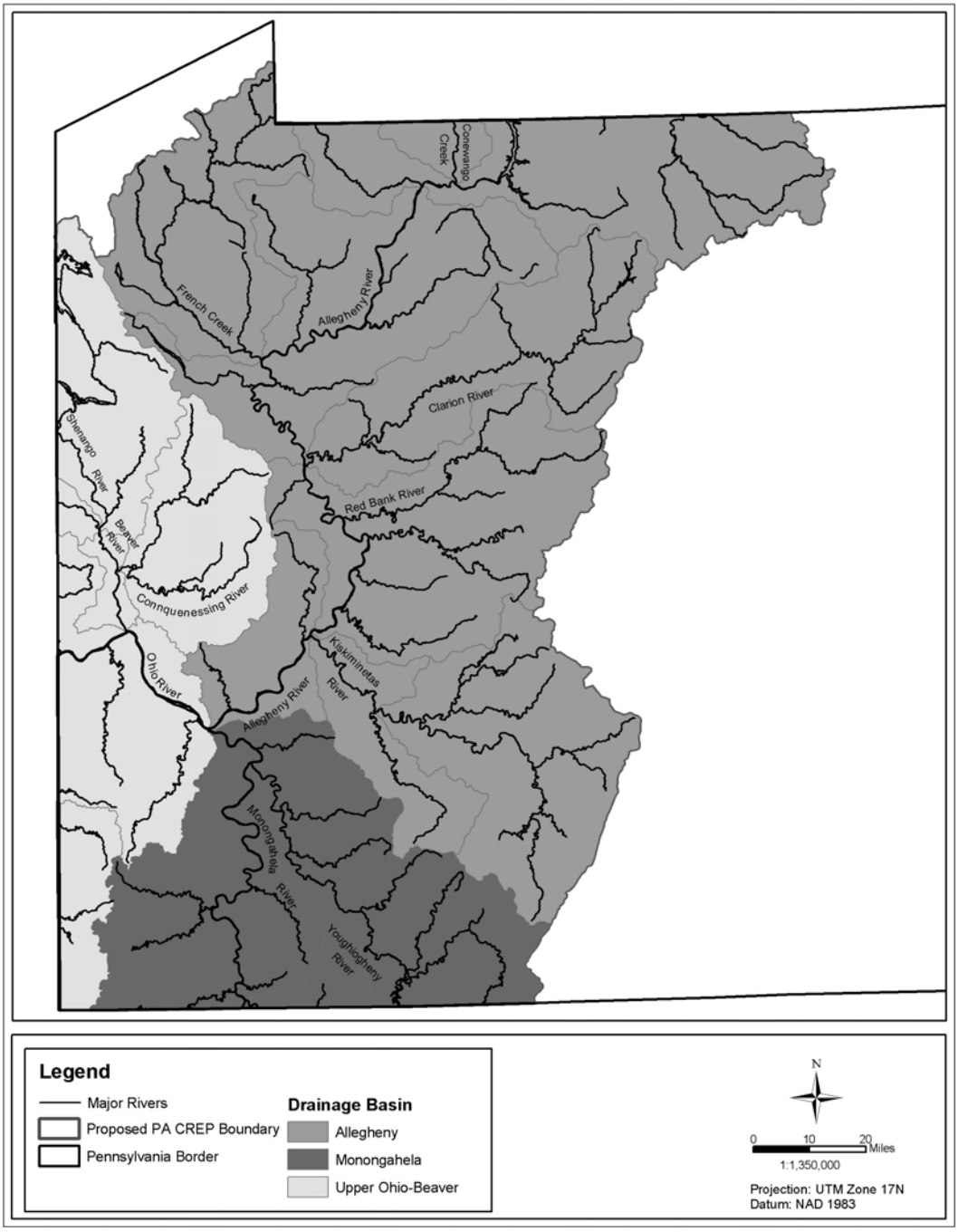
3.3.3 Affected Environment

Surface Water

Pennsylvania plays an important role in the overall health of the Ohio and Mississippi Rivers, as well as the Gulf of Mexico, because the headwaters of the Ohio River are located almost exclusively within Pennsylvania (WPC 2003). The proposed Pennsylvania CREP area is comprised of three basins: the Alleghany, Monongahela, and Upper Ohio-Beaver (EPA 2004b). The Alleghany and Monongahela Rivers meet in Pittsburg to form the Ohio River (see Figure 3.2-1).

The Alleghany River Basin includes the northern portions of the CREP area and is the largest of the basins in the proposed CREP area. It contains all or part of nine watersheds: Upper Allegheny, Middle Allegheny-Redbank, Middle Allegheny-Tionesta, Lower Allegheny, Clarion, French, Kiskimintetas, Conewango, and Conemaugh. The Alleghany River begins in northern Pennsylvania, flows north into New York, then south through Pennsylvania to Pittsburg. Major tributaries include Conewango Creek, French Creek, and the Clarion, Redbank and Kiskiminetas Rivers (USGS, 1995). There are 125 designated impaired waters in the Alleghany River basin portion of the CREP Area. Eighty eight of these waters exceed state water quality standards for metals. Less frequently reported violations are of standards for suspended solids, inorganic compounds, and nutrients. Elevated levels of metals and suspended solids may be the result of runoff from mines and acidic mine drainage. Industrial sites and the storage and transport of petroleum products may be the source of organic compounds. Nutrients and suspended solids may be the products of agriculture and urban runoff (DEP 2002; USGS 1995).

Figure 3.2-1 Water Resources in the Proposed CREP Area



The Monongahela River Basin is located in the southern portion of the proposed CREP area. It contains all or part of the Lower Monongahela, Upper Monongahela and Cheat watersheds. The Monongahela River begins in West Virginia and flows northward to Pittsburg. Its major tributaries, the Cheat, Youghiogheny, Tygart Valley, and West Fork Rivers, lie primarily in West Virginia. There are 24 designated impaired waters in the Monongahela River basin portion of the CREP area. Twenty two of these waters exceed state water quality standards for metals. Other less frequently reported exceedances are inorganic compounds, suspended solids, pH, and chlorodane. The presence of metals and elevated pH are associated with mining activities. Chlorodane is associated with agriculture and suspended solids may result from mining, agriculture, or urban runoff (DEP 2002; USGS 1995).

The Upper Ohio-Beaver Basin in the CREP area located in central western Pennsylvania, between the Alleghany and Monongahela Basins. The Upper Ohio-Beaver Basin is comprised of all or part of six watersheds: Upper Ohio, Upper Ohio-Wheeling, Beaver, Connoquenessing, Conemaugh, and Shenango. There are 185 impaired waters in the Upper Ohio-Beaver basin portion of the CREP area. Seventy two of these waters exceed standards for metals, 67 exceed nutrients, and 58 exceed siltation standards. Other less frequently reported violations include pH, turbidity, suspended solids, low dissolved oxygen. Turbidity, suspended solids, siltation and elevated levels of metals and pH are associated with mining activities, nutrients are associated with agriculture. Low dissolved oxygen may result from excessive nutrients or from elevated water temperatures associated with water outflow from some industries (DEP 2002; USGS 1995).

The Pennsylvania Department of Environmental Protection used the Chesapeake Bay Watershed Model, which uses county level land use parameters, to estimate the current levels of nutrient and sediment loading of surface water in the proposed CREP area (WPC 2003). The results of the model are presented in Table 3.3-1. Total EOS loading of nitrogen is estimated to be 10,546 metric tons per year; phosphorus, 656; and sediment, 293,933. It should be noted that these model results are not intended as actual edge of stream (EOS) nutrient and sediment loads, but estimates based upon geologic, climatic, and topographic similarities between counties in the Ohio River basin and the Susquehanna and Potomac River basins.

There are two concentrated animal feeding operations (CAFO) in the proposed CREP area, one in Butler and one in Crawford County. A CAFO is a large livestock operation that is required to hold a permit, file an annual report, and follow a plan for handling manure and wastewater.

Table 3.3-1 Estimated Edge of Stream Nutrient and Sediment Loading from Agricultural Land, Ohio Basin CREP Area.

	Total* Nitrogen	Total* Phosphorous	Total* Sediment
Allegheny	156.97	10.89	4536
Armstrong	720.50	44.91	20956.32
Beaver	312.11	21.77	8981.28
Butler	747.88	46.72	21682.08
Clarion	579.50	32.21	17508.96
Crawford	1247.52	70.76	32568.48
Erie	1019.83	58.06	26671.68
Fayette	647.03	44.91	18688.32
Forest	26.92	1.36	635.04
Greene	805.83	55.79	23315.04
Lawrence	571.74	32.66	14968.80
Mercer	1030.78	58.51	26943.84
Venango	266.02	14.97	8074.08
Warren	337.21	18.60	8436.96
Washington	1188.21	82.56	34292.16
Westmoreland	887.96	61.69	25673.76
Total EOS Loading	**10546.01**	**656.36**	**293932.80**

metric tons per year
Source: WPC 2003

Groundwater

In the northern portion of the proposed CREP area groundwater is contained in the Mississippian aquifer, sandstone and carbonate rock aquifer which originated from glacial outwash and alluvial deposits. These aquifers contain large quantities of water that is easily withdrawn. Well yields of 1000 gallons per minute are common. In the southern part of the proposed CREP area, groundwater is contained in the sandstone of the Pennsylvanian aquifer. Reported yields of wells in these units range from 30 to 300 gallons per minute, but some wells yield as much as 600 gallons per minute (USGS 1997; LWV 2004). There are no sole source aquifers in the ROI (USGS 2004).

Wetlands

The 1987 COE Wetland Delineation Manual (USACE 1987) specifies three criteria for the identification of wetlands including hydrophytic vegetation, hydric soil, and positive indicators of wetland hydrology.

Wetlands are defined by the Environmental Protection Agency (EPA) (Federal Register 1980) and the COE (Federal Register 1982) as:

> "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas." (33 CFR 3283 (b) 1984)

According to the National Wetland Inventory, there are 117,082 acres of wetlands in the proposed CREP area that are regulated by the COE. Wetland acreages listed by county are listed below in Table 3.3-2.

Table 3.3-2 County Wetland Acreage Totals

County	Wetland Acreage
Allegheny	1,001
Armstrong	1,121
Beaver	2,009
Butler	6,065
Clarion	1,118
Crawford	33,792
Erie	24,960
Fayette	2,293
Forest	2,015
Greene	894
Lawrence	4,637
Mercer	15,656
Venango	3,172
Warren	12,469
Washington	2,550
Westmoreland	3,330
Source: Tiner1990	

Floodplains

Floodplains are areas of low-lying land that are subject to inundation by the lateral overflow of waters from rivers or lakes with which they are associated. EO 11988, *Floodplain Management*, requires that federal agencies:

> "take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, heath and welfare, and to restore and preserve the natural and beneficial values served by floodplains."

Accordingly, agencies must review FEMA floodplain maps to determine whether a proposed action is located in or will impact 100-year floodplains. A 100-year floodplain is that area that would be inundated by a 100-year flood, a flood that has a 1-percent chance of being equaled or exceeded in any given year. There are 525,310.2 acres of floodplains in the proposed CREP area.

3.4 EARTH RESOURCES

3.4.1 Definition of Resource

For this analysis, the discussion of earth resources will include a general description of the topography of the CREP area and a more in depth discussion of soils to include the origin and general characteristics of soils as well as those aspects of soils relevant to agriculture.

3.4.2 Region of Influence

The ROI includes all land within the proposed CREP area of Pennsylvania's Ohio River drainage basin in the following sixteen counties: Allegheny, Armstrong, Beaver, Butler, Clarion, Crawford, Erie, Fayette, Forest, Greene, Lawrence, Mercer, Venango, Warren, Washington, and Westmoreland.

3.4.3 Affected Environment

Topography

The Pennsylvania Department of Conservation and Natural Resources (DCNR) divides the CREP area into five major physiographic provinces: the Northwestern Glaciated Plateau, the High Plateau, the Pittsburg Low Plateau, the Waynesburg Hills, and the Allegheny Mountain Sections (DCNR, 2004).

In the northwest, the Northwestern Glaciated Plateau Section covers most or all of Erie, Crawford, Mercer, and Lawrence Counties and parts of Warren, Venango, Butler, and Beaver Counties. The area is characterized by broad, rounded uplands cut by long linear valleys. Local relief is less tan 100 feet, elevations range from 900 to 2200 feet.

East of this section lies the High Plateau Section. In the CREP area, the High Plateau covers all of Forest County, most of Venango and Warren Counties, and a small part of Clarion County. The section is

characterized by broad rounded to flat uplands cut by deep angular valleys. Local relief can be as much as 1,000 feet with elevations ranging from 980 to 2,360 feet.

The Pittsburg Low Plateau Section covers the central portion of the proposed CREP area. The Section covers all of Greene, Washington, and Armstrong Counties, most of Beaver, Butler, Clarion, and Westmoreland Counties, and parts of Lawrence, Venango, and Fayette Counties. The area is smooth undulating uplands cut by numerous, narrow, relatively shallow valleys. The uplands contain much of the bituminous coal found in Pennsylvania. Local relief is as much as 600 feet, elevations range from 660 to 1,700 feet.

The southwestern corner of Pennsylvania lies in the Waynesburg Hills Section, which covers Greene and Washington Counties, and a small portion of Westmoreland, Allegheny, and Fayette Counties. The Waynesburg Hills Section is very hilly with steep-sloped hills, and narrow hilltops and valleys. Relief is typically 600 to 1,000 feet and elevations range from 848 to 1,638 feet.

Soils

The proposed CREP area includes all or part of four soil regions as defined by Pennsylvania State University (PSU 2004). The northwestern corner lies within the Glaciated Appalachian Plateau Soil Region. Soils in this area are derived from glacial till. Many soils in this region have a fragipan, a dense subsoil that cannot be penetrated by roots and allows only very limited water and air movement, and as a result have poor drainage. Rock fragments can be present if till is near the soil surface. The water-holding capacity of these soils is determined primarily by the depth to fragipan. Where soils are shallow, soils may be seasonally dry or saturated.

The soils of the Allegheny High Plateau in north central Pennsylvania are primarily well drained sandy loams derived from sandstone. Where slopes are steep, there is high potential for erosion. Rock fragments are often present in soils. Root zone available water capacities of these soils can be low due to their coarse texture and the presence of rock fragments.

The Pittsburg Plateau covers much of the southern portion of the CREP area. It is dominated by soils that are derived from acid clay shales and interbedded shales and sandstones. Soils of this region contain more clay and silt than those of the Allegheny High Plateau with surface soils predominately well drained silty loams. The root zone water holding capacity of many soils in this region is moderate, however the southwestern region, soils tend to be deeper and have moderately high root zone available water capacity.

In the southeastern portion of the CREP area, is the Allegheny Mountain soil region, dominated by soils developed from sandstone. Soils in this area are well drained sandy loams and loamy sands. Erosion

potential is high especially on slopes. Rock fragments are common, resulting in low root zone available water capacity.

The proposed Ohio River CREP Agreement (WPU 2003) states that there are two major agro-climatic regions in the CREP area. In the northwest portion of the Ohio Basin, soils have an average of 451-550 mm of surplus soil moisture per hear. In the southern portion of the CREP area, soil moisture surplus tends to be lower (351 to 450 mm/yr) due to the older, less organic soils of the region.

Erosion is a problem in the proposed CREP area even in relatively flat areas. Nearly 44 percent of the proposed CRP area's active cropland and hayland are classified as highly erodible land (HEL), those lands with an erodibility index of greater than 8. The erodibility index of a soil describes its susceptibility to the effects of wind and water and is determined by soil type, slope, precipitation, and land use. Approximately 28 percent of the acreage eligible for enrollment in CREP is HEL (WPC 2003).

3.5 AIR QUALITY

3.5.1 Definition of Resource

The Clean Air Act (CAA) requires the maintenance of National Ambient Air Quality Standards (NAAQS). NAAQS, developed by EPA to protect public health, establish limits for six criteria pollutants: ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), lead (Pb), and respirable particulates [particulate matter less than 10 microns in diameter] (PM_{10}). CAA requires states to achieve and maintain the NAAQS within their borders. Each state may adopt requirements stricter than those of the national standard. Each state is required by the EPA to develop a State Implementation Plan (SIP) that contains strategies to achieve and maintain the national standard of air quality within the state. Areas that violate air quality standards are designated as nonattainment areas for the relevant pollutants. Areas that comply with air quality standards are designated as attainment areas for relevant pollutants.

3.5.2 Region of Influence

The ROI for this air quality analysis includes the Southwest Pennsylvania Intrastate (197) and Northwest Pennsylvania Interstate (178) Air Quality Control Regions which encompass the following counties: Allegheny, Armstrong, Beaver, Butler, Clarion, Crawford, Erie, Fayette, Forest, Greene, Lawrence, Mercer, Venango, Warren, Washington, and Westmoreland.

3.5.3 Affected Environment

Three agencies in Pennsylvania conduct air quality monitoring to evaluate compliance with air quality standards: Department of Environmental Protection (DEP), Allegheny County Health Department, and Philadelphia Department of Health Air Management Services (DEP 2001). DEP focuses their monitoring efforts in those areas having high population density and/or high levels of contaminants. The majority of the monitoring is conducted in the 13 air basins throughout the state. Air basins are geographic areas where air tends to stagnate, typically valleys, and would therefore have higher concentrations of pollutants. There are five monitored air basins within the ROI: Allegheny County Air Basin, Erie Air Basin, Lower Beaver Valley Air Basin, Monongahela Valley Air Basin, and Upper Beaver Valley Air Basin. In addition, there are 10 nonair basin monitoring sites within the ROI (DEP 2001).

EPA developed the Air Quality Index (AQI) as an approximate indicator of overall air quality that can be easily interpreted by the public. The AQI converts concentrations of all criteria air pollutants into one normalized number (0 - 500) that defines the air quality for the area. The AQI establishes air quality categories of good (0 - 50), moderate (51 – 100), unhealthy for sensitive groups (101 – 150), unhealthy (151 – 200), very unhealthy (201 – 300), and hazardous (301 – 500). Pennsylvania DEP publishes AQI values for all monitoring sites as a means of informing the public of the current conditions. These values can fluctuate and are therefore updated hourly. Air quality for most criteria pollutants has been improving in Pennsylvania over the last several years (DEP 2001), however some of the counties within the ROI are still in nonattainment for O_3, PM_{10}, and SO_2 (Table 3.5-1).

3.6 RECREATIONAL RESOURCES

3.6.1 Definition of Resource

Recreational resources are those activities or settings either natural or manmade that are designated or available for recreational use by the public. In this analysis, recreational resources include lands and waters utilized by the public for hunting, fishing, hiking, birding, canoeing and other water sports, and related activities.

3.6.2 Region of Influence

The ROI for recreational resources includes the lands proposed for enrollment in the Ohio River CREP agreement, adjacent lands, as well as the bodies of water that lie within the proposed CREP area and the waters downstream from the proposed CREP area.

Table 3.5-1 Attainment Status by Pollutant

County	Criteria Pollutants					
	O_3	PM_{10}	SO_2	CO	NO_2	Pb
Allegheny*	M	N	N	A	A	A
Armstrong	M	A	N	A	A	A
Beaver	M	A	A	A	A	A
Butler	M	A	A	A	A	A
Clarion	A	A	A	A	A	A
Crawford	N	A	A	A	A	A
Erie	N	A	A	A	A	A
Fayette	M	A	A	A	A	A
Forest	A	A	A	A	A	A
Greene	N	A	A	A	A	A
Lawrence	N	A	A	A	A	A
Mercer	N	A	A	A	A	A
Venango	A	A	A	A	A	A
Warren**	N	A	N	A	A	A
Washington	M	A	A	A	A	A
Westmoreland	M	A	A	A	A	A

Notes:
A = Attainment: air pollution levels consistently below NAAQS.
N = Nonattainment: air pollution levels consistently above NAAQS.
M = Maintenance: areas were in nonattainment, but now attain the standard and have an EPA approved plan to maintain the standard.

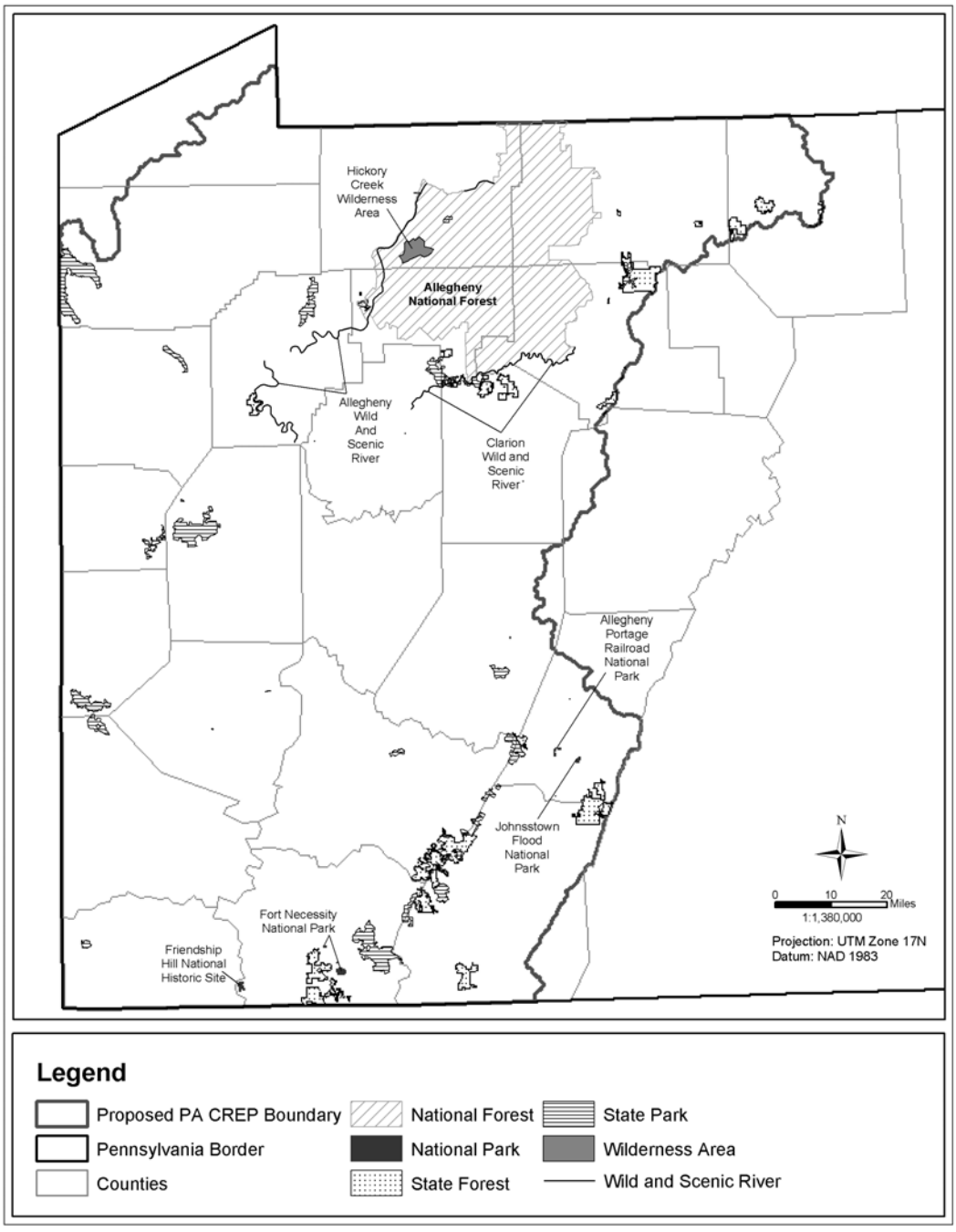
* *Portions of Allegheny County are designated as nonattainment for PM_{10} and SO_2, however, attainment has been monitored and a request for redesignation to attainment has been sent to EPA.*
** *Portions of Warren County are designated nonattainment for SO_2, however, attainment has been monitored and a request for redesignation to attainment has been sent to EPA.*

3.6.3 Affected Environment

Because the lands that could be enrolled in CREP are privately held, access to these lands for recreational activities is controlled by landowners. However, in the proposed CREP area there are numerous public lands available for recreation. The Allegheny National Forest is the only national forest in Pennsylvania. It covers over 513,000 acres in northwest Pennsylvania in Elk, McKean, Forest and Warren Counties. The forest contains two wilderness areas, Hickory Creek Wilderness and Allegheny Islands Wilderness. Additionally, there are seven state forests, four national parks, and 19 state parks in the proposed CREP area (see Figure 3.6-1). There are approximately 140 miles of Wild and Scenic Rivers in the CREP area, all located primarily in the Allegheny National Forest: 90 miles of the Allegheny River and 50 miles of the Clarion River. These public lands provide recreational activities such as hunting, hiking, camping, fishing, biking, and backpacking. Hunting and fishing require state issued licenses for both public and private lands. A discussion of the economic impacts of hunting, fishing, and other recreational activities

can be found in Section 3.7 and 4.7, Socioeconomics. Game species are discussed in Section 3.1 and 4.1, Biological Resources and water quality is discussed in Section 3.3 and 4.3, Water Resources.

Figure 3.6-1 State and Federal Recreational Lands in the Proposed Ohio River CREP Area



3.7 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

3.7.1 Definition of Resource

For this analysis, socioeconomics includes investigations of farm and nonfarm employment and income, farm production expenses and returns, agricultural land use, and recreation spending.

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires a Federal agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high human health or environmental effects of its programs, policies, and activities on minority populations and low income populations." A minority population can be defined by race, by ethnicity, or by a combination of the two classifications.

According to CEQ, a minority population can be described as being composed of the following groups: American Indian or Alaska Native, Asian or Pacific Islander, Black, not of Hispanic origin, or Hispanic, and exceeding 50 percent of the population in an area or the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population (CEQ 1997). The U.S. Census Bureau (USCB) defines ethnicity as either being of Hispanic origin or not being of Hispanic origin. Hispanic origin is further defined as "a person of Cuban, Mexican, Puerto Rican, South or Central America, or other Spanish culture or origin regardless of race" (USCB 2001).

Each year the USCB defines the national poverty thresholds, which are measured in terms of household income and are dependent upon the number of persons within the household. Individuals falling below the poverty threshold are considered low-income individuals. USCB census tracts where at least 20 percent of the residents are considered poor are known as *poverty areas* (USCB 1995). When the percentage of residents considered poor is greater than 40 percent, the census tract is considered an *extreme poverty area*.

3.7.2 Region of Influence

The ROI for analysis of impacts to socioeconomics or environmental justice is those counties where lands eligible for enrollment in the proposed CREP are located: Allegheny, Armstrong, Beaver, Butler, Clarion, Crawford, Erie, Fayette, Forest, Greene, Lawrence, Mercer, Venango, Warren, Washington, and Westmoreland.

3.7.3 Affected Environment

3.7.3.1 Demographic Profile

The total population within the ROI exceeded 3.2 million people in 2000; however, this was an approximately 1 percent decrease from the population of 1990 (USCB 1993, 2003). The majority of the population (76 percent) was located within urban areas or urban clusters (USCB 2003). Only 0.5 percent of the total population was located on farms. This was a decrease of approximately 32 percent from the 1990 farm population (USCB 1993).

Demographically the ROI population was 90 percent White, non-Hispanic, 7 percent Black or African American, non-Hispanic, 0.1 percent Native American or Alaska Native, non-Hispanic, 1 percent Asian, non-Hispanic, 0.03 percent Native Hawaiian or Pacific Islander, non-Hispanic, 1.1 percent all other races or combination of races, non-Hispanic, and 1 percent Hispanic (USCB 2003). The total minority population within the ROI was 310,661 or 10 percent of the total ROI population (USCB 2003). The ROI is not a location of a concentrated minority population.

In 1997, Hispanics operated 57 farms within the ROI, Black or African Americans operated 5 farms, Native Americans operated 8 farms, and 3 farms were operated by other races (USDA 1999). The ROI accounts for 23.4 percent of all minority farm operators within the state of Pennsylvania, while these 72 farms account for less than 1 percent of the total number of farms within the ROI (USDA 1999).

3.7.3.2 Non-Farm Employment and Income

Between 1993 and 2002 the non-farm labor force within the ROI ranged from 1.53 million in 1995 to 1.62 million in 2002 (BLS 2003). Non-farm employment also ranged during this period from a low of 1.43 million positions in 1994 to a high of 1.53 in 2001 (BLS 2003). The unemployment rate within the ROI varied from a high of 8.76 percent in 1993 to a low of 5.29 in 2000 (BLS 2003). Within the ROI, Forest County has experienced the highest average non-farm unemployment rate for the period (11.29 percent), with the highest rate occurring in 2002 (15.75 percent) (BLS 2003).

Median household income in 1999 ranged within the ROI, the highest median household income occurring in Butler County ($42,308) and the lowest median household income occurring in Fayette County ($27,451) (USCB 2003). The average poverty rate for the ROI in 2000 was 11 percent, a decrease of approximately 1.4 percent from the 1990 poverty rate (USCB 1993, 2003). The 2000 poverty rate varied from a high of 18.0 percent in Fayette County to a low of 8.6 percent in Westmoreland County (USCB 2003). The ROI would not be considered a poverty area.

3.7.3.3 Farm Employment and Income

In 1997, there were 11,000 farm workers on 2,579 farms within the ROI accounting for a payroll of $39.9 million (USDA 1999). Table 3.7-1 lists the hired farm and contract labor costs per county within the ROI and labor costs as a percentage of total production costs. In 1997, 11,031 farms within the ROI had sales less than $250,000 classifying them as small farms, while 261 large farms had sales greater than $250,000 (USDA 1999). Realized net farm income was in excess of $83 million in 2000; however, this was a decrease of 11 percent compared to the 1990 net farm income (Bureau of Economic Analysis [BEA] 2003). Total government payments to farms within the ROI exceeded $24 million in 2000, an increase of 173.5 percent over the 1990 government payments to farms within the ROI (BEA 2003). Farm proprietor's income within the ROI in 2000 exceeded $95.5 million, while farm wages and perquisites was approximately $47.4 million (BEA 2003). This accounted for an increase of 1.4 percent in farm proprietor's income from the 1990 figures and a decrease of 22.2 percent for farm wages and perquisites (BEA 2003).

Table 3.7-1 Farm Labor as a Percentage of Total Production Expenses

Area	1997				1992			
	Hired Farm Labor ($000)	Contract Labor ($000)	Total Production Expenses ($000)	Labor as a Percent of Total Production Expenses	Hired Farm Labor ($000)	Contract Labor ($000)	Total Production Expenses ($000)	Labor as a Percent of Total Production Expenses
State of Pennsylvania	362,811	27,369	3,091,953	12.62	35,2456	25,590	2,775,313	13.62
Allegheny	575	34	4,788	12.72	2,917	50	9,945	29.83
Armstrong	8,583	(d)	34,523		(d)	(d)	65,320	
Beaver	699	15	8,944	7.98	901	88	8,923	11.08
Butler	2,159	66	22,137	10.05	2,829	166	22,898	13.08
Clarion	1,206	(d)	11,445		1,028	36	10,909	9.75
Crawford	2,654	237	42,166	6.86	2,496	321	41,305	6.82
Erie	9,530	652	48,731	20.89	9,795	876	48,875	21.83
Fayette	1,555	15	14,621	10.74	1,458	39	14,822	10.10
Forest	77	0	1,048	7.35	(d)	2	494	
Greene	432	61	7,682	6.42	368	88	6,381	7.15
Lawrence	1,346	136	19,436	7.63	1,444	139	16,929	9.35
Mercer	4,260	393	36,266	12.83	3,680	193	31,158	12.43
Venango	164	32	5,694	3.44	347	43	5416	7.20
Warren	685	36	12,185	5.92	880	141	10,962	9.31
Washington	2,055	261	22,235	10.42	2,194	104	22,955	10.01
Westmoreland	3,958	62	26,925	14.93	5,287	124	32,432	16.68

(d) data withheld to avoid disclosing data for individual farms
Source: USDA 1999

3.7.3.4 Farm Production Expenses and Returns

In 2000, farm production expenses exceeded $530 million within the ROI an increase of 10.8 percent over 1990 (BEA 2003). Using the 1997 acreage in active farm production (1,319,164 acres), the average cost per acre within the ROI in 1997 was $397.73 (USDA 1999; BEA 2003). Using 1997 cropland, the cost per acre of agricultural chemicals inputs, including fertilizers and lime, was $77.43 (USDA 1999). Average net cash return per farm within the ROI was $5,169 in 1997 (USDA 1999). The average net cash receipts per acre within the ROI in 1997 were $35 (USDA 1999). Table 3.7-2 lists the average farm production expenses and return per dollar of expenditure from 1997 within each of the counties within the ROI. Table 3.7-3 lists the average value of land and buildings and the average value of machinery and equipment per farm within each of the counties within the ROI.

Table 3.7-2 Average Farm Production Expense and Return Per Dollar of Expenditure (1997)

Area	Average Size of Farm (acres)	Average Total Farm Production Expense	Average Cost Per Acre	Average Net Cash Return/Farm	Average Net Cash Return/Acre	Average Return/ $ Expenditure
State of Pennsylvania	158	68,061	431	16,451	104	0.24
Allegheny	81	14,334	177	3,702	46	0.26
Armstrong	183	52,788	288	7,694	42	0.15
Beaver	108	17,923	166	3,709	34	0.21
Butler	122	22,751	186	2,611	21	0.11
Clarion	206	25,099	122	3,436	17	0.14
Crawford	194	39,407	203	10,759	55	0.27
Erie	149	43,394	291	17,019	114	0.39
Fayette	145	19,600	135	4,626	32	0.24
Forest	158	30,825	195	(1,082)	(7)	(0.04)
Greene	197	11,535	59	(1,872)	(10)	(0.16)
Lawrence	140	31,298	224	6,691	48	0.21
Mercer	162	35,210	217	9,373	58	0.27
Venango	132	16,223	123	940	7	0.06
Warren	165	31,243	189	6,210	38	0.20
Washington	142	16,999	120	2,887	20	0.17
Westmoreland	143	26,014	182	5,995	42	0.23

Source: USDA 1999

Table 3.7-3 Average Value per Farm of Land and Buildings and Machinery and Equipment

Area	Average Size of Farm (acres)	Average Value of Land & Buildings	Average Value of Machinery & Equipment
State of Pennsylvania	158	371,740	53,219
Allegheny	81	255,618	34,563
Armstrong	183	279,434	47,001
Beaver	108	245,969	35,856
Butler	122	333,391	46,583
Clarion	206	233,198	52,304
Crawford	194	187,506	51,036
Erie	149	290,328	62,613
Fayette	145	223,180	50,286
Forest	158	205,741	51,448
Greene	197	173,628	33,916
Lawrence	140	225,251	54,087
Mercer	162	247,504	44,712
Venango	132	161,822	29,122
Warren	165	163,996	36,158
Washington	142	265,800	39,383
Westmoreland	143	362,564	47,353

Source: USDA 1999

3.7.3.5 Current Agricultural Land Use Conditions

In 1997, 1.32 million acres of land within the ROI were actively used for agricultural purposes including cropland, hay land, and pastureland, this was a decrease of approximately 4.0 percent from the 1992 figures (1.37 million acres) (USDA 1999). Table 3.7-4 lists the acreage for different agricultural land uses in 1992 and 1997 and the percent change during the period. In 1992, 12,562 acres within the ROI were enrolled in either the CRP or Wetlands Reserve Program (WRP), accounting for 0.91 percent of active agricultural lands (USDA 1999). In 1997, 18,720 acres were enrolled, accounting for 1.42 percent of active agricultural lands (USDA 1999). As of the October 2003 CRP enrollment (26), 10,131 acres within the ROI will be enrolled in CRP, accounting for approximately 0.77 percent of the 1997 active agricultural land (USDA 2003).

Approximately 43,000 acres of farmland in the ROI was lost to development between 1992 and 1997, a loss of 0.3 percent (USDA 1999). However, between 1987 and 1997, the ROI lost approximately 237,335 acres of farmland to development, a loss of 12.1 percent (USDA 1999). By December 2002, approximately 21,183 acres had been placed in conservation easement within the ROI with an average purchase price per acre of $1,914.19 (Pennsylvania Bureau of Farmland Preservation 2003). Currently,

developable farmland within the ROI is at an average per acre value of $1,800 (Western Pennsylvania Conservancy 2003). At this value, the average annual return on the sale of one acre, at a 7 percent discount rate, would be $126 (Western Pennsylvania Conservancy 2003).

Table 3.7-4 Agricultural Land Use Acreage within the ROI

Land Use	1997	1992	Percent Change
Cropland[1]	418,220	436,369	(4.16)
Hay land[2]	474,755	458,187	3.62
Pastureland[3]	426,189	479,676	(11.15)
Woodland[4]	308,017	300,048	2.66
House lots, ponds, roads, wasteland, etc.	104,006	99,569	4.46
CRP & WRP[5]	18,720	12,562	49.02
Active Agriculture[6]	1,319,164	1,374,232	(4.01)
Total Land in Farms[7]	1,731,187	1,774,166	(2.42)

[1] *Cropland excludes all harvested hayland and cropland used for pasture or grazing*
[2] *Hay land includes all harvested cropland used for alfalfa, other tame, small grain, wild, grass silage, green chop, etc.*
[3] *Pastureland includes all pasture, including cropland, grazed woodland, and rangeland not considered cropland or woodland*
[4] *Woodland excludes all wooded pasture lands*
[5] *CRP & WRP acreages are included as active agricultural lands*
[6] *Active agricultural lands include the sum of cropland, hay land, and pastureland*
[7] *Total land in farms include the sum of cropland, hay land, pastureland, woodland, and house lots, etc.*

Source: USDA 1999

3.7.3.6 Recreational Values

The Center for Rural Pennsylvania CFRP found that recreational activities associated with wildlife contributed significant amounts to the economic activities of Pennsylvania. CFRP estimated that from the 1995-1996 activity year, hunting activities in Pennsylvania created $4.8 billion in economic activity, sport fishing accounted for $4.7 billion, and fur taking accounted for $19.0 million. Wildlife viewing activities during this period were estimated to have generated approximately $860 million (CFPR 1998). An analysis of the 1996 and 2001 National Surveys of Fishing, Hunting, and Wildlife Associated Recreation (USFWS 1997, 2002) indicated that total participants in wildlife related recreation increased approximately 7.3 percent to 4.2 million persons between 1996 and 2001 in Pennsylvania. Total expenditures for wildlife-related recreation activities was approximately $3.0 billion in 2001, a 7.2 percent increase over 1996 (USFWS 1997, 2002). Total expenditures for hunting related activities in Pennsylvania increased 36.1 percent to $941.0 million in 2001, while sport fishing expenditures declined 10.7 percent to $580.4 million (USFWS 1997, 2002). Wildlife viewing expenditures increased 12.1 percent to $961.8 million in 2001 (USFWS 1997, 2002).

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 BIOLOGICAL RESOURCES

4.1.1 Alternative A – Preferred

Implementation of Alternative A would result in beneficial impacts to biological resources in the proposed CREP area and the waters downstream from the area. The agricultural land eligible for enrollment in the proposed CREP area consists of previously disturbed and extensively managed landscapes. Vegetation; wildlife; and threatened, endangered, and sensitive species and critical habitats have been displaced from years of crop production on these lands.

Vegetation

Every CP that is proposed for implementation under the Ohio River CREP would contribute to vegetation diversity in the proposed CREP area. In particular, establishment of permanent native grasses (CP2), permanent wildlife habitat (4D), permanent vegetative cover (CP15A), riparian buffers (CP22), and wetland restoration (CP23) would benefit vegetation resources in the CREP area. The native forest types are generally associated with riparian areas and the adjacent uplands. Establishment of native plant communities would help to reduce occurrences of exotic plant species and would provide habitat for wildlife. Establishment of vegetation will act as a buffer to agricultural and other runoff, improving water quality and benefiting aquatic species. See Section 4.3 for a discussion of impacts to water resources.

Wildlife

Associated with improved habitat conditions, wildlife diversity would increase from implementation of the proposed CREP area. In comparison to the existing conditions on most of the eligible cropland, wildlife habitat and wildlife diversity would thrive after establishment of each CP. Grassland birds, generally absent from croplands, would benefit primarily from establishment of grasses (CP1 and CP2). Nongame and game wildlife would benefit primarily from establishment of permanent wildlife habitat (CP4D), shallow water areas for wildlife (CP9), wildlife food plots (CP12), and marginal pastureland wildlife habitat buffers (CP29). In addition, establishment of native wildlife populations in the CREP area would displace some of the exotic wildlife species in the area.

In the short term, increases in wildlife populations would have negligible impacts on the habitat in the CREP area. However, whitetail deer populations could increase above carrying capacity in the long term without implementing proper wildlife management practices. In accordance with the CREP proposal, the Pennsylvania Game Commission would provide five wildlife biologists to assist with the implementation of the Ohio Basin CREP. This technical support would recommend and help implement procedures to ensure that wildlife populations remain within the habitat carrying capacity in the area.

Aquatic biodiversity in the CREP area would benefit from reduced levels of nutrient and sediment loading to surface waters from agricultural activity that would result after implementation of the Ohio River CREP. In particular, establishment of filter strips (CP21), riparian buffers (CP22), wetland restoration (CP23), and marginal pastureland wetland buffers (CP30) would enhance aquatic biodiversity in the CREP area and downstream. See Section 4.3 for a discussion of impacts to surface water quality.

Threatened, Endangered, and Sensitive Species and Critical Habitat

Implementation of the proposed CREP would have positive impacts on threatened, endangered, and sensitive species and critical habitat. Benefits to aquatic species in this category would be realized shortly after implementation of CPs and would increase in the long term. Benefits to threatened, endangered, and sensitive species and critical habitat in terrestrial environments would be minimal in the short term as vegetative communities developed. However, the greatest benefits to terrestrial species and habitats in this category would be expected in the long term following implementation of the proposed CREP.

4.1.2 Alternative B – No Action

Under the No Action Alternative the proposed CREP would not be implemented. Lands that would have been eligible for enrollment would remain in agricultural production. The continued use of land for agriculture or the conversion of land to another type of agricultural production would increase susceptibility to invasion by exotic species. The runoff of agricultural chemicals, animal wastes, and sediment would continue to degrade water quality and therefore habitat for native plants and animals.

4.2 CULTURAL RESOURCES

4.2.1. Alternative A – Preferred

Archaeological Resources

Due to the rich cultural history of the CREP agreement area, the potential for encountering archaeological resources during implementation of CREP contracts is considered high. CPs that are ground disturbing beyond what is normally disturbed from agricultural plowing have the potential to impact known and yet unknown archaeological resources. Such practices include earthmoving for installation of filter strips, firebreaks, fencing, and roads, as well as construction of dams, levees, and dikes in wetland restoration areas and excavation of potholes or other structures to regulate water flow.

In order to determine whether proposed ground disturbing practices would impact archaeological resources listed in, or eligible for listing in the NRHP, appropriate archaeological review will be completed prior to implementation of each contract that would include ground disturbing CPs as part of

the environmental evaluation. Results and recommendations from the survey should be submitted for review to the Pennsylvania SHPO prior to project implementation.

Architectural Resources

The CREP agreement area contains a rich architectural history related to early settlement and agricultural themes of Pennsylvania's history. Should proposed CPs include the removal or modification of historic architectural resources included in or eligible for the NRHP, a historic architectural resources survey (Pennsylvania Historic Resource Inventory) would be required in order to determine whether such resources are present. Results and recommendations from the survey should be submitted for review to the Pennsylvania SHPO prior to project implementation.

Traditional Cultural Properties

Because the areas of potential effect of CREP actions are not yet defined, no Native American sacred sites or TCPs have been identified. Once these areas have been defined, consultation with Native American tribes that have traditional ties to the lands may be needed to determine whether such properties exist on affected lands. Federally recognized tribes to be contacted may include the Shawnee Tribe, Delaware Nation, and Seneca Nation, and, who have traditional ties to the Ohio River valley (Federal Register 2002).

4.2.2 Alternative B – No Action

Under the No Action Alternative, farming practices in the CREP area would continue. Though the continuation of farming in previously disturbed areas is not expected to impact cultural resources, a change in farming practices that would disturb previously undisturbed areas could result in impacts to known or unknown archaeological, architectural or traditional cultural resources.

4.3 WATER RESOURCES

4.3.1 Alternative A – Preferred

Surface Water

Implementation of the proposed CREP would have long term positive effects on surface water quality. The CPs listed in Section 2.1 are designed to improve water quality. Establishing vegetation, whether introduced grasses and legumes (CP1), or native vegetation such as hardwood trees (CP 3A), would stabilize soils and reduce soil erosion and the runoff of nutrients and chemicals associated with agriculture. The establishment of filter strips (CP 21) and riparian buffers (CP22) installed adjacent to watercourses would stabilize stream banks and provide areas for the retention of sediment and nutrient

runoff from adjacent lands. Additionally, a reduction in the use of agricultural pesticides and other chemicals is expected to occur as a result of the proposed CREP, resulting in reduced runoff.

Reductions in nitrogen, phosphorous, and sediment EOS loading are expected to occur as a result of the proposed action. Table 4.3-1 illustrates the reduction in nitrogen, phosphorus, and sediment loading as estimated by the Chesapeake Bay Watershed.

Table 4.3-1 Estimated Edge of Stream Nutrient and Sediment Reduction from Agricultural Land, Ohio Basin CREP Area, 2002

	Total* Nitrogen Reduction	Total* Phosphorous Reduction	Total* Sediment Reduction
Allegheny	6.95	0.15	196.41
Armstrong	30.86	0.65	872.32
Beaver	13.84	0.29	391.25
Butler	32.03	0.68	905.56
Clarion	24.01	0.51	678.64
Crawford	54.35	1.15	1536.5
Erie	44.43	0.94	1256.1
Fayette	28.68	0.61	810.74
Forest	1.12	0.02	31.79
Greene	35.72	0.76	1009.73
Lawrence	24.91	0.53	704.29
Mercer	44.91	0.95	1269.67
Venango	11.01	0.23	311.36
Warren	14.05	0.3	397.16
Washington	52.66	1.12	1488.75
Westmoreland	39.35	0.83	1112.46
Total Reduction	**458.89**	**9.74**	**12972.72**

** metric tons per year*
Source: Pennsylvania Department of Environmental Protection, Chesapeake Bay Program Watershed Model 2000 Progress Scenario, 2002

Activities such as vegetation clearing and soil disturbance may occur during the installation of CPs. These activities could result in temporary and minor negative impacts to surface water quality resulting

from runoff associated with these activities. Use of filter fencing or similar practices would reduce these impacts.

Groundwater

Implementation of the proposed CREP agreement would result in positive effects on groundwater. The proposed CPs would establish permanent vegetative cover where none currently exists. This vegetation will slow the rate of rainwater flow over the land, allowing for greater rates of aquifer recharge. In addition, the improvement in surface water quality discussed above would result in improved quality of groundwater recharged by these surface waters. There are no sole source aquifers in the CREP area.

Wetlands

Implementation of the proposed CP9 (Shallow Water Areas for Wildlife) and CP23 (Wetland Restoration) is expected to increase the acreages of wetlands and riparian habitat in the proposed CREP area by as much as 10,000 acres. The positive impacts of restoring wetlands and riparian areas on wildlife and aquatic species is discussed in Section 4.2, biological resources.

Floodplains

Minor improvements in floodplains are expected to occur as a result of the implementation of the proposed CPs that occur in existing floodplains. The establishment of vegetation including wetlands in these areas is expected to decrease erosion in these areas and improve the function of floodplains. Dikes, levees, dams, or other structures for the regulation of water flow, and hence floodplain the impacts of floods within and outside 100-year floodplains, may be constructed under the proposed action. These structures would be designed to withstand a 100-year flood event as required by EO 11988.

4.3.2 Alternative B – No Action

Under the No Action Alternative, the CPs described in Section 2.1 would not be implemented. The use of land for agriculture or conversion of lands to other types of agricultural production could result in the continued degradation of water quality from runoff of agricultural chemicals, animal waste, and sediment.

4.4 EARTH RESOURCES

4.4.1 Alternative A – Preferred

Under Alternative A, potential long term positive impacts to earth resources are expected to occur. Implementation of the proposed CPs would result in localized stabilization of soils and topography as a result of reduced erosion and runoff. In pasturelands, exclusion of cattle from streams and riparian areas bordering streams will reduce stream bank destabilization, resulting in reduced rates of sedimentation and

subsequent improvements to water quality (see Section 4.3 for a discussion of surface water quality). Establishing permanent vegetation on former croplands would reduce erosion by wind and water. Short term disturbance to soils during implementation of CPs could include tilling, or installation of various structures such as fences, breakwaters and roads. These activities may result in temporary minor increases in soil erosion.

4.4.2 Alternative B – No Action

Under Alternative B, the No Action Alternative, the CPs described in Section 2.1 would not be implemented and continued erosion of HEL would be expected to occur, causing further alteration of topography and loss of soils.

4.5 AIR QUALITY

Any impacts to air quality in attainment areas would be considered significant if pollutant emissions associated with the proposed action caused, or contributed to a violation of any national, state, or local ambient air quality standard; exposed sensitive receptors to substantially increase pollutant concentrations; or exceeded any significance criteria established by the State Implementation Plan (SIP).

Impacts to air quality in nonattainment areas would be considered significant if the net change in proposed pollutant emissions caused or contributed to a violation of any national, state, or local ambient air quality standard; increased the frequency or severity of a violation of any ambient air quality standard; or delayed the attainment of any standard or other milestone contained in the SIP.

4.5.1 Alternative A – Preferred

Implementation of Alternative A would result in establishment of CPs as described in Section 2.1 within 65,000 acres of farmland in 16 counties in the Ohio River Basin. Preparing the lands for CP would include activities such as tilling, burning, and installation of various structures in water or on land. These activities would have a localized, temporary, minor impact to air quality. It is not expected that any of these practices would change the current attainment status or violate standards in the SIP. Implementing erosion control measures, such as vegetation planting, would reduce the amount of exposed soil. Reducing exposed soil would have long term positive impacts to the local air quality.

Land disturbing activities, such as those used to remove existing vegetation or to install CPs, may result in temporary minor impacts to air quality. Tilling would temporarily increase the PM_{10} concentrations in the immediate area; however, this increase is not expected to be significant. Watering exposed soil during and after tilling would reduce the amount of PM_{10} released into the air.

The amount of open burning that would take place is not known, however, it is not expected this would have a significant impact on the local air quality. Open burning would require a permit from DEP prior to the activity. Open burning would release toxic pollutants into the environment such as particulates PM_{10}, CO, hydrocarbons, and nitrous oxide (EPA 1992). The quantity and distribution of these pollutants would depend on the type of vegetation that is being burned, the configuration of the burned material (material heaped or organized in rows), and the weather at the time of burning. The method of burning the vegetation material would also determine how much of the pollutants is released to the environment. One method for reducing emissions would be the use of an air curtain incinerator which consists of a burn pit and a device to blow air across and into the pit thus decreasing the amount of time required to burn the material (EPA 2001).

Installing various structures such as roads, firebreaks, and fences could require the use of heavy duty diesel construction vehicles. Primary emissions from construction vehicles are CO and PM_{10} concentrations. Best management practices would be used during construction activities to reduce the amount of emissions.

4.5.2 Alternative B – No Action

Implementation of the No Action Alternative would not change existing air quality conditions. The CPs described in Section 2.1 would not be implemented.

4.6 RECREATIONAL RESOURCES

4.6.1 Alternative A – Preferred

Implementation of Alternative A would have a positive long term impact on recreational resources within the CREP area. Establishing the proposed CPs would increase the availability and quality of habitat for and abundance of game bird and mammal species (see Section 4.1, Biological Resources). Improving the water quality in the CREP area would have beneficial impacts in the CREP area as well as downstream (see Section 4.3, Water Resources). The improved water quality would be able to support an increase in fish populations and provide for additional fishing opportunities. The increase in game and fish populations could increase funds spent on hunting and fishing licenses and improve socioeconomic conditions in the area (see Section 4.7, Socioeconomics). In addition to hunting and fishing, the proposed CPs would increase the desirability of land to be used for hiking or camping by improving the aesthetics. A short term negative impact to recreational activities may occur during the installation of the proposed CPs due to unsightly construction activities or displacement of game species.

4.6.2 Alternative B – No Action

Under Alternative B, the No Action Alternative, the CREP would not be implemented and the watershed focused improvements to water, biological, and recreational resources described in Section 4.6.1 would not occur.

4.7 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

4.7.1 Alternative A – Preferred

Implementing the proposed action would result in positive net present values for land rentals into the CREP program within the ROI (Appendix B). Under the proposed action, a maximum of 65,000 acres would be conserved and restored for a 15-year period. This action would cause the loss of approximately 542 farm worker positions, at an estimated cost of $2.0 million per year (Appendix B). The loss of these positions would account for approximately 5 percent of the farm workers positions available in 1997. Additionally, the loss of production on 65,000 acres would reduce the amount of total farm expenditures for seed, agricultural chemicals, and petroleum products by $3.5 million per year or 5 percent of the total 1997 farm expenditures. However, the inclusion of 65,000 acres in the CREP would result in maximum annual land rental rate of $87.50, a one-time cost-sharing of $135.00 per acre, and an annual maintenance payment of $5.00 per acre. Return per dollar of expenditure would be approximately $1.69. Total net present value for implementing the CREP within the ROI at the maximum rate per acre would be approximately $22.0 million over 15 years (Appendix B).

Additional non-market benefits associated with the implementation of the CRP would include an estimated $35.44 per acre of consumer surplus associated with wildlife viewing in the northeast, $2.36 per acre of consumer surplus associated with pheasant hunting in the northeast, and $2.45 per acre of consumer surplus associated with freshwater recreation activities in the northeast for a total consumer surplus per acre from CRP of $40.25 (Feather, Hellerstein, and Hansen 1999). Total consumer surplus per acre for the United States equated to $13.65 or approximately 195 percent less value than the consumer surplus generated by CRP activities in the northeast (Feather, Hellerstein, and Hansen 1999). Additionally, the DCNR anticipates that enrollment in the CREP would improve wildlife habitat for game species (e.g., eastern cottontail rabbit and ring-necked pheasant) and non-game species (e.g., eastern meadowlark and grasshopper sparrow) (DCNR 2004). This improved and expanded wildlife habitat would be likely to increase wildlife-related recreation opportunities within the ROI. This increased/improved habitat would be likely to improve wildlife-recreation generated economic activity within the ROI.

Since the ROI would not be considered an area of concentrated minority population or a poverty area and there would be no adverse impacts from selecting the proposed action there would be no ROI-wide impacts due to environmental justice.

4.7.2 Alternative B - No Action

Under the No Action Alternative, the CREP would not be implemented within the Ohio Basin ROI. Socioeconomic conditions would continue to follow the trends associated with the ROI and larger Pennsylvania and northeastern United States region. Farmland would continue to be sold for development rights given the previously mentioned difference in rental rate per acre ($35) and average annual return for the sale of an acre ($126). Unique and prime farmland areas would continue to be targeted for the purchase of conservation easements; however, the small percentage of farmland placed in conservation easements (1.61 percent of 1997 totals) would not contribute significantly to slowing farmland conversion.

The Pennsylvania Department of Conservation and Natural Resources (DCNR) estimates that approximately 350 acres per day of wildlife habitat is being lost to development or conversion, while approximately 170 acres per day is being conserved through state or private initiatives (DCNR 2004). This loss of wildlife habitat would adversely impact wildlife-related recreational opportunities in Pennsylvania contributed approximately $3.0 billion to the statewide economy. The continued loss of wildlife habitat could force wildlife enthusiasts to spend more of their activity dollars in adjacent states with similar opportunities and forego the remaining available wildlife-related recreation opportunities.

Additionally, since the ROI would not be considered an area of concentrated minority population or a poverty area and there would be no impacts from selecting the no action alternative there would be no ROI-wide impacts due to environmental justice.

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5.0 CUMULATIVE IMPACTS AND IRRETRIEVABLE COMMITMENT OF RESOURCES

5.1 CUMULATIVE EFFECTS

5.1.1 Definition of Cumulative Effects

CEQ regulations stipulate that the cumulative effects analysis within an EA should consider the potential environmental impacts resulting from "the incremental impacts of the action when added to other past, present and reasonably foreseeable actions regardless of what agency or person undertakes such other actions." CEQ guidance in Considering Cumulative Effects affirms this requirement, stating that the first steps in assessing cumulative effects involve defining the scope of the other actions and their interrelationship with the proposed action. The scope must consider geographic and temporal overlaps among the proposed action and other actins. It must also evaluate the nature of interactions among these actions.

Cumulative effects most likely arise when a relationship exists between a proposed action and other actions expected to occur in a similar location or during a similar time period. Actions overlapping with or in proximity to the proposed action would be expected to have more potential for a relationship than those more geographically separated. Similarly, actions that coincide, even partially, in time would tend to offer a higher potential for cumulative effects.

In this PEA, the ROI for cumulative impacts is those counties where lands are eligible for enrollment in CREP. For the purposes of this analysis, public documents prepared by federal, state and local government agencies are the primary sources of information used in identifying reasonably foreseeable actions.

5.1.2 Past, Present, and Reasonably Foreseeable Actions

In Pennsylvania, there are numerous federal and state funded programs that address agriculture related environmental impacts. In Pennsylvania, there are currently 131,076 acres of land enrolled in CRP and 8,628 acres enrolled in the Wetland Reserve Program (WRP) (NRCS 2002; USDA 2003c). In 1997 in the proposed CREP area, there were 18,720 acres of lands enrolled in CRP and WRP (USDA 1999).

The Clean Water State Revolving Fund is a joint EPA and state program that offers low cost loans to finance a range of water quality infrastructure improvement projects. In Greene County, such a loan has been used to build an acid mine drainage treatment facility at the abandoned Shannonpin Mine Pool which threatens Dunkard Creek, a tributary of the Monongahela River (EPA 2004d).

Between 1998 and 2003 in the proposed CREP area, the Pennsylvania Department of Agriculture (PDA) provided over $2 million in cost share assistance for nutrient management programs and incentives and made nearly $300,000 in loans for agriculture best management practices (WPC 2003).

Growing Greener is a multi-agency program run by Pennsylvania's Departments of Agriculture, Environmental Protection, Conservation and Natural Resources, and the Pennsylvania Infrastructure Investment Authority. The program dedicated $100 million to preserving farmland between 1999 and 2004. Approximately 12,400 acres in 26 counties have been preserved (WPC 2003).

The Pennsylvania DEP Nonpoint Source (NPS) Management Program targets agriculture sourced pollution, specifically: to support farms and CAFOs in developing nutrient management and conservation plans, implement best management practices to reduce the impacts of nutrients on surface and groundwater, and install streamside buffers and exclusion fencing (WPC 2003).

Analysis of Cumulative Effects

The incremental contribution of impacts of the proposed action, when considered in combination with other past, present, and reasonably foreseeable actions, is expected to result in positive impacts to water, earth, biological, and recreational resources both in the proposed CREP and in waters downstream.

Irreversible and Irretrievable Commitment of Resources

NEPA requires that environmental analysis include identification of any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented. Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that the use of these resources has on future generations. Irreversible effects primarily result from the use or destruction of a specific resource that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action. For the proposed action, no irreversible or irretrievable resource commitments are expected.

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9.0 GLOSSARY

Aquifer - An underground bed or layer of earth, gravel, or porous stone that yields water.

Concentrated Animal Feeding Operation - A facility that raises 1,000 cattle, 700 dairy cows, 2,500 swine, 10,000 sheep, 125,000 chickens, 82,000 laying hens, and 55,000 turkeys in confinement. CAFOs are regulated by the EPA and are required to hold permits, submit annual reports, and follow plans for handling manure and wastewater.

Conservation Practice - Established national standard commonly used to treat natural resource problems (soil, water, air, plants, and animals).

Critical Habitat - The specific areas within the geographical area occupied by the species on which are found those physical or biological features that are both essential to the conservation of the species and may require special management considerations or protection.

Drainage Basin - The geographical area draining into a river or reservoir.

Ecoregion - An area of relatively homogeneous ecological systems having similar soils, vegetation, climate, and geology.

Endangered Species - Any species that is in danger of extinction throughout all or a significant portion of its range, other than an officially designated insect pest.

Erodibility Index - A numerical value that expresses the potential erodibility of soil in relation to its soil loss tolerance value without consideration of applied conservation practices or management. (*Defined at 7 CFR 12.2*)

Floodplain – low-lying land subject to inundation from overflow of the rivers or lakes with which they are associated.

Fragipan – A dense subsoil impenetrable to the roots of plants.

Highly Erodible Land - Land that has an erodibility index of 8 or more. (*Defined at 7 CFR 12.2*)

Riparian - Of, on, or relating to the banks of a natural course of water.

Threatened Species - Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Traditional Cultural Property – A location that is significant to Native Americans or other ethnic groups in the persistence of traditional culture.

Watershed - The whole region or extent of country which contributes to the supply of a river or lake.

Wetland - Areas that are saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. (*Defined at 33 CFR 320-328.3*)

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APPENDIX A:
PRACTICES

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Summary of Conservation Practices Proposed in Pennsylvania's Ohio River Basin CREP Agreement

NRCS Conservation Practice: Conservation Cover

FSA CRP Conservation Practices for Proposed Pennsylvania CREP:

- CP1 - Establishment of Permanent Introduced Grasses and Legumes
- CP2 – Establishment of Permanent Native Grasses

Purposes:

- Reduce soil erosion and sedimentation; to improve water quality
- Enhance wildlife habitat.

Maintenance Standards:

- Maintenance activities including prescribed burning and mowing should not disturb cover during primary nesting period for grassland species.
- Mow or periodically graze vegetation to maintain capacity and reduce sediment deposition.
- Control noxious weeds.
- Do not use as a road and avoid crossing with heavy equipment when wet.

NRCS Conservation Practice: Cover and Green Manure Crop

FSA CRP Conservation Practices for Proposed Pennsylvania CREP:

- CP1 - Establishment of Permanent Introduced Grasses and Legumes
- CP2 – Establishment of Permanent Native Grasses
- CP10 – Vegetative Cover – Grass – Already Established

Purposes:

- Reduce erosion from wind and water.
- Increase soil organic matter.
- Manage excess nutrients in the soil profile.
- Promote biological nitrogen fixation.
- Increase biodiversity.
- Suppress weeds.
- Provide supplemental forage.
- Manage soil moisture.

Maintenance Standards:

- Control growth of the cover crop to reduce competition from volunteer plants and shading.
- Control weeds in the cover crop by mowing or herbicide application.
- Avoid cover crop species that attract potentially damaging insects.

NRCS Conservation Practice: Restoration and Management of Declining Habitat

FSA CRP Conservation Practices for Proposed Pennsylvania CREP:

- CP1 - Establishment of Permanent Introduced Grasses and Legumes
- CP2 – Establishment of Permanent Native Grasses
- CP 12 – Wildlife Food Plot
- CP22 – Riparian Buffer
- CP23 – Wetland Restoration

Purposes:

- Restore land or aquatic habitats degraded by human activity
- Provide habitat for rare and declining wildlife species by restoring and conserving native plant communities.
- Increase native plant community diversity.
- Manage unique or declining native habitats

Maintenance Standards:

- Where feasible, prescribed burning should be utilized instead of mowing.
- Management measure must be provided to control invasive species and noxious weeds.
- Species used in restoration should be suitable for the planned purpose.
- Only certified, high quality, and ecologically adapted native seed and plant material should be used.
- Proper planting dates, and care in handling and planting of the seed or plant material will ensure that established vegetation will have an acceptable rate of survival.
- Site preparation should be sufficient for establishment and growth of selected species.
- Timing and use of equipment should be appropriate for the site and soil conditions.

NRCS Conservation Practice: Wildlife Upland Habitat Management

FSA CRP Conservation Practices for Proposed Pennsylvania CREP:

- CP2 – Establishment of Permanent Native Grasses
- CP4D – Permanent Wildlife Habitat, Noneasement
- CP10 – Vegetative Cover –Grass- Already Established
- CP12 – Wildlife Food Plot
- CP15A – Establishment of Permanent Vegetative Cover, Noneasement

Purposes:

- Provide a variety of food for the desired wildlife species.
- Provide a variety of cover types for the desired wildlife species.
- Provide drinking water for desired wildlife species.
- Arrange habitat elements in proper amounts and locations to benefit desired species.
- Manage the wildlife habitat to achieve a viable wildlife population within the species' home range.

Maintenance Standards:

- Use of native plant materials is encouraged.
- Biological control of undesirable plant species and pests should be implemented where available and feasible.
- Proper timing of haying and livestock grazing should avoid periods when upland wildlife are nesting, fawning, etc. And should allow for the establishment, development, and management of upland vegetation for the intended purpose.
- Spraying or other control of noxious weeds should be done on a "spot" basis.
- Grazing and haying should be conducted to maintain or improve vegetation structure and composition so as to improve the desired wildlife habitat.

NRCS Conservation Practice: Shallow Water Area for Wildlife

FSA CRP Conservation Practices for Proposed Pennsylvania CREP:

- CP9 – Shallow Water Areas for Wildlife
- CP12 – Wildlife Food Plot

Purposes:

- Provide open water areas on agricultural fields and moist soil areas to facilitate waterfowl resting and feeding.
- Proved habitat for reptiles and amphibians and other aquatic species that serve as important prey species for waterfowl, raptors, herons, and other wildlife.

Maintenance Standards:

- The impoundment should be dewatered and disked or burned at 2 to 3 year intervals to control the invasion of undesirable plants.
- Biological control of undesirable plants species and pests should be implemented where available and feasible.

NRCS Conservation Practice: Wetland Restoration

FSA CRP Conservation Practices for Proposed Pennsylvania CREP:

- CP 23 – Wetland Restoration

Purpose:

- To restore hydric soil conditions, hydrologic conditions, hydrophytic plant communities and wetland functions that occurred on the disturbed wetland site prior to modification to the extent practicable.

Maintenance Standards:

- A permanent water supply should be available approximating the needs of the wetlands.
- A functional assessment should be performed on the site prior to restoration.
- Vegetation should be restored as close to the original natural plant community as the restored site conditions will allow.
- Adjust timing and level setting of water control structures required of the establishment of desired hydrologic conditions or for management of vegetation.
- Develop inspection schedule for embankments and structures for damage assessment.
- Monitor depth of sediment accumulation to be allowed before removal is required.

NRCS Conservation Practice: Wetland Creation

FSA CRP Conservation Practices for Proposed Pennsylvania CREP:

- CP4D – Permanent Wildlife Habitat, Noneasement
- CP12 – Wildlife Food Plot
- CP21 – Filter Strips
- CP22 – Riparian Buffer

Purpose:

- To create wetlands that have wetland hydrology, hydrophytic plant communities, hydric soil conditions, and wetland functions and/or values

Maintenance Standards:

- Created wetlands should only be located where the soils, hydrology, and vegetation can be modified to meet the current NRCS criteria for a wetland.
- Establish vegetative buffers on surrounding uplands to reduce sediment and soluble sediment-attached substances carried by runoff and/or wind.
- Timing and level setting of water control structures should be established to reach the desired hydrologic conditions or for the management of vegetation.
- Inspection of embankments should be done at regular intervals.
- The depth of sediment accumulation to be allowed before removal should be determined prior to wetland reaction.

- Haying and grazing should be managed to protect and enhance established and emerging vegetation.

NRCS Conservation Practice: Stream Habitat Improvement and Management
FSA CRP Conservation Practices for Proposed Pennsylvania CREP:

- CP4D – Permanent Wildlife Habitat, Noneasement
- CP22 – Riparian Buffer
- CP23 – Wetland Restoration

Purposes:

- Provide suitable habitat for desired aquatic species and diverse aquatic communities.
- Provide channel morphology and associated riparian characteristics important to desired aquatic species.

Maintenance Standards:

- Establish soil conservation, nutrient management, pesticide management practices, and other management techniques for non-point sources of pollution.
- Restore or Protect riparian and floodplain vegetation and associated riverine wetlands.
- Maintain suitable flows for aquatic species and channel maintenance.
- If needed, improve floodplain to channel connectivity including off channel habitats.

NRCS Conservation Practice: Contour Buffer Strips
FSA CRP Conservation Practices for Proposed Pennsylvania CREP:

- CP1 – Establishment of Permanent Introduced Grasses and Legumes
- CP2 – Establishment of Permanent Native Grasses
- CP10 – Vegetative Cover –Grass- Already Established
- CP12 – Wildlife Food Plot
- CP15 – Establishment of Permanent Vegetative Cover, Noneasement
- CP21 – Filter Strips

Purposes:

- Reduce sheet and rill erosion.
- Reduce transport of sediment and other water-borne contaminants downslope, on-site or off-site.
- Enhance wildlife habitat.

Maintenance Standards:

- Cropped strips should be alternated with the buffer strips down the hill slope.
- Vegetation grown on buffer strips should consist of grasses, legumes, or grass-legume mixtures, adapted to the site.
- All farm operations should be done parallel to the strip boundaries except on headlands or end rows with gradients less than the criteria set forth in this standard.
- Time mowing of buffer strips to maintain appropriated vegetative density and height for optimum trapping of sediment from the upslope cropped strip during the critical erosion periods.
- Fertilize buffer strips as needed to maintain stand density.
- Spot seed or totally renovate buffer strip systems when needed.

NRCS Conservation Practice: Field Border
FSA CRP Conservation Practices for Proposed Pennsylvania CREP:

- CP1 – Establishment of Permanent Introduced Grasses and Legumes

- CP2 – Establishment of Permanent Native Grasses
- CP4D – Permanent Wildlife Habitat, Noneasement
- CP10 – Vegetative Cover –Grass- Already Established
- CP12 – Wildlife Food Plot
- CP15 – Establishment of Permanent Vegetative Cover, Noneasement
- CP21 – Filter Strips

Purposes:

- Reduce erosion from wind and water.
- Protect soil and water quality.
- Manage harmful insect populations.
- Proved wildlife food and cover.

Maintenance Standards:

- Field borders should be established around the field edges and should be seeded with adapted species of permanent grass, legumes, and/or shrubs.
- Repair storm damage.
- Remove sediment when 6 inches of sediment have accumulated at the field border/cropland interface.
- Shut off sprayers and raise tillage equipment to avoid damage to field borders.
- Shape and reseed border areas damaged by chemicals, tillage, or equipment traffic.
- Fertilize, mow, harvest, and control noxious weeds to maintain plant vigor.
- Ephemeral gullies and rills that develop in the border should be filled and reseeded.

NRCS Conservation Practice: Filter Strip

FSA CRP Conservation Practices for Proposed Pennsylvania CREP:

- CP1 – Establishment of Permanent Introduced Grasses and Legumes
- CP2 – Establishment of Permanent Native Grasses
- CP4D – Permanent Wildlife Habitat, Noneasement
- CP10 – Vegetative Cover –Grass- Already Established
- CP12 – Wildlife Food Plot
- CP15 – Establishment of Permanent Vegetative Cover, Noneasement
- CP21 – Filter Strips

Purposes:

- Reduce sediment, particulate organics, sediment adsorbed contaminant loadings, and dissolved contaminant loadings in runoff.
- Reduce sediment particulate organics, and sediment adsorbed contaminant loadings in surface irrigation tailwater.
- Restore, create, or enhance herbaceous habitat for wildlife and beneficial insects.
- Maintain or enhance watershed functions and values.

Maintenance Standards:

- Permanent filter strip vegetative plantings should be harvested as appropriate to encourage dense growth, maintain an upright growth habit, and remove nutrients and other contaminants that are contained in the plant tissue.
- Undesired weed species, especially state-listed noxious weeds, should be controlled with spot spraying of herbicide.
- Prescribed burning may be used to manage and maintain the filter strip when an approved burn plan has been developed.

- If wildlife habitat is the purpose, destruction of vegetation within the portion of thee strip devoted to removing sediment is authorized only to the extent needed.

NRCS Conservation Practice: Riparian Forest Buffer

FSA CRP Conservation Practices for Proposed Pennsylvania CREP:

- CP4D – Permanent Wildlife Habitat, Noneasement
- CP21 – Filter Strips.
- CP22 – Riparian Buffer

Purposes:

- Create shade to lower water temperatures to improve habitat for aquatic organisms.
- Proved a source of detritus and large woody debris for aquatic and terrestrial organisms.
- Create wildlife habitat and establish wildlife corridors.
- To reduce excess amounts of sediment, organic material, nutrients, and pesticides in surface runoff and reduce excess nutrients and other chemicals in shallow ground water flow.
- Proved protection against scour erosion within the floodplain.
- Restore natural riparian plant communities.

Maintenance Standards:

- The riparian forest buffer should be inspected periodically and protected from adverse impacts.
- Replacement of dead trees and shrubs and control of undesirable vegetative competition should continue until the buffer is, or will progress to, a fully functional condition.
- An adjacent filter strip should be used to control excessive erosion and sediment deposition within the stream.

NRCS Conservation Practice: Riparian Herbaceous Cover

FSA CRP Conservation Practices for Proposed Pennsylvania CREP:

- CP4D – Permanent Wildlife Habitat, Noneasement
- CP21 – Filter Strips.
- CP22 – Riparian Buffer

Purposes:

- Intercept the direct solar radiation to help maintain or restore suitable water temperatures for fish and other aquatic organisms.
- Improve and protect water quality by reducing the amount of sediment and other pollutants, such as pesticides, organic, and nutrients in surface runoff as well as nutrients and chemicals in shallow ground water flow.
- Proved food for aquatic insects that are important food items for fish.
- Help stabilize the channel bed and streambank.
- Serve as corridors between existing habitats.

Maintenance Standards:

- Plant species selected must be adapted to the duration of saturation and inundation of the site.
- Upland erosion control measures should be put into place in order to slow the movement of soil and other debris in order to maintain riparian function.
- Any fertilizers, pesticides, or other chemicals in the riparian area should be used only when necessary.

NRCS Conservation Practice: Streambank and Shoreline Protection

FSA CRP Conservation Practices for Proposed Pennsylvania CREP:

- CP22 – Riparian Buffer

Purposes:

- Prevent the loss of land or damage to land uses, or other facilities adjacent to the banks, including the protection of known historical, archeological, and traditional cultural properties.
- Maintain the flow or storage capacity of the water body or to reduce the offsite or downstream effects of sediment resulting from bank erosion.
- Improve or enhance the stream corridor for fish and wildlife habitat, aesthetics, and recreation.

Maintenance Standards:

- Stream corridor vegetative components should be established as necessary for ecosystem functioning and stability.
- Livestock exclusion should be considered during establishment of vegetative measures and appropriate grazing practices applied after establishment to maintain plant community integrity.
- When designing protective measures, considerations should be made to the changes that may occur in the watershed hydrology and sedimentation over the design life of the measure.
- When appropriate, establish a buffer strip and/or diversion at the top of the bank or shoreline protection zone to help maintain and protect installed measures, improve their function, filter out sediments, nutrients, and other pollutants, from runoff, and proved additional wildlife habitat.

NRCS Conservation Practice: Vegetative Barrier

FSA CRP Conservation Practices for Proposed Pennsylvania CREP:

- CP1 – Establishment of Permanent Introduced Grasses and Legumes
- CP2 – Establishment of Permanent Native Grasses
- CP10 – Vegetative Cover –Grass- Already Established
- CP21 – Filter Strips

Purposes:

- Reduce sheet and rill erosion.
- Reduce ephemeral gully erosion.
- Manage water flow.
- Stabilize steep slopes.
- Trap sediment.

Maintenance Standards:

- All tillage and equipment operations in the interval between barriers should be parallel to the vegetative barrier.
- Obstructions, such as trees and debris that interfere with vegetative growth and maintenance, should be removed to improve vegetation establishment and alignment.
- Mowing may be used as a management practice to encourage the development of a dense stand and prevent shading of crops in adjacent fields.
- Weed control should be accomplished by mowing or by spraying or wick application of labeled herbicides.
- Crop tillage and planting operations should be parallel with the vegetative barrier.
- Washouts or rills that develop should be filled and replanted immediately.

NRCS Conservation Practice: Wetland Enhancement

FSA CRP Conservation Practices for Proposed Pennsylvania CREP:

- CP4D – Permanent Wildlife Habitat, Noneasement

- CP12 – Wildlife Food Plot
- CP 23 – Wetland Restoration

Purposes:

- Modify the hydrologic condition, hydrophytic plant communities, and/or other biological habitat components of a wetland for the purpose of favoring specific wetland functions or values.

Maintenance Standards:

- Where possible, native plant materials should be used; however, introduced or cultivated plant species can be used to meet specific project objectives.
- Biological control of undesirable plant species and pests should be implemented where available and feasible.
- An inspection schedule for embankments and structures for damage assessment is required.
- Haying and livestock grazing should be managed to protect and enhance established and emerging vegetation.

NRCS Conservation Practice: Wetland Wildlife Habitat Management

FSA CRP Conservation Practices for Proposed Pennsylvania CREP:

- CP1 – CP4D – Permanent Wildlife Habitat, Noneasement
- CP12 – Wildlife Food Plot
- CP 23 – Wetland Restoration

Purposes:

- Maintain, develop, or improve habitat for waterfowl, fur-bearers, or other wetland associated flora and fauna.

Maintenance Standards:

- Native plants should be used wherever possible.
- Haying and livestock grazing plans should be developed so as to allow the establishment, development, and management of wetland and associated upland vegetation for the intended purpose.
- Biological control of undesirable plant species and pests shall be implemented where available and feasible.

NRCS Conservation Practice: Herbaceous Wind Barriers

FSA CRP Conservation Practices for Proposed Pennsylvania CREP:

- CP12 – Wildlife Food Plot

Purposes:

- Reduce soil erosion from wind.
- Protect growing crops from damage by wind-borne soil particles.
- Manage snow to increase plant available moisture.
- Provide food and cover for wildlife

Maintenance Standards:

- Annual barriers will be managed so barriers are of sufficient height and condition to meet their intended purpose.
- Gaps in perennial barriers should be replanted as soon as practical to maintain barrier effectiveness.
- Perennial barriers should be fertilized as needed, and weeds controlled by cultivation or chemical spot treatments.

- Barriers composed of perennial vegetation that are designed to enhance wildlife habitat should not be mowed unless their height or width exceeds that required to achieve the barrier purpose, or they become competitive with adjoining land use.
- Mowing, if necessary, should be done during the non-nesting season.
- The use of prescribed burning to enhance plant vigor may be completed after nesting/resting periods.

NRCS Conservation Practice: Tree/Shrub Establishment

FSA CRP Conservation Practices for Proposed Pennsylvania CREP:

- CP4D – Permanent Wildlife Habitat, Noneasement
- CP12 – Wildlife Food Plot
- CP22 – Riparian Buffer

Purposes:

- Establish woody plants for forest products, wildlife habitat, long-term erosion control, improvement of water quality, reduction of air pollution, sequestration of carbon, energy conservation, and enhancement of aesthetics.

Maintenance Standards:

- Competing vegetation should be controlled until the woody plants are established.
- Noxious weeds should be controlled.
- Replant when survival is inadequate.
- Supplemental water should be provided as needed.
- Trees and shrubs should be inspected periodically and protected from adverse impacts including insects, diseases, competing vegetation, fire, and damage from livestock or wildlife.
- Periodic applications of nutrients may be needed to maintain plant vigor.

NRCS Conservation Practice: Dike

FSA CRP Conservation Practices for Proposed Pennsylvania CREP:

- CP9 – Shallow Water Areas for Wildlife.

Purposes:

- Permit improvement of agricultural land by preventing overflow and better use of drainage facilities.
- Prevent damage to land and property, and to facilitate water storage and control in connection with wildlife and other developments.
- Protect natural areas, scenic features, and archaeological sites from damage.

Maintenance Standards:

- All dikes must be adequately maintained to the required shape and height.
- Maintenance of dikes should include periodic removal of woody vegetation that may become established on the embankment.
- Provisions for maintenance access must be provided.

NRCS Conservation Practice: Range Planting

FSA CRP Conservation Practices for Proposed Pennsylvania CREP:

- CP2 – Establishment of Permanent Native Grasses

Purposes:

- Restore a plant community similar to its historic climax or the desired plant community.
- Provide or improve forages for livestock.

- Provide or improve forage, browse, or cover for wildlife.
- Reduce erosion by wind and/or water.
- Improve water quality and quantity.

Maintenance Standards:

- Any necessary replanting due to drought, insects, or other uncontrollable event that prevented adequate stand establishment should be addressed as soon as possible.
- Thin stands may only need additional grazing deferment during the growing season.
- Species should be selected and planted in a designed manner that will meet the cover requirements of the wildlife species of concern.
- Satisfactory site preparation is necessary to ensure a successful range planting.

APPENDIX B:
SOCIOECONOMIC ANALYSIS

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Socioeconomic Analysis Assumptions	
Discount Rate	5.1%
Base Year	2004
Inflation Rate (2003)	1.3%
Inflation Rate (2004)	1.7%
Inflation Rate (2005)	1.8%
Inflation Rate (2006)	1.9%
Cost-Share	$135.00
Farm Expenditure	$135.00
Land Rental	$87.50
Maintenance	$5.00
Value of Lost Jobs	$2,000,000.00
Value of Lost Sales	$3,500,000
Total Acres	65,000

Socioeconomic Analysis Data									
Year	**Discount Factor**	**Cost Share**	**Farm Expenditure**	**Rental Rate**	**Maintenance**	**Lost Jobs**	**Lost Sales**	**Sum**	**NPV**
2004	1.00								
2005	0.95	$8,775,000.00	$8,775,000.00	$5,687,500.00	$325,000.00	$(2,000,000.00)	$(3,500,000.00)	$18,062,500.00	$17,186,013.32
2006	0.91			$5,687,500.00	$325,000.00	$(2,000,000.00)	$(3,500,000.00)	$512,500.00	$463,968.44
2007	0.86			$5,687,500.00	$325,000.00	$(2,000,000.00)	$(3,500,000.00)	$512,500.00	$441,454.27
2008	0.82			$5,687,500.00	$325,000.00	$(2,000,000.00)	$(3,500,000.00)	$512,500.00	$420,032.61
2009	0.78			$5,687,500.00	$325,000.00	$(2,000,000.00)	$(3,500,000.00)	$512,500.00	$399,650.43
2010	0.74			$5,687,500.00	$325,000.00	$(2,000,000.00)	$(3,500,000.00)	$512,500.00	$380,257.31
2011	0.71			$5,687,500.00	$325,000.00	$(2,000,000.00)	$(3,500,000.00)	$512,500.00	$361,805.24
2012	0.67			$5,687,500.00	$325,000.00	$(2,000,000.00)	$(3,500,000.00)	$512,500.00	$344,248.57
2013	0.64			$5,687,500.00	$325,000.00	$(2,000,000.00)	$(3,500,000.00)	$512,500.00	$327,543.83
2014	0.61			$5,687,500.00	$325,000.00	$(2,000,000.00)	$(3,500,000.00)	$512,500.00	$311,649.70
2015	0.58			$5,687,500.00	$325,000.00	$(2,000,000.00)	$(3,500,000.00)	$512,500.00	$296,526.83
2016	0.55			$5,687,500.00	$325,000.00	$(2,000,000.00)	$(3,500,000.00)	$512,500.00	$282,137.80
2017	0.52			$5,687,500.00	$325,000.00	$(2,000,000.00)	$(3,500,000.00)	$512,500.00	$268,447.00
2018	0.50			$5,687,500.00	$325,000.00	$(2,000,000.00)	$(3,500,000.00)	$512,500.00	$255,420.56
2019	0.47			$5,687,500.00	$325,000.00	$(2,000,000.00)	$(3,500,000.00)	$512,500.00	$243,026.22
Total									$21,982,182.13
NPV/Acre									$338.19

APPENDIX C:
LETTERS

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Pennsylvania Department of Conservation and Natural Resources

Bureau of Forestry

717-787-3444
Fax 717-783-5109

December 1, 2003

Elizabeth Pruitt
11846 Rock Landing Drive
Suite C
Newport News, VA 23606

Re: Request for comments on Ohio River Basin CREP agreement implementation

Dear Ms. Pruitt:

This is in response to your 11/10/03 letter to Sally Just. Thank you for the opportunity to comment on your upcoming PEA. As administrating agency for the PA Natural Heritage Program and the agency responsible for the conservation of native wild plants we would make the following requests. First, properties in the program may provide habitat for plants or animals of special concern. In some cases practices can be tailored to benefit those species. Where appropriate, we'd like to see this goal included in plan development. Second, certain practices have the potential to have an adverse impact on special concern resources if they are not taken into account in project design. When special concern resources are present, we would like the opportunity to comment on these plans. One way to make an initial determination of potential impact would be to use the online review system to which you now have access or beginning in February to use our new online system which will be available on the DCNR website. The new system should meet your needs more effectively, so if your schedule permits you may want to wait. Please contact me if you have any questions.

Sincerely,

Jean Fike
Chief, Ecological Services
Manager, PA Natural Heritage Program
Bureau of Forestry

cc: S. Just
J. Newell
File

Commonwealth of Pennsylvania
Pennsylvania Fish and Boat Commission
Division of Environmental Services
450 Robinson Lane
Bellefonte, PA 16823
814-359-5115

November 21, 2003

Elizabeth Pruitt, Program Manager
Geo-Marine, Inc
11846 Rock Landing Drive
Suite C
Newport News, VA 23606

Re: Conservation Reserve Enhancement Program Agreement
Pennsylvania Ohio River Basin

Dear Ms. Pruitt:

It is our understanding that Pennsylvania has applied for a Conservation Reserve Enhancement Program (CREP) agreement that would cover 16 counties within the Ohio River Basin. The Pennsylvania Fish and Boat Commission is fully supportive of the CREP program due to the fact that all of the optional conservation practices improve water quality and benefit our aquatic resources. The only concern we have with the CREP program is if a proposed practice may potentially impact a population of Pennsylvania threatened or endangered listed fish, reptile, or amphibian species. Each plan must go through a Pennsylvania Natural Diversity Inventory review to determine whether there are any species of special concern within the project area and it is our opinion this process has worked well with the lower Susquehanna River Basin CREP that is currently in place in Pennsylvania. In conclusion, we support the Ohio River Basin CREP and look forward to working with USDA to help implement the program. Please feel free to contact me if I can be of any further assistance.

Sincerely,

David E. Spotts, Chief
Watershed Analysis Section

"25 Years of Resource Conservation"

Penn's Corner

Resource Conservation & Development Area

Donohoe Center R.R. #12, Box 202C Greensburg, PA 15601-9217
Phone: 724-834-9063 FAX: 724-832-9721

November 18, 2003

Ms Elizabeth Pruitt, Program Manager
Geo-Marine, Inc.
11846 Rock Landing Drive, Suite C
Newport News, Virginia 23606

RE: Programmatic Environmental Assessment for Proposed Implementation of Pennsylvania's Ohio River Basin Conservation Reserve Enhancement Program (CREP) Agreement

Dear Ms. Pruitt:

Thank you for granting the Penn's Corner Resource Conservation and Development (RC&D) Area Executive Council an opportunity to comment on the Ohio River Basin CREP Agreement.

As one of the partners in the preparation of the application for CREP funding for the Ohio River Basin, Penn's Corner has already had an opportunity for input to, and review of, these documents. And we find that we are in basic agreement with the proposed program for the sixteen-county Ohio River Basin area of western Pennsylvania which includes the nine counties encompassed by the Penn's Corner RC&D Area.

However, we do have one concern which has become quite prevalent throughout most of western Pennsylvania. That concern revolves around the over abundance of white tail deer in most, if not all, of these counties. Therefore, we would like to recommend that due consideration of this far reaching problem and its effects on agricultural operations and the natural resource base in general would be given before the best management practice list is finalized for this watershed.

Several of our partners have voiced similar concerns. This includes private landowners, conservation districts, RC&D Councils and federal agency personnel. Most of these groups believe that it would be counter productive to direct large sums of federal funds to the creation of wildlife habitat which favors the white tail deer population while adversely affecting agricultural operations and the natural resource base. This is especially troublesome on farms where the public is denied access for the purpose of harvesting the excess deer so that the herd might be kept in balance with the resource base.

Ms. Elizabeth Pruitt 2

We urge you to include this concern in your overall environmental assessment related to this CREP application. And we thank you for the opportunity to share our concern.

PAUL HEYWORTH
Executive Council Member
Penn's Corner RC&D Area

NEVIN L. ULERY
RC&D Coordinator
USDA-NRCS

Pennsylvania Department of Environmental Protection

Rachel Carson State Office Building
P.O. Box 2063
Harrisburg, PA 17105-2063
December 26, 2003

Office Water Management 717-787-4686

Ms. Elizabeth Pruitt
Geo-Marine, Inc.
11846 Rock Landing Drive
Suite C
Newport News, VA 23606

Dear Ms Pruitt:

Thank you for the opportunity to provide input on Pennsylvania's proposed Ohio River Basin Conservation Reserve Enhancement Program (CREP) agreement. The Pennsylvania Department of Environmental Protection (DEP) has been a partner in the CREP program since the original approval of the program in 2000. The CREP program has been quite appealing to farmers in the Chesapeake Bay watershed of Pennsylvania where we currently have 73,000 acres under contract with more than 125,000 acres offered.

DEP is very supportive of CREP due in large part to the water quality benefits derived from many of the eligible practices and the hundreds of millions of federal dollars that our investment brings to Pennsylvania farmers.

The Ohio CREP proposal focuses on practices that will improve the conditions of local streams in western Pennsylvania as well as reducing pollutants contributing to hypoxia in the Gulf of Mexico. We support the Ohio CREP proposal and look forward to our continued partnership with the Department of Agriculture.

Should you need further information, please do not hesitate to contact Mr. John Hines of my staff directly by calling 717-787-4686 or by e-mail at johines@state.pa.us.

Sincerely,

Cathy Curran Myers
Deputy Secretary