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

Final

US 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
CAFO	concentrated animal feeding operations
DNAP	Department of Natural Areas and Preserves
DNR	Department of Natural Resources
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
COE	U.S. Army Corps of Engineers
CO	carbon monoxide
CP	conservation practice
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
DNR	Department of Natural Resources
EI	erodibility index
EO	Executive Orders
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FSA	Farm Service Agency
FEMA	Federal Emergency Management Agency
HEL	highly erodible land
NAAQS	National Ambient Air Quality Standards
NRHP	National Register of Historic Places
NEPA	National Environmental Policy Act
NO_2	nitrogen dioxide
O_3	ozone
OH EPA	State of Ohio Environmental Protection Agency
Pb	lead
PEA	Programmatic Environmental Assessment
PEIS	Programmatic Environmental Impact Statement
PM_{10}	respirable particulate matter
ROI	region of influence
Scioto River CREP	Scioto River Watershed CREP
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	sulfur dioxide
TCP	traditional cultural properties
USCB	U.S. Census Bureau
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
WRP	Wetland Reserve Program

Finding of No Significant Impact

Programmatic Environmental Assessment for the
Proposed Implementation Ohio's Scioto River Watershed
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 Ohio'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 Ohio's Scioto River Watershed Conservation Reserve Enhancement Program (CREP) agreement (Scioto River CREP). 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 (USDA), 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 7 CFR 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 Ohio's CREP agreement. Under the agreement, eligible farmland in the Scioto River Watershed 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 Scioto 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.

Proposed Action and Alternatives

The proposed action would implement Ohio's CREP agreement. Under this agreement, 70,000 acres of eligible farmland in the following 31 counties in the Scioto River Watershed would be enrolled in CREP: Adams, Allen, Auglaize, Champaign, Clark, Clinton, Crawford, Delaware, Fairfield, Fayette, Franklin, Greene, Hardin, Highland, Hocking, Jackson, Knox, Licking, Logan, Madison, Marion, Morrow, Perry, Pickaway, Pike, Richland, Ross, Scioto, Union, Vinton, and Wyandot.

Landowners would enroll eligible farmland by entering into 10 to 15 year contracts with FSA. Conservation practices would be established and maintained on enrolled lands for the contract duration. 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 temporary minor negative impacts associated with implementation of the proposed action. A summary of the potential impacts is given in Table ES-1.

Table 1 Executive Summary

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; potential for invasion by exotic 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 Scioto River Watershed 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 or the disturbance of previously undisturbed land.

Table 1 Executive Summary (cont'd.)

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. The project area is not considered an area of concentrated minority population, however, Vinton County is considered an impoverished area. The loss of 5 farm related jobs is not expected to substantially impact the personal income level in Vinton County, therefore, no significant impacts to Environmental Justice are expected.	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 Ohio. 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 Code of Federal Regulations (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 the 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 Corporation. 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 and technical 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 agreement. A final CREP agreement is set into practice through a Memorandum of Agreement between USDA and the Governor. CREP 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 Ohio's Scioto River Watershed CREP (Scioto River CREP) agreement presented in this PEA tier from the nationwide PEIS. Ohio's CREP agreement would remove 70,000 acres of eligible farmland in the Scioto River Watershed 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.

Ohio CREP Goals

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

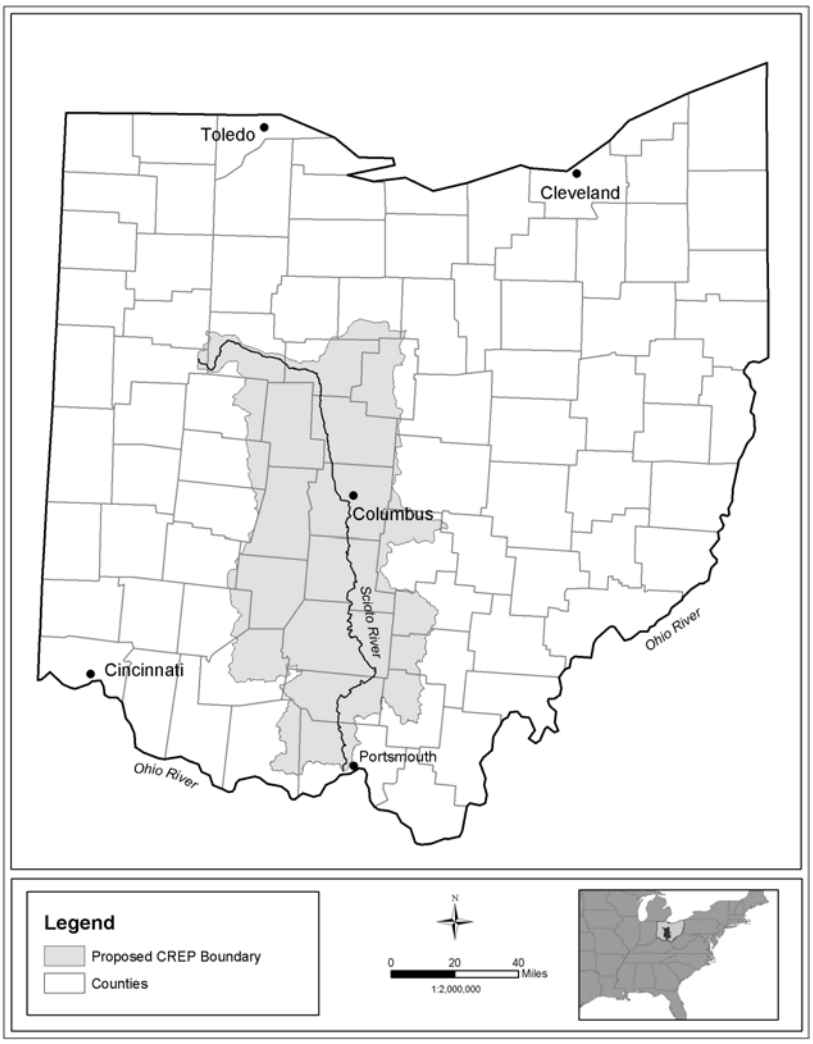
- Establish CREP conservation practices on 70,000 acres of agricultural land to improve water quality in the Scioto River watershed;
- Secure 5,000 acres of perpetual conservation easements in the Scioto River watershed;
- Ensure attainment of the Clean Water Act (CWA);
- Ensure a safe drinking water supply for residents of the watershed by reducing levels of agricultural chemicals to below acceptable U.S. Environmental Protection Agency (EPA) average maximum contaminant levels;
- Reduce sediment loading by 20 percent from 350,000 to 280,000 metric tons annually by the end of the contract period;
- Reduce phosphorus loading by 20 percent from 1,000 to 800 metric tons annually by the end of the contract period;
- Reduce nitrate loading by 30 percent from 20,000 to 14,000 metric tons annually by the end of the contract period; and
- Improve the distribution and abundance of threatened and endangered species.

The Scioto River Watershed

The Scioto River is a tributary of the Ohio River which joins it on the central southern border of Ohio at Portsmouth. Its watershed is comprised of 4,170,296 acres, 67 percent of which is cropland. Figure 1.2-1 shows the boundary of the proposed CREP area. Eligible lands in 31 counties in the Scioto River watershed that would be enrolled under the proposed CREP: Adams, Allen, Auglaize, Champaign, Clark,

Clinton, Crawford, Delaware, Fairfield, Franklin, Fayette, Greene, Hardin, Highland, Hocking, Jackson, Knox, Licking, Logan, Madison, Marion, Morrow, Perry, Pickaway, Pike, Richland, Ross, Scioto, Union, Vinton, and Wyandot. The headwater region of the Scioto River supports large scale animal production agriculture. In addition, there are numerous small and moderately sized animal feeding operations. The agriculture of the watershed is characterized by a variety of specialty crops including vineyards, orchards, plant nurseries, and tobacco farms. The northern portion of the Scioto River Basin is characterized by rolling plains, flat lake beds dominated by extensive, highly productive cropland, and numerous urban, suburban and industrial areas. The southern portion of the basin is characterized by forests, steep slopes and high gradient fast moving streams. Farms, including dairy and livestock farms, and residential areas are concentrated in valleys. Because it is so intensively cultivated, the Scioto River watershed is a major source of nutrients and sediments that enter the region's surface waters including the Ohio River (NRCS 2004).

Figure 1.2-1 Proposed Scioto River Watershed CREP Area



1.3 PURPOSE AND NEED FOR THE ACTION

The purpose of the action is to implement Ohio's CREP agreement. Under the agreement, eligible farmland in the Scioto River Watershed would be removed from production and approved CPs 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 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 the NEPA (Public Law 91-190, 42 United States Code 4321 et seq.); its implementing regulations (40 CFR 1500-1508); and FSA implementing regulation, *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. 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 on these resources. Chapter 5.0 includes

analysis of cumulative impacts and irreversible and irretrievable resource commitments. Chapter 6.0 is a list of the preparers of this document and Chapter 7.0 contains a list of 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 the Scioto River CREP agreement. The agreement would enroll lands in CREP by establishing contracts with owners of eligible lands. Approved CPs would be established on 70,000 acres of eligible farmland in the Scioto River watershed. 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 proposed Scioto River Watershed CREP agreement would enroll 70,000 acres of environmentally sensitive agricultural lands in a 31 county region of Ohio's Scioto River watershed over the next five years. Once the CREP agreement is approved, landowners would enroll eligible lands in the program on a voluntary basis. Because of this, the location, size, and number of tracts that would be enrolled are not known. Table 2.1-1 shows the number of acres in each county that lie within the Scioto River Watershed, as well as the cropland acreages and the number of farms in each county in the proposed Scioto River CREP. It is estimated that 70 percent of the agricultural land in the proposed CREP area is cropland and 30 percent is pastureland (Jerry Hines pers. comm.).

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. Additionally, eligible land would be:

- a riparian area,
- an upland area with potential to generate sediment runoff into nearby watercourses,
- highly erodible land (HEL) with an erodibility index (EI) greater than 12, or
- marginal pastureland along streams.

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

County	Acres in the Scioto River Watershed	Estimated Acres of Cropland	Estimated Number of Farms
Adams	88,027	200,000	1,480
Allen	1,902	198,000	1,060
Auglaize	11,750	144,000	1,130
Champaign	56,542	218,000	900
Clark	12,538	185,000	800
Clinton	42,274	149,000	850
Crawford	55,228	226,000	760
Delaware*	29,1731	175,000	760
Fairfield	128,985	204,000	1,160
Fayette*	260,548	243,000	560
Franklin*	347,691	101,000	580
Greene	12,636	192,000	910
Hardin	148,185	260,000	960
Highland	170,025	245,000	1,380
Hocking	101,437	61,000	530
Jackson	104,463	85,000	490
Knox	3,784	219,000	1,280
Licking	29,360	245,000	1,470
Logan	80,903	224,000	940
Madison	294,891	259,000	730
Marion	206,455	220,000	600
Morrow	171,848	173,000	870
Perry	2,480	103,000	730
Pickaway*	324,283	269,000	780
Pike	259,701	88,000	440
Richland	1,994	216,000	680
Ross	442,315	259,000	890
Scioto	158,969	104,000	710
Union*	279,729	228,000	920
Vinton	80,320	50,000	290
Wyandot	715	164,000	970

Source: Jerry Hines, State Environmental Coordinator, personal communication
*Entire County is in Scioto River Watershed

Establish Conservation Practices

Those CREP CPs that are proposed for implementation under the Scioto River CREP agreement are listed in Table 2.1-2. Also shown are the eligibility criteria for each practice and the durations of contracts for each CP.

Table 2.1-2 Scioto River CREP Proposed Conservation Practices

Conservation Practice		Eligible Lands	Contract Duration (years)
CP1:	Establishment of Permanent Introduced Grasses and Legumes	HEL, Scour erosion area	10
CP2:	Establishment of Permanent Native Grasses	HEL, Scour erosion area	10
CP3:	Tree Planting	HEL, Riparian	10
CP3A:	Hardwood Tree Planting	HEL, Riparian	10 to 15[5]
CP4B:	Permanent Wildlife Habitat (corridors)	HEL, Riparian, Scour erosion area	10 to 15[5]
CP4D:	Permanent Wildlife Habitat (noneasement)	HEL, Riparian, Scour erosion area	10
CP9:	Shallow Water Areas for Wildlife	Uplands	10
CP15A:	Establishment of Permanent Vegetative Cover	HEL	10
CP21:	Filter Strips[2]	HEL and Riparian areas adjacent to watercourse	10 to 15[5]
CP22:	Riparian Buffer[3]	HEL and Riparian areas adjacent to watercourse	10 to 15[5]
CP 23:	Wetland Restoration[4]	Floodplains with greater than 50 percent hydric soils or hydric inclusions	
CP 25:	Rare and Endangered Habitat	Areas where prairie once existed	10+
CP 31:	Bottomland hardwood tree initiative	Where approved	10+

Sources: USDA 2003 and personal communication with Jerry Hines, Ohio State Environmental Coordinator.
[1] Authorized when coupled with another approved conservation practice
[2] Not authorized in conjunction with CP22, CP23
[3] Not authorized in conjunction with CP21, CP23
[4] Not authorized in conjunction with CP21, CP22
[5] The producer selects contract period between 10 and 15 years

Descriptions of these practices are available in Appendix A (FSA 2003; USDA 2003). 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 and to remove subsurface pipe installation of structures to regulate water flow; installation of firebreaks, fencing, and roads; and subsurface pipe.

Provide Financial Support to Landowners

Owners of lands enrolled in Ohio's CREP enter 10 to 15 year contracts with FSA with options for five year contract extensions and voluntary perpetual easements. These landowners would be eligible for yearly rental payments for the duration of the contract. Annual rental payments would be calculated based on the number of acres enrolled in CREP. Additionally, one time cost sharing and incentive payments are available to participants.

Participants in Ohio could be eligible for up to 90 percent cost assistance for the establishment of CPs. Cost sharing would account for 50 percent of the cost, based on an established statewide average cost. One time Practice Incentive Payments are equal to 40 percent of the cost of establishing conservation practices. Additionally, participants who establish filter strips (CP21) or riparian buffers (CP22) are eligible for one time signing incentive payments equal to $10 per acre for each year of the contract.

The estimated cost of implementing the proposed Scioto River watershed CREP agreement is $191,614,500, with an estimated Federal commitment of $159,678,750 and a state and local contribution of $31,935,750.

2.2 ALTERNATIVES

Alternative A - Preferred

Under Alternative A, Ohio's Scioto River CREP agreement would be fully implemented as described above. A full 70,000 acres of eligible farmland in 31 counties in the Scioto River watershed 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 Ohio'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 Scioto River watershed for enrollment, providing financial incentives to landowners using Federal, state and private financial resources – would not be realized. This alternative will be carried forward in the analyses to serve as a baseline against which to assess the impacts of the Preferred Alternative.

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 resources 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. These resources are divided into four categories: vegetation; wildlife; aquatic species; and threatened, endangered, and sensitive species and their defined critical habitat. Vegetation and wildlife refer to the plant 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 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 Scioto River watershed CREP agreement including the Scioto River and its tributaries and Ohio River and the waters downstream from the proposed CREP area.

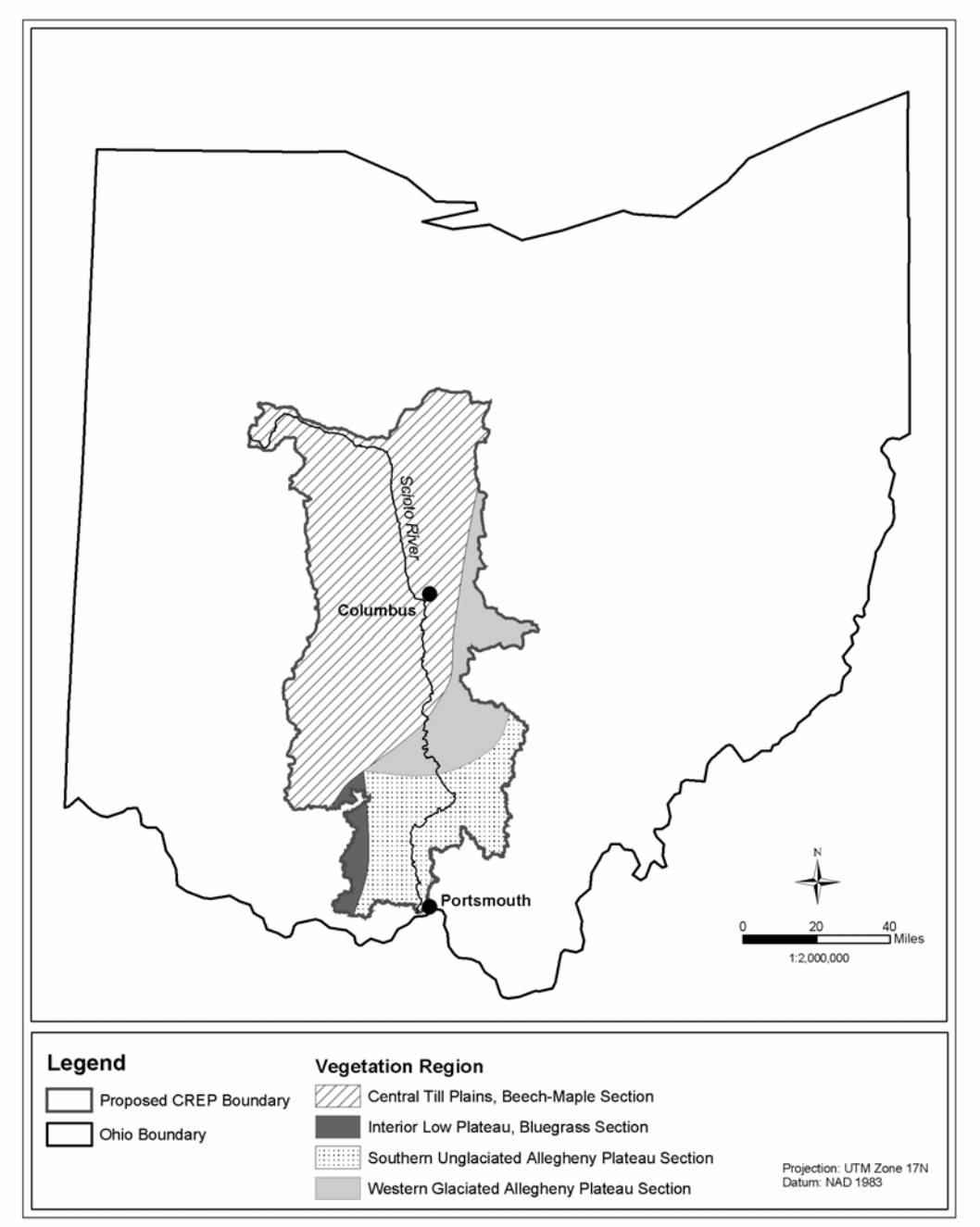
3.1.3 Affected Environment

Vegetation

Ohio is in the Eastern Broadleaf Forest (Continental) Province, an ecoregion dominated by broadleaf deciduous forests that extends from New York to Georgia and Missouri to Indiana and Minnesota (Bailey 1995). The proposed CREP area includes four of the five ecoregions in Ohio (3.1-1). The Central Till Plains ecoregion is characterized by gently rolling hills and includes most of the proposed CREP area. This area once comprised beech-maple forests with scattered prairie openings, but is now prime agricultural land. The Interior Low Plateau, Bluegrass Section is characterized by flat-topped hills and uplands rimmed by cliffs. The Southern Unglaciated Allegheny Plateau features deep valleys, high hills, and winding streams. Although the region has thousands of forested acres, the topography is rough and much of the soil is infertile. The Western Glaciated Allegheny Plateau is less hilly and lacks the rugged quality of the unglaciated landscape. It is marked by smaller tracts of forests, ranging from a few acres to

hundreds of acres. Forest types include oak-hickory, beech-maple, and elm-ash (Eyre 1980, Ohio Department of Natural Resources [DNR] 2003a). Wooded areas account for 27 percent of the proposed CREP area. Most forests are small woodland islands that typically range in size from five to 50 acres and are separated by large expanses of cropland.

Figure 3.1-1 Ecoregions of the Proposed CREP Area



The oak-hickory forest type is dominated by red oak, black oak, white oak, chestnut oak, mockernut hickory, shagbark hickory, pignut hickory, and bitternut hickory. Associated trees include black walnut, white ash, basswood, and black cherry. Common understory shrubs include redbud, pawpaw, wild plum, sour gum, flowering dogwood, sassafras, and spicebush.

The beech-maple forest type is dominated by American beech, sugar maple, red oak, white ash, and white oak. Other hardwood species commonly present include black cherry, basswood, and shagbark hickory. Common understory species include ironwood, eastern hophornbeam, spicebush, hawthorn, and pawpaw.

The elm-ash forest type is interspersed throughout the oak-hickory and beech-maple types. It is found predominantly in the glaciated (northern) region of the proposed CREP area. Dominant hardwood trees include American elm, red elm, white ash, green ash, red maple, and silver maple. Common understory species include blackhaw, prickly ash, and spicebush.

Only a remnant of the once vast prairie habitat is present in Ohio and the proposed CREP area. Grasses dominate the treeless areas and include warm season grasses, such as big bluestem, little bluestem, Indiangrass, and switchgrass. Common wildflowers include common milkweed, prairie false indigo, ox-eye daisy, large blazing-star, and common goldenrod.

Approximately 25 percent of the plants growing in Ohio are non-native, exotic or alien species that were not known to occur in Ohio prior to European settlement in the mid 1700s. These species reduce biodiversity by displacing native species. The most invasive species throughout the state include bush honeysuckles, buckthorn, garlic mustard, purple loosestrife, reed canary grass, autumn olive and Russian olive, multiflora rose, Japanese honeysuckle, Canada thistle, and tree-of-heaven. The scientific name of plant species in each community is listed below in Table 3.1-1.

Wildlife

The Ohio Division of Wildlife has legal authority over Ohio's fish and wildlife, which includes about 56 species of mammals, 200 species of breeding birds, 84 species and subspecies of amphibians and reptiles, 170 species of fish, 100 species of mollusks, and 20 species of crustaceans. The proposed CREP area contains some of the lowest quality of wildlife habitat in the Midwest region (Ohio DNR 2003b). Wildlife biodiversity is generally low in the region because of the extensive crop land and lack of suitable cover for nesting and reproduction. The scientific name of animal species mentioned in the text is listed in Table 3.1-2.

Whitetail deer is the primary big game animal in Ohio. Approximately 400,000 hunters participate in the deer-gun hunt and 200,000 deer are harvested annually. None of the counties in the proposed CREP area are in the top five total deer harvest counties statewide. Other game species include cottontail rabbit, gray

squirrel, and fox squirrel. Game birds include mourning dove, ring-necked pheasant, northern bobwhite, mallard and wood duck, ruffed grouse, and eastern turkey. Trapping seasons are provided for furbearers, including beaver and raccoon. Recreation is discussed in Sections 3.6 and 4.6. Recreation related socioeconomics is dscussed in Sections 3.7 and 4.7

Table 3.1-1 Scientific Names of Plant Community Species

Common Name	Scientific Name
Oak-Hickory Forest Community	
red oak	*Quercus rubra*
black oak	*Q. velutina*
white oak	*Q. alba*
chestnut oak	*Q. prinus*
mockernut hickory	*Carya tomentosa*
shagbark hickory	*C. ovata*
pignut hickory	*C. glabra*
bitternut hickory	*C. cordiformis*
black walnut	*Juglans nigra*
white ash	*Fraxinus americana*
basswood	*Tilia americana*
black cherry	*Prunus serotina*
redbud	*Cercis canadensis*
pawpaw	*Asimina triloba*
wild plum	*Prunus americana*
sour gum	*Oxydendron arboreum*
flowering dogwood	*Cornus florida*
sassafras	*Sassafras albidum*
spicebush	*Lindera benzoin*

Table 3.1-1 Scientific Names of Plant Community Species (cont'd.)

Common Name	Scientific Name
Beech-Maple Forest Community	
American beech	*Fagus grandifolia*
sugar maple	*A. saccharum*
red oak	*Q. rubra*
white ash	*F. americana*
white oak	*Q. alba*
black cherry	*P. serotina*
basswood	*T. americana*
shagbark hickory	*C. ovata*
ironwood	*Carpinus caroliniana*
eastern hophornbeam	*Ostrya virginiana*
spicebush	*L. benzoin*
hawthorn	*Carpinus spp.*
pawpaw	*A. triloba*
Elm-Ash Forest Community	
American elm	*Ulmus americana*
red elm	*U. rubra*
white ash	*F. americana*
green ash	*F. pennsylvanica*
red maple	*A. rubrum*
silver maple	*A. saccharinum*
blackhaw	*Virburnum prunifolium*
prickly ash	*Zanthoxylum americanum*
spicebush	*L. benzoin*
Prairie Habitat	
big bluestem	*Andropogon gerardii*
little bluestem	*Schizachirum scoparium*
Indiangrass	*Sorgastrum nutans*
switchgrass	*Panicum virgatum*
common milkweed	*Ascepias syriaca*
prairie false indigo	*Baptisia alba*
ox-eye daisy	*Chrysanthemum leucanthemun*
large blazing-star	*Liatris scariosa*
common goldenrod	*Solidago canadensis*

Table 3.1-1 Scientific Names of Plant Community Species (cont'd.)

Common Name	Scientific Name
Non-Native, Exotic Or Alien Species	
bush honeysuckle	*Lonicera spp.*
buckthorn	*Rhamnus frangula*
garlic mustard	*Alliaria petiolata*
purple loosestrife	*Lythrum salicaria*
reed canary grass	*Phalaris arundinacea*
autumn olive	*Eleagnus umbellata*
Russian olive	*E. angustifolia*
multiflora rose	*Rosa multiflora*
Japanese honeysuckle	*L. japonica*
Canada thistle	*Cirsium arvense*
tree-of-heaven	*Ailanthus altissima*

Table 3.1-2 Scientific Names of Animal Species

Common Name	Scientific Name
White-tailed deer	*Odocoileus virginianus*
Cottontail rabbit	*Sylvilagus floridanus*
Fox Squirrel	*Sciurus nigra*
Mallard	*Anas platyrhynchos*
Wood Duck	*Aix sponsa*
Eastern Turkey	*Meleagris gallopavo sylvestris*
Gray Squirrel	*S. carolinensis*
Mourning Dove	*Zenaida macroura*
Northern Bobwhite	*Colinus virginianus*
Ring-necked Pheasant	*Phasianus colchius*
Ruffed Grouse	*Bonasa umbellus*
Beaver	*Castor canadensis*
Raccoon	*Procyon lotor*

Aquatic Species

Aquatic wildlife biodiversity has been extensively sampled in the Scioto River watershed. The area includes 116 species of fish and 67 species of mussels (Ohio DNR 2003b). In addition, there are 20 species of crustaceans in Ohio. These species are affected by agricultural stresses such as habitat and hydrologic changes, sedimentation, and nutrient input. Aquatic wildlife biodiversity of the Scioto River Basin is recorded in databases maintained by Ohio DNR, Ohio EPA, and Ohio State University. Measures of fish and invertebrate community health and stream corridor quality indicate threats relative to agriculture.

Threatened, Endangered, and Sensitive Species

There are 127 animal species listed as endangered by the state of Ohio; 47 species are listed as threatened, 91 species are listed as species of concern, and 41 species are listed as special concern in Ohio. There are 13 animal species Federally listed in Ohio as threatened or endangered. There are 630 rare native Ohio plants; 254 are listed as endangered and 162 are listed as threatened by the state. Six Ohio plants are also included on the Federal list of endangered and threatened species (Ohio DNAP 2003). Less than half of the statewide listed species occur in the proposed CREP area.

The proposed CREP area contains 20 bird species, four mammal species, four amphibian species, five insect species, three reptile species, nine fish species, and 12 mussel species that are listed as state endangered or threatened. A total of seven animal species within the area are Federally listed as threatened or endangered (Table 3.1-3). Plant species listed by Ohio in the Scioto River watershed include 36 endangered species, 44 threatened species, and 59 potentially threatened species (see Appendix B). Four plants in the proposed CREP area are also Federally listed as threatened or endangered (Ohio DNAP 2003). Some species such as the state endangered Allegheney wood rat and Appalachian spiraea are primarily known from counties in the Scioto River watershed CREP area.

Critical Habitat

There are no Federal Wildlife Refuges, Wilderness Areas, or Critical Habitat in the vicinity of the proposed CREP area (Appendix A, U.S. Fish and Wildlife Service [USFWS] letter).

Table 3.1-3 Federally and State Listed Threatened and Endangered Animal Species in the Scioto River CREP Area

Common Name	Scientific Name	State Status	Federal Status
Mammals			
Allegheny woodrat	*Neotoma magister*	E	
Black bear	*Ursus americanus*	E	
Bobcat	*Lynx rufus*	E	
Indiana bat	*Myotis sodalis*	E	E
Birds			
Least Bittern	*Ixobrychus exilis*	T	
American Bittern	*Botaurus lentiginosus*	E	
Black-crowned Night-Heron	*Nycticorax nycticorax*	T	
Yellow-crowned Night-Heron	*N. violacea*	T	
Trumpeter Swan	*Cygnus buccinator*	E	
Osprey	*Pandion haliaetus*	E	
Northern Harrier	*Circus cyaneus*	E	
Bald Eagle	*Haliaeetus leucocephalus*	E	T
Peregrine Falcon	*Falco peregrinus*	E	
Upland Sandpiper	*Bartramia longicauda*	T	
Barn Owl	*Tyto alba*	T	
Least Flycatcher	*Empidonax minimus*	T	
Loggerhead Shrike	*Lanius ludovicianus*	E	
Bewick's Wren	*Thryomanes bewickii*	E	
Hermit Thrush	*Catharus guttatus*	T	
Golden-winged Warbler	*Vermivora chrysoptera*	E	
Magnolia Warbler	*Dendroica magnolia*	E	
Kirtland's Warbler	*D. kirtlandii*	E	
Canada Warbler	*Wilsonia canadensis*	E	
Lark Sparrow	*Chondestes grammacus*	E	

Table 3.1-3 Federally and State Listed Threatened and Endangered Animal Species in the Scioto River CREP Area (cont'd.)

Common Name	Scientific Name	State Status	Federal Status
Reptiles and Amphibians			
Eastern Hellbender	*Cryptobranchus alleganiensis*	E	
Mud Salamander	*Pseudotriton montanus*	T	
Green Salamander	*Aneides aeneus*	E	
Cave Salamander	*Eurycea lucifuga*	E	
Copperbelly Water Snake	*Nerodia erythrogaster neglecta*	E	T
Eastern Massasauga	*Sistrurus catenatus catenatus*	E	C
Timber Rattlesnake	*Crotalus horridus*	E	CP
Fish			
paddlefish	*Polyodon Spathula*	T	
goldeye	*Hiodon alosoides*	E	
rosyside dace	*Clinostomus funduloides*	T	
Blue sucker	*Cycleptus elongatus*	E	
Greater redhorse	*Moxostoma valenciennesi*	T	
Scioto madtom	*Noturus trautmani*	E	E
bluebreast darter	*Etheostoma camurum*	T	
Spotted darter	*Etheostoma maculatum*	E	
tippicanoe darter	*Etheostoma tippecanoe*	T	
Insects			
Eastern purplish copper	*Lycaena helloides*	E	
Hebard's noctuid moth	*Erythroecia hebardi*	E	
American burying beetle	*Nicrophorus americanus*	E	E
Kramer's cave beetle	*Pseudanophthalmus krameri*	E	
Ohio cave beetle	*P. ohioensis*	E	

Table 3.1-3 Federally and State Listed Threatened and Endangered Animal Species in the Scioto River CREP Area (cont'd.)

Common Name	Scientific Name	State Status	Federal Status
Mussels			
Washboard	*Megalonaias nervosa*	E	
Rabbitsfoot	*Quadrula cylindrica cylindrica*	E	
Clubshell	*Pleurobema clava*	E	E
Elephant ear	*Elliptio crassidens crassidens*	E	
Pondhorn	*Uniomerus tetralasmus*	T	
Threehorned wartyback	*Obliquaria reflexa*	T	
Fawn's foot	*Truncilla donaciformis*	T	
Black sandshell	*Ligumia recta*	T	
Rayed bean	*Villosa fabalis*	E	
Little spectaclecase	*V. lienosa*	E	
Snuffbox	*Epioblasma triquetra*	E	
Northern riffleshell	*Torulosa rangiana*	E	E
Rayed bean mussel	*Villosa fabalis*		CE
Sheepnose mussel	*Plethobasus cyphus*		CE
Plants			
Eastern prairie fringed orchid	*Planthera leucophaea*		T
Northern monkshood	*Aconitum noveboracense*		T
Small whorled pogonia	*Isotria medeoloides*		T
Virginia spiraea	*Spiraea virginiana*		T

E=endangered, T= threatened, C=candidate, CP=pre-listing conservation plan, CE= evaluation for candidate

Source *Ohio Department of Natural Resources, Division of Wildlife. Scioto Watershed list of T&E species. Updated 9/18/2002 and USFWS letter dated 4 December 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, 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 area encompassed by the proposed Scioto River watershed CREP agreement.

3.2.3 Affected Environment

3.2.3.1 Archaeological Resources

Due to its rich cultural history, there are thousands of archaeological sites recorded in the State of Ohio, many of which are found in the principal drainage basins of the state. As of June 2003, approximately 38,000 prehistoric and historic sites are included in the Ohio Archaeological Inventory maintained by the Ohio Historical Society, which serves as the State Historic Preservation Office (SHPO). The largest number of sites is recorded in south central Ohio (Ohio HPP 2003). The following reviews the principal prehistoric and historic periods relevant to the overall CREP agreement area.

Prehistoric Period

The prehistory of Ohio 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 Ohio, moving into central Ohio 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.

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 found in the Ohio region. They were mobile moving their camps to take advantage of seasonal resources. 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 subperiods – 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. Pottery manufacture, cultivation of native plants (sunflowers, sumpweed, goosefoot, may grass, gourds, and squashes), and burials under funerary mounds were introduced. Ohio was the home of Woodland cultures that produced vast, geometric earthworks. The Early Woodland in most of Ohio corresponds to the Adena complex, known from burial mounds and related sites. Burial mounds were typically conical, sometimes 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 (Ohio HPP 2003).

The Middle Woodland (ca. 100 B.C. – A.D. 500) saw elaboration of Early Woodland traits and is largely represented by the Hopewell culture. The "heartland" of the classic Hopewell is in south central Ohio and the greatest number of earthen mounds and enclosures occur in the Scioto, Ohio, and Great Miami river valleys. The Hopewell culture had elaborate ceremonial, mortuary, and exchanges systems and long distance trade. The Late Woodland (ca. A.D. 500–1000) is marked by decline in mortuary ceremonialism and interregional trade although settlements became larger. Habitation sites are in most large stream valleys and contain large middens and storage pits. 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. In central and southern Ohio, sedentary agricultural societies are referred to as the Fort Ancient tradition, whose village sites were fortified. Typical artifacts include bone and antler tools, ornaments, shell tempered pottery, triangular points, slate celts, and carved tablets, and marine shell incised gorgets (Ohio HPP 2003).

Protohistoric and Historic Period

During the Protohistoric period (ca. A.D. 1600–1750) there was active contact between European traders and Native Americans. The Iroquois Indians traded furs with French merchants who dominated the fur trade in what is now much of Ohio. The Indians exchanged beaver and other animal hides to French traders for muskets, iron tools, blankets, and colorful glass beads, which can be found on Native American sites. Permanent Native American settlements declined during the seventeenth century due to hostilities with Europeans and spread of diseases from their communities. During the Beaver Wars (1630-1700), the Iroquois drove out native people who were the descendants of Ohio's prehistoric cultures. However, by the early to mid eighteenth century, various Native American groups moved into Ohio from other areas. These included the Wyandotte (originally the Huron) from Canada, the Leni Lenape (Delaware) from the East, the Shawnee from the South, the Mingo (originally Seneca Iroquois) from New York, and the Miami from Indiana.

During the early Historic period (1750–1850), England acquired all French possessions in the Ohio Country as a result of the French and Indian War, which culminated with the Treaty of Paris (1763). With the treaty's signing, England received control of all French possessions in modern day Canada as well as all of the territory east of the Mississippi River, including the Ohio Country. Numerous battles occurred between the English and the Indians over the Ohio Country during the 1760s through 1780s. The British era ended with England's defeat in the American Revolution and America's acceptance of the Declaration of Independence in 1776. As new independent citizens, Americans could now move into the Ohio Country at will, although struggles continued between American settlers and the original native inhabitants (Ohio History Central 2003).

When Ohio became a state in 1803 Native American tribes still claimed parts of northern and northwestern Ohio. The Shawnee Chief Tecumseh and his brother the Shawnee Prophet united other tribes to fight against the United States. General Harrison defeated Tecumseh at the Battle of Fallen Timbers and Tecumseh was eventually killed at the Battle of Thames marking the end of native resistance in Ohio. By 1843, the United States had deported the remaining of Ohio's Indian tribes to reservations in Kansas and Oklahoma.

The United States Congress passed the Land Act of 1804 facilitating the purchase of Ohio lands by farmers. During the War of 1812 and afterwards, farmers bought many acres of land from the federal government. This land had been part of the Congress Lands, set aside by the national government as it organized the Northwest Territory (Ohio History Central 2003). During the War of 1812, many Ohio businesses began production to replace English goods no longer accessible to Americans. The Tariff of 1816 helped businesses in Ohio to compete with European factories. In Cincinnati, several businesses flourished by the late 1810s, including a textile mill, several distilleries and breweries, a cotton mill, and

at least one glass manufacturer. Ohio's abundance of raw materials including lumber, coal, iron, and waterpower aided industrialization in the state.

Archaeological Sites

More than 90 archaeological sites, almost all consisting of Woodland period mound and earthwork sites (Adena, Hopewell and Fort Ancient), are listed on the NRHP within the CREP area counties (Table 3.2-1). The largest number of NRHP listed mound or earthwork sites are in Ross County, which includes the Hopewell Mound Group and Hopewell Culture National Historic Park, followed by Franklin and Fairfield counties. Many other archaeological sites found in rural areas are eligible for listing the NRHP but have not been formally nominated.

Table 3.2-1 NRHP Archaeological Sites Located in CREP Area

County	NRHP Listed Archaeological Sites	County	NRHP Listed Archaeological Sites
Adams	4	Knox	3
Allen	0	Licking	7
Auglaize	0	Logan	2
Champaign	1	Madison	2
Clark	2	Marion	1
Clinton	4	Morrow	0
Crawford	0	Perry	1
Delaware	4	Pickaway	5
Fairfield	8	Pike	2
Fayette	1	Richland	0
Franklin	9	Ross	17
Greene	5	Scioto	4
Hardin	1	Union	1
Highland	5	Vinton	4
Hocking	4	Wyandot	0
Jackson	2		
		Total	**96**

Source: *Ohio Historical Preservation Office, National Register Database (November 12, 2003).* http://dbs.ohiohistory.org/hp/index.cfm

Historic period (1750-present) archaeological sites include both Native American and non-Native American sites. European traders, settlers, soldiers, and missionaries, encountered and interacted with the aforementioned Native groups. Historic archaeological sites include early homesteads, areas of larger settlement, individual residences and farmsteads, 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

Ohio historic architectural resources include homes, banks, stores, churches, businesses, factories, and schools, that reflect all aspects of the state's heritage. These historic resources are organized into themes that reflect life from approximately 1795 through 1950 (Ohio HPP 2003). The themes include *Agriculture, Art and Education, Commerce and Finance, Domestic Architecture, Education, Government, Social Welfare and Health, Industry and Manufacturing, Military, Religion, Settlement, Ethnic Groups and Migration,* and *Transportation, Science, and Communication*. More than 80 Historic Districts and nearly 850 individual NRHP properties are located in the CREP area counties (Table 3.2-2).

Most relevant to the proposed action are the *Settlement* and *Agriculture* themes. During westward expansion of the nation during the mid nineteenth century, Ohio's agricultural economy led the nation. The earliest settlers built homes in the valleys of the Scioto, Muskingum, and Miami rivers, and in the Western Reserve. Typically, early settlers built log homes and barns, which required hand hewn beams when the structures contained more than one room. Such buildings usually reflected the owner's origins: New Englanders in the Western Reserve and Virginians in the Military District.

During the nineteenth century, Ohio often led the nation in corn, and wheat production and had the largest number of swine horses, and sheep. This remarkable productivity is reflected in the number and variety of farmsteads across the state. Ohio has more barn types than any other Midwestern state and a rich collection of farmhouses, outbuildings and rural landscapes. Also evident was agricultural specialization such as dairy and cheese farms, wineries and grain and livestock farms (Ohio HPP 2003). Historic agricultural properties represented in NRHP listings include barns, farmhouses, silos, chicken coops, and agricultural fields. Most NRHP listed buildings date to 1850-1899, followed by the 1900-1924 period (Ohio HPP 2003). Given the state's rich farming heritage, most agricultural properties are located in the fertile river valleys as well as along transportation routes.

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 (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. In most cases, TCPs are associated with Native Americans but may also be associated with other sociocultural or ethnic groups. Traditional cultural properties 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

(USDI 1998). There are currently no federally recognized Native American tribes in Ohio, although numerous tribes no longer present in the state have traditional ties to the region.

Table 3.2-2 Numbers of NRHP Listed Historic Districts and Individual Historic Properties in CREP Area

County	NRHP Listed Historic Districts	NRHP Listed Properties
Adams	1	11
Allen	0	35
Auglaize	1	21
Champaign	3	28
Clark	2	28
Clinton	3	8
Crawford	1	25
Delaware	3	50
Fairfield	4	34
Fayette	1	13
Franklin	27	264
Greene	5	27
Hardin	3	1
Highland	3	19
Hocking	1	7
Jackson	0	10
Knox	3	36
Licking	3	47
Logan	0	7
Madison	2	7
Marion	0	12
Morrow	0	16
Perry	2	10
Pickaway	2	20
Pike	2	4
Richland	1	63
Ross	4	19
Scioto	3	35
Union	1	5
Vinton	0	6
Wyandot	1	9
Total	**83**	**849**

Source: Ohio Historical Preservation Office, National Register Database (November 12, 2003) http://dbs.ohiohistory.org/hp/index.cfm

Few TCPs have been identified in southcentral Ohio, and the Ohio SHPO does not maintain a list of TCPs in the state (Quinlan 2003). Existing federally recognized tribes with traditional ties to Ohio include the Shawnee Tribe, Seneca Tribe, Wynadotte Nation, Leech Lake Band Ojibwe, Delaware Nation, Eastern Shawnee Tribe of Oklahoma (Federal Register 2002). These tribes are typically contacted by the U.S. Army Corps of Engineers (COE) Huntington District as part of the cultural resources review process for Federal undertakings within the state; however the district does not maintain a list of TCPs (Fudge 2003).

3.3 WATER RESOURCES

3.3.1 Definition of Resource

The Clean Water Act 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, impaired waters, groundwater, wetlands, and floodplains. Surface water includes streams and rivers. Impaired waters are defined by the EPA)as those surface waters with levels of pollutants that exceed 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. For this analysis, groundwater includes sole source aquifers. Wetlands are defined by the 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 inundation by a 100-year flood, a flood that has a 1 percent chance of being equaled or exceeded in any given year.

3.3.2 Region of Influence

The ROI for water resources includes the surface water, groundwater, wetlands, and floodplains in the area encompassed by the proposed Scioto River watershed CREP agreement including the Scioto River, its tributaries, the Ohio River, and waters downstream.

3.3.3 Affected Environment

Surface Water

The Scioto River's headwaters are located in western Ohio in Hardin County, near its border with Auglaize and Logan Counties. The Scioto runs east to central Marion County where it meets the Little Scioto River and turns south and runs through Columbus to Ohio's border with Kentucky where it joins the Ohio River in Portsmouth (Figure 3.3-1). The proposed Ohio CREP is comprised of three watersheds: the Upper Scioto, Lower Scioto, and Paint Watersheds (EPA 2004a). The Upper Scioto Watershed covers the northern portion of the CREP area including the Scioto River's headwaters, the Little Scioto, Darby, Big Darby, Walnut, and Big Walnut Creeks. The Lower Scioto River Watershed covers much of the southern portion of the proposed CREP area. It contains the Scioto River from Circleville to Portsmouth, as well as Salt and Deer Creeks. Paint Watershed covers the central western portion of the CREP area. Paint Creek joins the Scioto River at Chillicothe. Major tributaries of Paint Creek are North Fork Paint, and Rattlesnake Creeks (Figure 3.3-1).

Concentrated animal feeding operations (CAFO) are large livestock operations that are required to hold permits, file annual reports, and follow plans for handling wastes and wastewater. There are 17 CAFOs in the proposed CREP area. These include chicken, cattle, dairy, and swine operations located in Marion, Madison, Union, Hardin, Pickaway, Scioto, Morrow, and Fairfield Counties.

Impaired Waters

Table 3.3-1 shows the number of designated impaired waters and the number of reported impairments in each of the watersheds in the proposed CREP area. There are 74 designated impaired waters with a total of 213 reported impairments in the Upper Scioto Watershed; 41 impaired waters with 92 impairments in the Lower Scioto Watershed; and 17 designated impaired waters with a total of 24 reported impairments in the Paint Watershed.

Table 3.3-1 Number of Impaired Waters and Reported Impairments for the Watersheds in the Proposed Scioto River CREP Area

Watershed	Impaired Waters	Number of Impairments
Upper Scioto River	74	214
Lower Scioto River	41	92
Paint Creek	17	24

Source: EPA 2004a

Figure 3.3-1 Water Resources in the Proposed CREP Area

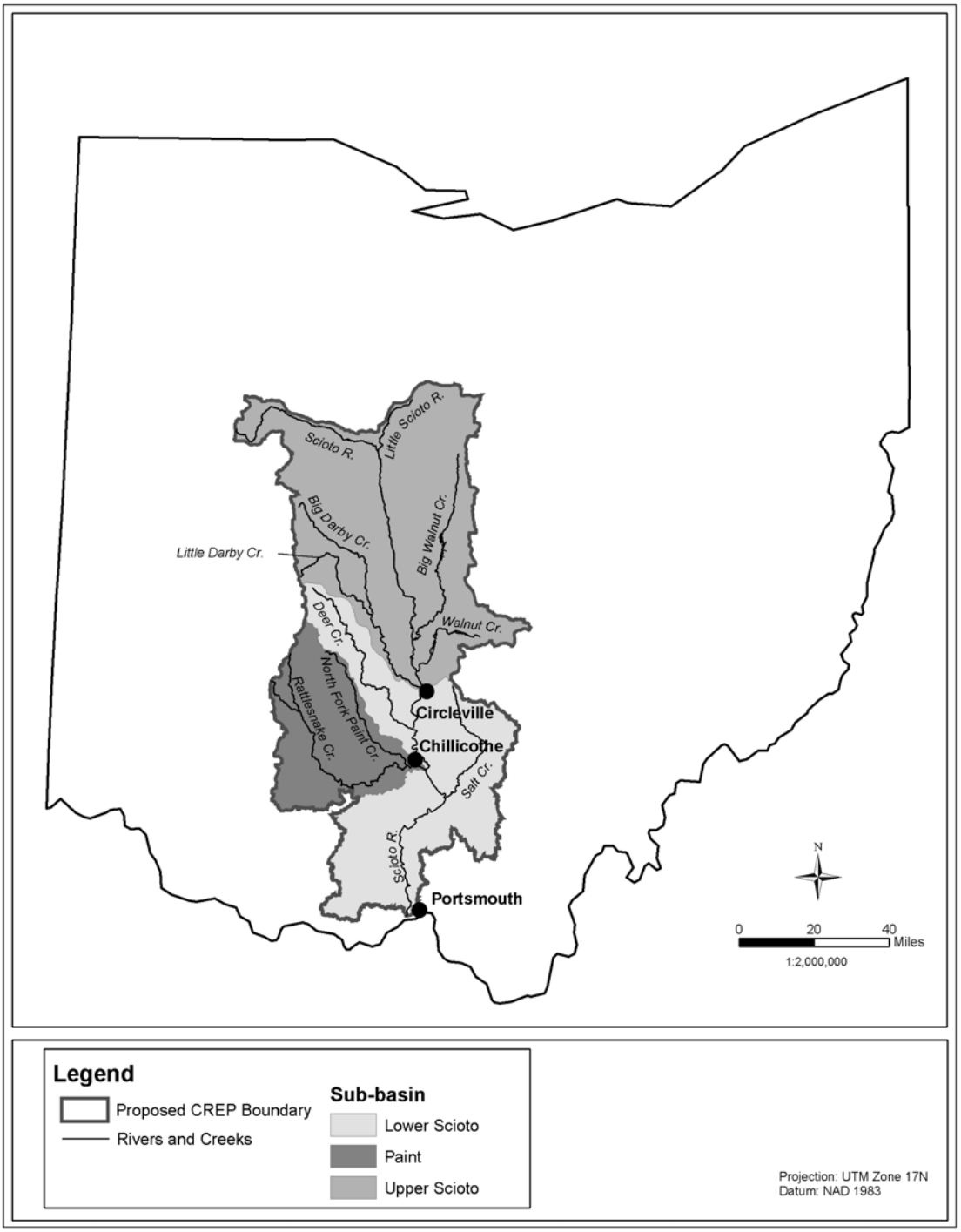


Table 3.3-2 contains number of impairments reported in each of the three watersheds of the proposed CREP area. The most frequently occurring impairments in both the Upper and Lower Scioto River Watersheds are organic enrichment/low dissolved oxygen, habitat alterations, siltation, and nutrients. The most frequently reported impairments are organic enrichment/low dissolved oxygen, habitat alterations, metals, and siltation in the Paint Creek Watershed. Organic enrichment and low dissolved oxygen and elevated nutrient levels can result from runoff from cropland, pastureland and other livestock operations, orchards and nurseries, landfills, and lawns and gardens. Siltation results from streambank erosion and runoff from cropland, construction, and mining. Metals impairments may result from mining operations, vehicle emissions, and landfills.

Table 3.3-2 Number of Impairments Reported in the Upper Scioto, Lower Scioto, and Paint Watersheds

Impairment	Upper Scioto	Lower Scioto	Paint Creek
Organic Enrichment/Low Dissolved Oxygen	51	16	6
Habitat Alterations	33	17	4
Siltation	29	18	3
Nutrients	27	5	2
Flow Alteration(s)	12	2	
Ammonia	10	6	1
Metals	10	6	3
Priority Organics	8	2	
Pathogens	5		1
Unknown Toxicity	5	6	
Pesticides	5	1	
Turbidity	4	2	1
Oil and Grease	3		
Suspended Solids	3	1	1
Filling and Draining	2	1	
Thermal Modifications	2		
Chlorine	1	1	
Total Toxics	1		
Unknown	1	3	
Noxious Aquatic Plants	1	2	1
Other Inorganics		2	
Radiation		1	
pH			1
Total Impairments	**213**	**92**	**24**

Source: EPA 2004a

Groundwater

In the eastern part of the proposed CREP area, groundwater is contained in the sandstone of the Pennsylvanian aged aquifer. In the central part of the proposed CREP area, groundwater is contained in the Mississippian aged aquifer, a sandstone and carbonate rock aquifer. In the western part of the proposed CREP area, groundwater is contained in the carbonate rock of the Silurian Devonian aged aquifer. Fresh water recharge of these aquifers is primarily by precipitation. Reported yields of wells completed in all these units range from 30 to 300 gallons per minute, but some wells yield as much as 600 gallons per minute (WPC 2003; USGS 1997). There are no sole source aquifers in the ROI (EPA 2004b).

Wetlands

The 1987 COE Wetland Delineation Manual (USACE 1987) specifies three criteria for the identification of wetlands: hydrophytic vegetation, hydric soil, and positive indicators of wetland hydrology. Wetlands are defined by the 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 approximately 216,106 acres of wetlands in the counties in the proposed CREP area. Table 3.3-3 shows acreages of wetlands in each county based on the National Wetland Inventory.

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 1988, Floodplain Management, requires that federal agencies

> "take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health 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. There are 329,389 acres of 100-year floodplains associated with surface waters in the proposed CREP area (Ohio DNR 2004a).

Table 3.3-3 Acreages of Wetlands Based on the NWI

County Name	Wetland Acreage
Adams	1,807.33
Allen	11,482.30
Auglaize	3,653.80
Champaign	5,433.45
Clark	8,708.29
Clinton	5,960.78
Crawford	3,210.89
Delaware	18,889.23
Fairfield	3,746.81
Fayette	946.91
Franklin	12,662.77
Greene	5,085.03
Hardin	8,727.66
Highland	4,252.88
Hocking	1,918.33
Jackson	2,078.26
Knox	7,286.45
Licking	11,735.23
Logan	15,245.32
Madison	5,348.25
Marion	9,213.77
Morrow	2,212.09
Perry	4,842.67
Pickaway	6,847.98
Pike	2,274.26
Richland	16,817.10
Ross	5,867.67
Scioto	3,348.77
Union	11,780.60
Vinton	1,656.69
Wyandot	13,064.76
Total	**216,106.33**

Source: Ohio Wetland Restoration and Mitigation Strategy Blueprint (Ohio DNR & Ohio EPA 1999)

3.4 EARTH RESOURCES

3.4.1 Definition of Resource

In this analysis, earth resources are defined as topography and soils. Topography describes the elevation and slope of the terrain, as well as other visible land features. Soils are assigned to taxonomic groups and can be further classified into associations.

3.4.2 Region of Influence

The ROI for earth resources includes the area proposed for enrollment in Scioto River watershed CREP agreement.

3.4.3 Affected Environment

Topography

The Ohio Department of Natural Resources (Ohio DNR) divides the CREP area into four physiographic regions: the Glaciated Appalachain Plateau, Unglaciated Appalachain Plateau, Till Plains, and Bluegrass Region (Ohio DNR 2003).

The Glaciated Appalachain Plateau Region is carved by glaciers and ancient streams; this region is less hilly and lacks the rugged quality of the unglaciated landscape. Following glaciation, many streams reversed their flow, cutting new paths throughout the region. Evidence of the region's glacial past includes bogs, kettle lakes, and a landscape marked by small hills of sand and gravel.

The Unglaciated Appalachain Plateau Region in southeastern Ohio features deep valleys, high hills, and winding streams. The dominant sandstone is resistant to erosion and supports a variety of cliffs, gorges, natural bridges, and waterfalls. The topography in this region is rough, and a long belt of high hills on the eastern edge.

The Till Plain Region is characterized by gently rolling hills and fertile soils. Most hills are a series of moraines, glacier-created mounds of rock and soil up to 100 feet high and six miles wide. Glaciers created terraces along valley sides and new drainage patterns, including the Ohio River.

The Bluegrass Region is a small, triangular region that reaches up into Adams County from Kentucky. The area is characterized by flat-topped hills and uplands rimmed by cliffs. Limestone, dolomite, and shale bedrock dominate the region and its landscape moves from gentle slopes to steep slopes, depending

on erosion. Some uplands are marked by sink holes or depressions that formed in rocks composed mainly of chalk.

Soils

Soils are arranged in the following classification from most general to most specific: order-suborder-great group-subgroup-family-series. The Scioto River CREP is comprised of many different soil series, which have been grouped into larger soil regions based on similarities in soil composition, thickness, and arrangement. Soil series in Ohio have been grouped into regions by Ohio State University and are described below. Regions I, II, III, IV, VI, and VII occur in the CREP area (Ohio State University 1996).

Soil properties of Region I have been influenced by water impoundment during glaciation, which resulted in deposits of fine sediment in deeper areas of historic lakes and coarse sediments near lake margins. Textures of these soils range from fine (clay) to coarse (sand). The Ohio DNR lists the Hoytville, Nappanee, Paulding and Toledo soil series as common in this Region (Ohio DNR 2004b).

Soils of Region II were developed in glacial till containing considerable limestone material and clay. Textures of these soils range from medium (silt) to fine (clay). The Blount, Pewamo and Glynwood soil series are common in this Region.

Soils of Region III reflect a lesser influence of clay compared with the fine-textured soils of Region I and II. The glacial till is medium textured. The amount of silty material in these soils increases from the north to the south with values of 65 to 70 percent silt in the plow layer being common in the southern part of this region. The Miamian, Kokomo and Eldean soil series are common in this Region.

Region IV is one of the oldest glaciated areas in Ohio. The soils in this region are extensively weathered and extend to a considerable depth. Topsoil usually extends to a depth of 10 to 12 inches; total soil depth may exceed 8 feet (although the deeper soil depths contribute little to plant growth). The Clermont, Rossmoyne, Avonburg and Cincinnati soil series are common in this Region.

The glacial till in Region VI is predominately medium textured, with some areas of fine texture. Calcium carbonate (lime) content of the glacial till increases from east to west with the eastern area containing mostly sandstone and shale fragments and the western area containing considerable limestone. Two soil properties peculiar to some of the soils in this area are the high content of extractable aluminum, which increases lime requirements, and dense, medium-textured subsoil "pans." The Bennington, Cardington and Centerburg soil series are common in this Region.

Glaciation has had little influence on the soils in Region VII, with the exception of the alluvial or terrace soils formed from the movement of glacially derived material down stream valleys. This soil region is in

the foothills of the Appalachian plateau, and the soils are developed on weathered materials derived from sandstone, shale, and limestone. Because considerable mass movement of material has occurred on these slopes, many of the soils are mixtures of bedrock materials. The Shelocta, Brownsville, Latham and Steinsburg soil series are common in this Region.

3.5 AIR QUALITY

3.5.1 Definition of Resource

The Clean Air Act 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}). The Clean Air Act 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 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.

3.5.1 Region of Influence

The ROI for this air quality analysis includes the Air Quality Control Regions which encompass the following counties: Adams, Allen, Auglaize, Champaign, Clark, Clinton, Crawford, Delaware, Fairfield, Franklin, Fayette, Greene, Hardin, Highland, Hocking, Jackson, Knox, Licking, Logan, Madison, Marion, Morrow, Perry, Pickaway, Pike, Richland, Ross, Scioto, Union, Vinton, and Wyandot.

3.5.2 Affected Environment

The State of Ohio Environmental Protection Agency (EPA) Division of Air Pollution Control monitors the air quality in the state of Ohio. The Division's mission is "To attain and maintain the air quality at a level that will protect the environment for the benefit of all" (Ohio EPA 2002). The division implements and regulates many air toxic reduction programs throughout the state. These programs focus on prevention measures for pollutants that pose the greatest risk to the public and environment.

OH 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). OH EPA 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. The overall air quality in Ohio is good and all counties within the ROI are in attainment of NAAQS.

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 water-related activities.

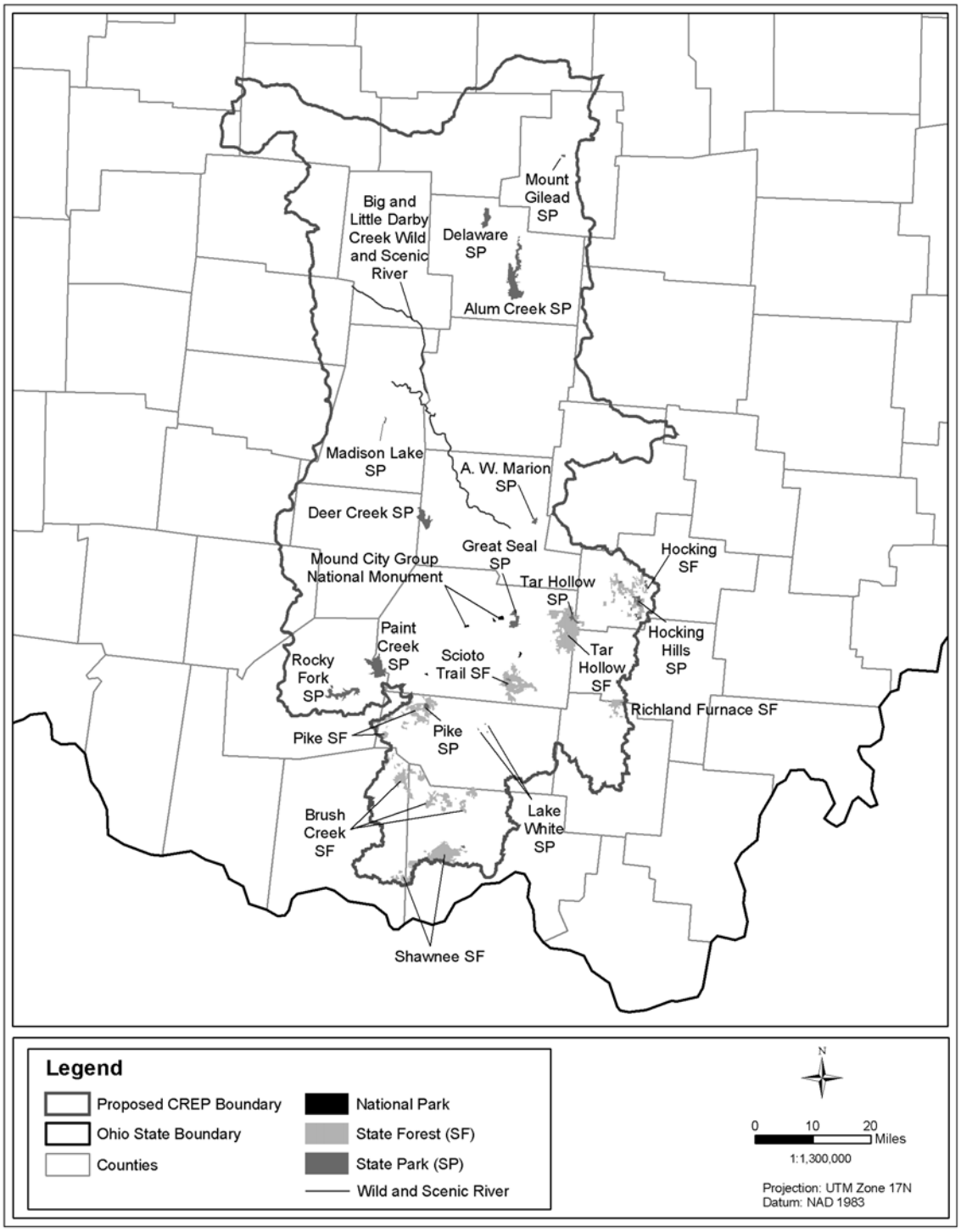
3.6.2 Region of Influence

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

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 (Figure 3.6-1). There are 13 state parks and seven state forests in the proposed CREP area and one national monument. Additionally, 82 miles of the Big Darby Creek and its tributary, Little Darby Creek, are designated as Wild and Scenic 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. The economics of recreational activities can be found in Sections 3.7 and 4.7, Socioeconomics. Important fish and game species are discussed in Sections 3.1 and 4.1, Biological Resources. Water quality is discussed in Sections 3.3 and 4.3, Water Resources.

Figure 3.6-1 State and Federal Recreational Lands in the Proposed 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: Adams, Allen, Auglaize, Champaign, Clark, Clinton, Crawford, Delaware, Fairfield, Fayette, Franklin, Fayette, Greene, Hardin, Highland, Hocking, Jackson, Knox, Licking, Logan, Madison, Marion, Morrow, Perry, Pickaway, Pike, Richland, Ross, Scioto, Union, Vinton, and Wyandot.

3.7.3 Affected Environment

3.7.3.1 Demographic Profile

The total population within the ROI exceeded 2.9 million people in 2000, which was an approximately 10 percent increase over the population of 1990 (USCB 1993, 2003). The majority of the population (72 percent) was located within urban areas or urban clusters (USCB 2003). Only 1.8 percent of the total population was located on farms. This was a decrease of approximately 22.7 percent from the 1990 farm population (USCB 1993).

Demographically the ROI population was 86 percent White, non-Hispanic, 9 percent Black or African American, non-Hispanic, 0.3 percent Native American or Alaska Native, non-Hispanic, 1.5 percent Asian, non-Hispanic, 0.03 percent Native Hawaiian or Pacific Islander, non-Hispanic, 1.7 percent all other races or combination of races, non-Hispanic, and 1.4 percent Hispanic (USCB 2003). The total minority population within the ROI was 407,752 or 14 percent of the total ROI population (USCB 2003). The ROI is not a location of a concentrated minority population.

In 1997, Hispanics operated 68 farms within the ROI, Black or African Americans operated 30 farms, and Native Americans operated 29 farms (USDA 1999). The ROI accounts for 20.3 percent of all minority farm operators within the state of Ohio, while these 127 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 1990 and 2002 the non-farm labor force within the ROI ranged from 1.38 million in 1992 to 1.56 million in 2002 (Bureau of Labor Statistics [BLS] 2003). Non-farm employment also ranged during this period from a low of 1.27 million positions in 1990 to a high of 1.54 in 1998 (BLS 2003). The unemployment rate within the ROI varied from a high of 6.56 percent in 1992 to a low of 3.48 in 2000 (BLS 2003). Within the ROI, Adams County has experienced the highest average non-farm unemployment rate for the period (11.80 percent), with the highest rate occurring in 1993 (14.8 percent) (BLS 2003).

Median household income in 1999 ranged within the ROI, the highest median household income occurring in Delaware County ($67,258) and the lowest median household income occurring in Scioto County ($28,008) (USCB 2003). The average poverty rate for the ROI in 2000 was 10.5 percent, a decrease of approximately 2.5 percent from the 1990 poverty rate (USCB 1993, 2003). The 2000 poverty rate varied from a high of 20.0 percent in Vinton County to a low of 3.85 percent in Delaware County (USCB 2003). Vinton County would be considered a poverty area, while other counties within the ROI would not be considered poverty areas.

3.7.3.3 Farm Employment and Income

In 1997, there were 25,295 farm workers on 6,623 farms within the ROI accounting for a payroll of $99.7 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 1,511 large farms had sales greater than $250,000 (USDA 1999). Realized net farm income was in excess of $129.6 million in 2001, which was a 35.6 percent increase compared to the 1992 realized net farm income (Bureau of Economic Analysis [BEA] 2003). Total government payments to farms within the ROI exceeded $313.1 million in 2001, an increase of 290.9 percent over the 1992 government payments to farms within the ROI (BEA 2003). Farm proprietor's income within the ROI in 2001 exceeded $67.5 million, while farm wages and perquisites was approximately $115.7 million (BEA 2003). This accounted for a decrease of 70.7 percent in farm proprietor's income from the 1990 figures and an increase of 44.1 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 Ohio	314,865	19,117	3,608,839	9.25	259,501	16,012	3,119,014	8.83
Adams	1,010	365	21,754	6.32	1,215	213	17,091	8.36
Allen	1,047	95	45,115	2.53	1,873	110	39,799	4.98
Auglaize	2,675	466	67,634	4.64	1,877	118	53,890	3.70
Champaign	2,917	261	55,468	5.73	2,667	116	45,301	6.14
Clark	10,720	127	56,843	19.08	8,184	94	53,091	15.59
Clinton	2,194	139	46,572	5.01	2,181	140	43,345	5.35
Crawford	3,130	373	56,943	6.15	1,635	125	45,581	2.86
Delaware	5,450	416	41,320	14.20	3,826	181	33,384	12.00
Fairfield	3,027	268	40,018	8.23	1,815	120	35,843	5.40
Fayette	2,537	109	48,722	5.43	2,147	62	41,772	5.29
Franklin	5,060	875	26,629	22.29	6,568	(d)	31,810	(d)
Greene	3,542	112	42,123	8.67	3,188	422	41,262	8.75
Hardin	4,165	626	77,085	6.22	1,391	147	41,341	3.72
Highland	1,239	80	35,809	3.68	1,369	60	35,487	4.03
Hocking	108	3	4,361	2.55	(d)	(d)	2,538	(d)
Jackson	(d)	11	15,843	(d)	(d)	(d)	13,883	(d)
Knox	3,075	349	49,054	6.98	2,410	316	47,355	5.76
Licking	17,844	324	109,335	16.62	4,710	203	83,660	5.87
Logan	7,866	100	70,844	11.24	3,001	145	46,240	6.80
Madison	2,597	154	54,842	5.02	2,954	46	49,778	6.03
Marion	2,152	46	50,211	4.38	1,784	170	38,513	5.07
Morrow	1,525	73	30,476	5.24	1,486	85	29,261	5.37
Perry	1,135	26	12,455	9.32	345	45	11,695	3.33
Pickaway	2,465	760	53,844	5.99	2,633	139	47,292	5.86
Pike	321	55	6,891	5.46	615	19	8,188	7.74
Richland	2,231	156	38,392	6.22	2,684	132	37,002	7.61
Ross	1,524	535	35,975	5.72	2,086	73	34,687	6.22
Scioto	574	105	11,425	5.94	1,046	25	13,857	7.73
Union	5,426	330	49,913	11.53	7,259	131	63,814	11.58
Vinton	(d)	15	1,710	(d)	250	(d)	2,117	(d)
Wyandot	2,166	518	47,769	5.62	1,446	129	38,325	4.11

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

3.7.3.4 Farm Production Expenses and Returns

In 2001, farm production expenses exceeded $2.1 billion within the ROI an increase of 26.8 percent over 1992 (BEA 2003). Using the 1997 acreage in active farm production (4,943,346 acres), the average cost per acre within the ROI in 1997 was $392.55 (USDA 1999; BEA 2003). Using 1997 cropland, the cost per acre of agricultural chemicals inputs, including fertilizers and lime, was $59.72 (USDA 1999). Average net cash return per farm within the ROI was $18,209 in 1997 (USDA 1999). The average net cash receipts per acre within the ROI in 1997 were $74.22 (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 Ohio	206	52,614	255	15,152	73.55	0.29
Adams	148	16,543	112	4,418	29.85	0.27
Allen	207	49,199	238	14,373	69.43	0.29
Auglaize	213	67,634	318	18,056	84.77	0.27
Champaign	265	66,270	250	19,010	71.74	0.29
Clark	256	84,714	331	29,012	113.33	0.34
Clinton	293	61,279	209	21,928	74.84	0.36
Crawford	318	80,089	252	23,748	74.68	0.30
Delaware	256	65,796	257	14,838	57.96	0.23
Fairfield	192	39,042	203	14,215	74.04	0.36
Fayette	466	93,876	201	44,533	95.56	0.47
Franklin	196	65,589	335	31,953	163.03	0.49
Greene	233	55,135	237	18,381	78.89	0.33
Hardin	295	92,097	312	44,859	152.06	0.49
Highland	196	28,902	147	8,587	43.81	0.30
Hocking	136	12,353	91	(1,037)	(7.63)	(0.08)
Jackson	181	38,832	215	6,242	34.49	0.16
Knox	187	44,473	238	11,060	59.14	0.25
Licking	195	89,766	460	14,433	74.02	0.16
Logan	245	79,244	323	18,245	74.47	0.23
Madison	393	82,222	209	41,420	105.39	0.50
Marion	406	92,469	228	30,749	75.74	0.33
Morrow	212	40,205	190	13,052	61.57	0.32
Perry	159	20,552	129	3,747	23.57	0.18
Pickaway	380	76,701	202	35,270	92.82	0.46
Pike	180	15,878	88	811	4.51	0.05
Richland	171	42,329	248	12,459	73.39	0.30
Ross	284	40,650	143	14,358	50.56	0.35
Scioto	163	18,135	111	4,423	27.13	0.24
Union	252	61,621	245	25,079	99.52	0.41
Vinton	184	8,465	46	(1,160)	(6.30)	(0.14)
Wyandot	344	78,568	228	27,342	79.48	0.35

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 Ohio	206	414,773	57,624
Adams	148	209,292	34,936
Allen	207	446,141	72,204
Auglaize	213	464,180	74,847
Champaign	265	560,610	75,257
Clark	256	595,179	71,582
Clinton	293	606,000	67,467
Crawford	318	577,797	83,867
Delaware	256	721,125	53,398
Fairfield	192	481,505	54,305
Fayette	466	914,031	100,328
Franklin	196	587,588	64,267
Greene	233	549,034	68,346
Hardin	295	483,248	31,227
Highland	196	354,224	48,268
Hocking	136	219,650	31,917
Jackson	181	222,050	50,859
Knox	187	364,165	49,614
Licking	195	466,330	56,076
Logan	245	383,294	56,601
Madison	393	809,729	93,721
Marion	406	701,416	111,250
Morrow	212	379,932	46,281
Perry	159	216,608	33,473
Pickaway	380	784,227	78,633
Pike	180	230,011	43,900
Richland	171	328,597	53,580
Ross	284	431,653	47,785
Scioto	163	218,310	34,189
Union	252	530,649	71,748
Vinton	184	184,743	21,814
Wyandot	344	565,793	93,085

Source: USDA 1999

3.7.3.5 Current Agricultural Land Use Conditions

In 1997, 4.94 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 2.0 percent from the 1992 figures (5.05 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. Active conservation programs acreage

for all program years (1986-2005) included 143,536 acres (active CRP), 4,032 acres (continuous CREP), 18,241 acres (continuous non-CREP), 1,662 acres (Wetland Reserve Program [WRP]), 578 acres (marginal pastures), and 9,397 acres (tree practices) within the ROI. Approximately 200,491 acres of farmland was lost to development between 1992 and 1997, a loss of 3.6 percent (USDA 1999).

Table 3.7-4 Agricultural Land Use Acreage within the ROI

Land Use	1997	1992	Percent Change
Cropland 1	4,045,098	4,102,387	(1.40)
Hay land 2	344,814	334,912	2.96
Pastureland 3	553,434	610,915	(9.41)
Woodland 4	425,731	383,364	11.05
House lots, ponds, roads, wasteland, etc.	244,162	214,167	14.01
CRP & WRP 5	189,101	96,102	96.77
Active Agriculture 6	4,943,346	5,048,214	(2.08)
Total Land in Farms 7	**5,444,943**	**5,645,434**	**(3.55)**

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

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 3.8 percent to 3.4 million persons between 1996 and 2001 in Ohio. Total expenditures for wildlife-related recreation activities was approximately $2.3 billion in 2001, a 15.9 percent increase over 1996 (USFWS 1997, 2002). Total expenditures for hunting related activities in Ohio increased 23.7 percent to $636.5 million in 2001, while sport fishing expenditures declined 8.9 percent to $761.6 million (USFWS 1997, 2002). Wildlife viewing expenditures increased 37.0 percent to $623.1 million in 2001 (USFWS 1997, 2002).

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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; aquatic species; and threatened, endangered, and sensitive species have been displaced from years of crop production on these lands. Implementation of the Preferred Alternative would not have adverse impacts on biological resources.

The project objectives to reduce sediment and phosphorus loading by 20 percent and nitrate loading by 30 percent by the end of the 10-year implementation period would improve habitat conditions for wildlife, especially aquatic species. Enrollment of riparian areas and HEL, including alluvial floodplain soil and upland areas with potential to deliver sediment runoff to watercourses would benefit all biological resources. Providing perpetual conservation easements for all riparian corridor and wetland and wildlife practices would result in long-term benefits for biological resources in the proposed CREP area.

Vegetation

Every CP that is proposed for implementation under the Scioto River watershed CREP would contribute to vegetation diversity in the proposed CREP area. In particular, establishment of permanent native grasses (CP2) and riparian buffers (CP22) would benefit vegetation resources in the CREP area. The native forest types are generally associated with riparian areas and the adjacent uplands. Establishment of tree planting (CP3) and hardwood tree planting (CP3A) areas would benefit forest resources in the proposed CREP area. In addition, establishment of native plant communities would help to reduce occurrences of exotic plant species. Vegetation restoration would increase biodiversity and improve water quality throughout the 70,000 acres proposed for enrollment.

Wildlife

Associated with improved habitat conditions, wildlife diversity in the proposed CREP area would increase from implementation of conservation practices. 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 (CP4B and CP4D), shallow water areas for wildlife (CP9), and establishment

of filter strips (CP21 and CP15A). Establishment of riparian buffers (CP22) would enhance stream corridor quality and important habitat for neo-tropical and other migratory and nesting birds.

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 Scioto River watershed CREP agreement, the Ohio DNR would provide technical assistance regarding wildlife resources. Because target levels for most of Ohio's rural counties are based on farmer tolerances for crop depredation, the likelihood of widespread agricultural problems are expected to be minimal when deer populations are maintained at target levels. However, some localized damage could occur and in these instances, producers would be eligible for a Deer Damage Control permit from Ohio DNR. This technical support would recommend and help implement procedures to ensure that wildlife populations remain within the habitat carrying capacity in the area.

Increased wildlife populations, especially game birds and deer, could enhance the socioeconomic value of agricultural lands for hunting, wildlife watching, and other outdoor recreational activities. However, the expected returns would not be realized until several years after implementation of the proposed CREP because of the time required for development of vegetation and travel corridors.

Aquatic Species

Aquatic biodiversity in the proposed CREP area would benefit from reduced levels of nutrient and sediment loading to surface waters from agricultural activity. Lower nutrient concentrations in the streams would improve the health of fish and invertebrate communities, as well as stream corridor quality. In particular, establishment of filter strips (CP21), riparian buffers (CP22), wetland restoration (CP23), and shallow water areas for wildlife (CP9) would enhance aquatic biodiversity in the CREP area and downstream. Aquatic species would benefit from the targeting of conservation practices to alluvial floodplain soils, hydric, and hydric-included soils, and HEL. These practices would provide filter strips, riparian buffers, and wetland restoration areas in the 100-year floodplain for protection and enhancement of water quality, which would increase aquatic biodiversity in the proposed CREP area.

Threatened, Endangered, and Sensitive Species

Implementation of the proposed CREP would have positive impacts on threatened, endangered, and sensitive species. 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 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 and there would be no change to existing biological resources in the Scioto River watershed CREP area.

4.2 CULTURAL RESOURCES

4.2.1 Alternative A - Preferred

Archaeological Resources

Due to the rich cultural and archaeological 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 archeological review will be completed prior to implementation of the contract as part of the environmental evaluation. Results and recommendations from the review should receive concurrence for the Ohio SHPO prior to project implementation.

Architectural Resources

The CREP agreement area contains a rich architectural history related to early settlement and agricultural themes of Ohio's history. Should proposed conservation practices include the removal or modification of historic architectural resources included in or eligible for the NRHP, a historic architectural resources survey (Ohio Historic Inventory) would be required in order to determine whether such resources are present.

Traditional Cultural Properties

Because the areas of potential effect of CREP actions are not yet defined, no Native American sacred sites or TCPs are identified. Once these areas are 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, Seneca Tribe, Wynadotte Nation, Leech Lake Band Ojibwe, Delaware Nation, Eastern Shawnee Tribe of Oklahoma (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 or plowing in areas not previously plowed, could result in impacts to known or unknown archeological, architectural, or traditional cultural resources.

4.3 WATER RESOURCES

4.3.1 Alternative A - Preferred

Implementation of the proposed conservation practices listed in Section 2.1 would improve surface water quality within the proposed CREP area by reducing agriculture sourced nutrient and sediment loading within the region's streams and rivers. Reductions in nutrient and sediment loading, would occur as a result of the proposed action. Activities such as vegetation clearing and soil disturbance may occur during the installation of the CPs. These activities could result in temporary and minor impacts to surface water quality resulting from runoff associated with these activities. Use of filter fencing or similar practices would reduce these impacts.

Implementing the proposed conservation practices is expected to have positive impacts on groundwater quality in the proposed CREP area. Agricultural acreages would be reduced which would decrease the amount of nutrients leaching into groundwater sources.

Implementation of the proposed conservation practices CP9 (Shallow Water Areas for Wildlife), CP22 (Riparian Buffer) and CP23 (Wetland Restoration) is expected to increase the acreages of wetlands and riparian habitat in the proposed CREP area. As with surface water, temporary and minor increases in runoff could occur during the installation of the proposed conservation practices.

4.3.2 Alternative B - No Action

Under Alternative B, the No Action Alternative, the CPs described in Section 2.1 would not be implemented and no change to existing surface water, groundwater or wetland acreage would occur. Continued runoff of agricultural chemicals, erosion of soils, and the impacts of these to surface and groundwater quality would be expected if the preferred alternative were implemented.

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 increased pollutant concentrations; or exceeded any significance criteria established by SIP.

4.5.1 Alternative A - Preferred

Implementation of Alternative A would result in establishment of CPs as described on up to 70,000 acres of farmland in 31 counties in the Scioto River Watershed. Preparing the lands for CPs could include activities such as tilling, burning, and installation of various structures in water or on land. These activities would have a temporary minor impact to the local air quality. It is not expected that any of these practices would change the current attainment status or violate standards in the SIP.

Preparing lands for CPs could include activities such as tilling, burning, and installation of various structures in water or on land. These activities would have localized 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 soils during and after tilling would reduce the release of PM_{10}. The amount of open burning that would take place in conjunction with clearing and preparing lands for installation of CPs is not known. Burning could release PM_{10}, CO, hydrocarbons and nitrous oxide into the atmosphere (EPA 1992). The type and quantity of these pollutants would determined by the type of vegetation being burned, the configuration of the burned material, and the weather conditions. It is not anticipated, however, that this burning would have a significant impact on the local air quality. Heavy equipment and construction vehicles used to install roads, firebreaks, dams, levees, and other structures would release CO and PM_{10}. Like tilling and burning, impacts from the use of heavy equipment is expected to be temporary and minor and limited to the immediate construction area.

4.5.2 Alternative B - No Action

Implementation of Alternative B, 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 by increasing game species of birds, fish and mammals. Installation of the proposed CPs would increase habitat for game bird and mammal species. An increase in water quality would allow for the replenishment of game fish species. The CPs listed in Section 2.1 would increase the desirability of land to be used for hiking, boating or camping by improving aesthetics. A short term negative impact to recreational activities may occur during the installation of the proposed conservation practices 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 conservation practices described in Section 2.1 would not be implemented and no change to existing recreational activities would occur. Continued degradation of water quality would be expected, affecting water related recreational opportunities.

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 C). Under the proposed action, a maximum of 70,000 acres would be conserved and restored for a 15-year period with an extra voluntary period of 5 years and 5,000 acres placed in a perpetual conservation easement. This action would cause the loss of approximately 348 farm worker positions, at an estimated cost of $1.4 million per year. The loss of these positions would account for approximately 1 percent of the farm workers positions available in 1997. Additionally, the loss of production on 70,000 acres would reduce the amount of total farm expenditures for seed, agricultural chemicals, and petroleum products by $6.6 million per year or less than 1 percent of the total 1997 farm expenditures. However, the inclusion of 70,000 acres in the CREP would result in maximum annual land rental of $140 per acre and a one-time cost-sharing rate of $100 per acre. Additionally, the State of Ohio would disburse $370 per acre through state and local matching funds o 17,500 acres and $120 per acre for 52,500 acres. Return per dollar of expenditure would be approximately $2.40 based on the federal payment. Total net present value for implementing the CREP within the ROI at the maximum rate per acre would be approximately $21.7 million over 30 years (Appendix C).

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 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 1999). Enrollment in the CREP would improve wildlife habitat for game species and non-game species. 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 No Action Alternative

Under the no action alternative, the CREP would not be implemented within the Scioto Basin ROI. Socioeconomic conditions would continue to follow the trends associated with the ROI and larger Ohio and northeastern United States region. Farmland would continue to be sold for development rights given

the rate of return possibly on an investment between $5000 to $10,000 over the rental rate per acre of $74. 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 (0.03 percent of 1997 totals) would not contribute significantly to slowing farmland conversion.

This loss of wildlife habitat would adversely impact wildlife-related recreational opportunities in Ohio, which as mentioned in Sections 3.6 and 4.6, contributed approximately $2.2 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.

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 actions. 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 tend to have 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, the goals and plans of federal programs designed to mitigate the risks of degradation of natural resources are the primary sources of information used in identifying past, present, and reasonably foreseeable actions.

5.1.2 Past, Present, and Reasonably Foreseeable Actions

In addition to CREP, the Ohio NRCS maintains and implements numerous programs authorized under the 2002 Farm Bill to conserve and enhance the natural resources of the area. These programs include, but are not limited to, the Wildlife Habitat Incentives Program, Grassland Reserve Program, Environmental Quality Incentives Program, Farm and Ranchlands Protection Program, Grazing Lands Conservation Initiative, and the Wetlands Reserve Program.

The Wildlife Habitat Incentives Program offers opportunities to private and Tribal landowners to improve and protect wildlife habitat. Through the program, the NRCS provides technical and financial assistance to landowners to develop upland, wetland, riparian, and aquatic habitat areas on their property. Cost

sharing reimburses up to 75 percent of costs, not to exceed $15,000 per contract. The program in Ohio places an emphasis on re-establishment of habitat for declining species such as wetland and grassland dependent birds, amphibians, reptiles, insects and small mammals. Seventeen counties in the CREP area have been designated as priority areas for enrollment.

The Grassland Reserve Program helps landowners and operators restore and protect grassland, including rangeland and pastureland, while maintaining the areas as grazing lands. The program offers several enrollment options with varying financial assistance for implementing conservation practices that emphasize support for grazing operations, plant and animal biodiversity, and pasture and hay land under the greatest threat of conversion. Offers for enrollment must contain at least 40 contiguous acres. Ohio's allocation for implementing the program was $831,201 for fiscal year 2003.

The Environmental Quality Incentives Program provides technical, financial, and educational assistance for farmers and ranchers that promote agricultural production and environmental quality as compatible national goals while optimizing environmental benefits. Program activities are carried out according to an environmental quality incentives program plan of operations. The plan of operations is developed in conjunction with the producer that identifies the appropriate conservation practice to address the resource concerns. The NRCS may cost-share up to 75 percent of the costs of conservation practices.

The Farm and Ranch Lands Protection Program protects working agricultural land from conversion to non-agricultural uses. The program provides matching funds to State, Tribal, and local governments and non-governmental organizations with farm and ranch land protection programs to purchase permanent conservation easements. The NRCS provides 50 percent of the purchase cost for the easements. In 2003, 1775 acres of Ohio's productive agricultural soils on eleven farms were permanently protected. In 2004, NRCS allocated $2,601,300 in financial assistance to protect Ohio farmland.

The Grazing Lands Conservation Initiative is a nationwide collaborative process of individuals and organizations working to maintain and improve the management, productivity, and health of the Nation's privately owned grazing lands. The coalitions actively seek sources to increase technical assistance and public awareness activities that maintain or enhance grazing land resources.

The Wetlands Reserve Program is a voluntary program that provides technical and financial assistance to eligible landowners to address wetland, wildlife habitat, soil, water, and related natural resource concerns on private land in an environmentally beneficial and cost effective manner. The program provides an opportunity for landowners to receive financial incentives to enhance wetlands in exchange for retiring marginal land from agriculture. In 2002, $4,000,000 was provided to Ohio by the NRCS to protect wetlands.

5.1.3 Analysis of Cumulative Impacts

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 area and in waters downstream.

5.2 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.

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.

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*)

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.

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: SUMMARY OF CONSERVATION PRACTICES

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Summary of Conservation Practices Proposed in Ohio's Scioto River Watershed CREP Agreement

NRCS Conservation Practice: Conservation Cover

FSA CRP Conservation Practices for Proposed Ohio CREP:

- CP1 - Establishment of Permanent Introduced Grasses and Legumes
- CP2 – Establishment of Permanent Native Grasses
- CP15A – Establishment Of Permanent Vegetative Cover Noneasement

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 Ohio CREP:

- CP1 - Establishment of Permanent Introduced Grasses and Legumes
- CP2 – Establishment of Permanent Native Grasses
- CP15A – Establishment of Permanent Vegetative Cover Noneasement
- CP22 – Riparian Buffer

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 Ohio CREP:

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

- CP3A – Hardwood Tree Planting
- CP22 – Riparian Buffer
- CP23 – Wetland Restoration
- CP 25 – Rare and Declining Habitat

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 Ohio CREP:

- CP2 – Establishment of Permanent Native Grasses
- CP3 – Tree Planting
- CP3A – Hardwood Tree Planting
- CP4B – Permanent Wildlife Habitat (Corridors), Noneasement
- CP4D – Permanent Wildlife Habitat, Noneasement
- CP15A – Establishment of Permanent Vegetative Cover, Noneasement
- CP 25 – Rare and Declining Habitat

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 Ohio CREP:

- CP9 – Shallow Water Areas for Wildlife
- CP25 – Rare and Declining Habitat

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 Ohio 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 Ohio CREP:

- CP4D – Permanent Wildlife Habitat, Noneasement
- 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 Ohio CREP:

- CP3 – Tree Planting
- CP3A – Hardwood Tree Planting
- CP4B – Permanent Wildlife Habitat (Corridors), Noneasement
- CP4D – Permanent Wildlife Habitat, Noneasement
- CP22 – Riparian Buffer
- CP23 – Wetland Restoration
- CP25 – Rare and Declining Habitat

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: Alley Cropping

FSA CRP Conservation Practices for Proposed Ohio CREP:

- CP3 – Tree Planting
- CP3A – Hardwood Tree Planting

Purposes:

- Reduce surface water runoff and erosion.
- Improve utilization and recycling of soil nutrients.
- Reduce subsurface water quantity or alter water table depths.
- Provide or enhance wildlife habitat.
- Create habitat for biological pest management.
- Decrease movement offsite of nutrients or chemicals.
- Increase net carbon storage in the vegetation and soil.

Maintenance Standards:

- Tree or shrub rows should be oriented on or near the contour to reduce water erosion.
- To reduce surface water runoff and erosion, herbaceous ground cover should be established in conjunction with the tree or shrub rows.
- To reduce wind erosion, tree or shrub rows should be oriented as close as possible and perpendicular to erosive winds.
- Trees, shrubs, crops and/or forages need to be inspected periodically and protected from adverse impacts.

NRCS Conservation Practice: Contour Buffer Strips

FSA CRP Conservation Practices for Proposed Ohio CREP:

- CP1 – Establishment of Permanent Introduced Grasses and Legumes
- CP2 – Establishment of Permanent Native Grasses
- 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 down slope, onsite or offsite.
- 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 Ohio CREP:

- CP1 – Establishment of Permanent Introduced Grasses and Legumes
- CP2 – Establishment of Permanent Native Grasses
- CP4D – Permanent Wildlife Habitat, Noneasement
- CP21 – Filter Strips

Purposes:

- Reduce erosion from wind and water.
- Protect soil and water quality.
- Manage harmful insect populations.
- Provide 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 Ohio CREP:

- CP1 – Establishment of Permanent Introduced Grasses and Legumes
- CP2 – Establishment of Permanent Native Grasses
- CP4D – Permanent Wildlife Habitat, Noneasement
- CP15A – 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 Ohio CREP:

- CP3 – Tree Planting
- CP3A – Hardwood Tree Planting
- CP4B – Permanent Wildlife Habitat (Corridors), Noneasement
- CP4D – Permanent Wildlife Habitat, Noneasement
- CP21 – Filter Strips.
- CP22 – Riparian Buffer
- CP25 – Rare and Declining Habitat

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.
- Provide 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 Ohio CREP:

- CP4B – Permanent Wildlife Habitat (Corridors), Noneasement
- CP4D – Permanent Wildlife Habitat, Noneasement
- CP21 – Filter Strips.
- CP22 – Riparian Buffer
- CP25 – Rare and Declining Habitat

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, organics, and nutrients in surface runoff as well as nutrients and chemicals in shallow ground water flow.
- Provide 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 Ohio CREP:

- CP22 – Riparian Buffer
- CP25 – Rare and Declining Habitat

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 Ohio CREP:

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

- CP4D – Permanent Wildlife Habitat, Noneasement
- CP 23 – Wetland Restoration
- CP25 – Rare and Declining Habitat

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 Ohio CREP:

- CP1 – CP4D – Permanent Wildlife Habitat, Noneasement
- CP23 – Wetland Restoration
- CP25 – Rare and Declining Habitat

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: Tree/Shrub Establishment

FSA CRP Conservation Practices for Proposed Ohio CREP:

- CP3 – Tree Planting
- CP3A – Hardwood Tree Planting
- CP4B – Permanent Wildlife Habitat (Corridor), Noneasement
- CP4D – Permanent Wildlife Habitat, Noneasement
- CP22 – Riparian Buffer
- CP25 – Rare and Declining Habitat

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 Ohio 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 Ohio 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: STATE LISTED PLANTS

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Threatened and Endangered Plants of the Scioto Watershed

Scientific Name	Common Name	State Status
Aconitum noveboracense	Northern Monkshood	E
Aconitum uncinatum	Southern Monkshood	E
Agalinis auriculata	Ear-leaved-foxglove	E
Agalinis gattingeri	Gattinger's-foxglove	E
Agave virginica	American Aloe	T
Arabis hirsuta var. *adpressipilis*	Southern Hairy Rock Cress	T
Arabis patens	Spreading Rock Cress	E
Arenaria patula	Spreading Sandwort	E
Armoracia lacustris	Lake Cress	T
Asplenium bradleyi	Bradley's Spleenwort	T
Asplenium ruta-muraria	Wall-rue	T
Aster drummondii	Drummond's Aster	T
Aster oblongifolius	Shale Barren Aster	T
Aster ontarionis	Bottomland Aster	E
Aster solidagineus	Narrow-leaved Aster	T
Barbula indica var. *indica*	Twisted Teeth Moss	E
Botrychium biternatum	Sparse-lobed Grape Fern	T
Botrychium lanceolatum	Triangle Grape Fern	E
Botrychium simplex	Least Grape Fern	E
Bromus nottowayanus	Satin Brome	T
Buchnera americana	Bluehearts	T
Calamagrostis porteri ssp. *insperata*	Bartley's Reed Grass	E
Calamintha arkansana	Limestone Savory	T
Campylostelium saxicola	Rock-loving Swan-necked Moss	E
Canoparmelia texana	Texas Shield Lichen	E
Carex bicknellii	Bicknell's Sedge	T
Carex bushii	Bush's Sedge	E
Carex crinita var. *brevicrinis*	Short-fringed Sedge	E
Carex crus-corvi	Raven-foot Sedge	T
Carex decomposita	Cypress-knee Sedge	E
Carex lupuliformis	False Hop Sedge	E
Carex mesochorea	Midland Sedge	T
Carex planispicata	Flat-spiked Sedge	E
Carex purpurifera	Purple Wood Sedge	T
Carex retroflexa var. *retroflexa*	Reflexed Sedge	T
Celtis tenuifolia	Dwarf Hackberry	T
Chimaphila umbellata	Pipsissewa	T
Chionanthus virginicus	Fringe-tree	T
Cirsium carolinianum	Carolina Thistle	T
Collema bachmanianum	Bachman's Jelly Lichen	E
Collema coccophorum	Tar Jelly Lichen	E
Collema conglomeratum	Dotted Jelly Lichen	E

Threatened and Endangered Plants of the Scioto Watershed (cont'd.)

Scientific Name	Common Name	State Status
Crataegus uniflora	Dwarf Hawthorn	E
Cuscuta glomerata	Glomerate Dodder	T
Cuscuta pentagona	Five-angled Dodder	E
Cyperus acuminatus	Pale Umbrella-sedge	E
Cyperus dipsaciformis	Rough Umbrella-sedge	E
Cyperus lancastriensis	Many-flowered Umbrella-sedge	E
Cypripedium reginae	Showy Lady's-slipper	T
Descurainia pinnata	Tansy Mustard	T
Dibaeis absoluta	Pink Dot Lichen	E
Diphyscium cumberlandianum	Cumberland Grain o' Wheat Moss	E
Disporum maculatum	Nodding Mandarin	T
Draba cuneifolia	Wedge-leaved Whitlow-grass	T
Draba reptans	Carolina Whitlow-grass	T
Echinodorus rostratus	Burhead	E
Eleocharis compressa	Flat-stemmed Spike-rush	T
Elymus trachycaulus	Bearded Wheat Grass	T
Eryngium yuccifolium	Rattlesnake-master	T
Erythronium rostratum	Golden-star	E
Eupatorium album	White Thoroughwort	T
Eupatorium aromaticum	Small White Snakeroot	T
Eupatorium hyssopifolium	Hyssop Thoroughwort	E
Euphorbia serpens	Round-leaved Spurge	E
Fissidens hyalinus	Filmy Fissidens	E
Galactia volubilis	Milk-pea	T
Gentiana alba	Yellowish Gentian	T
Gentiana villosa	Sampson's Snakeroot	E
Gratiola viscidula	Short's Hedge-hyssop	T
Hexalectris spicata	Crested Coral-root	T
Hypericum denticulatum	Coppery St. John's-wort	E
Hypericum gymnanthum	Least St. John's-wort	E
Iris brevicaulis	Leafy Blue Flag	E
Iris verna	Dwarf Iris	T
Isotria medeoloides	Small Whorled Pogonia	E
Juncus diffusissimus	Diffuse Rush	E
Juncus interior	Inland Rush	E
Juncus secundus	One-sided Rush	T
Lactuca hirsuta	Hairy Tall Lettuce	E
Lathyrus venosus	Wild Pea	E
Leavenworthia uniflora	Michaux's Leavenworthia	T
Lechea minor	Thyme-leaved Pinweed	T
Lechea pulchella	Leggett's Pinweed	T
Liatris cylindracea	Slender Blazing-star	T

Threatened and Endangered Plants of the Scioto Watershed (cont'd.)

Scientific Name	Common Name	State Status
Lilium philadelphicum	Wood Lily	T
Lycopodiella margueritae	Northern Prostrate Club-moss	E
Lycopodium lagopus	One-coned Club-moss	E
Magnolia macrophylla	Bigleaf Magnolia	E
Matelea obliqua	Angle-pod	T
Melampyrum lineare	Cow-wheat	T
Melanthium virginicum	Bunchflower	T
Melica nitens	Three-flowered Melic	E
Myriophyllum heterophyllum	Two-leaved Water-milfoil	E
Ophioglossum engelmannii	Limestone Adder's-tongue	E
Panicum bicknellii	Bicknell's Panic Grass	T
Panicum leibergii	Leiberg's Panic Grass	T
Panicum philadelphicum	Philadelphia Panic Grass	T
Panicum verrucosum	Warty Panic Grass	E
Panicum yadkinense	Spotted Panic Grass	E
Passiflora incarnata	Maypop	T
Penstemon laevigatus	Smooth Beard-tongue	E
Penstemon pallidus	Downy White Beard-tongue	T
Phyllanthus caroliniensis	Carolina Leaf-flower	E
Physalis virginiana	Virginia Ground-cherry	E
Placidium lachneum	Brown Stipplescale	E
Plagiothecium latebricola	Lurking Leskea	T
Plantago cordata	Heart-leaved Plantain	T
Platanthera ciliaris	Yellow Fringed Orchid	T
Poa wolfii	Wolf's Blue Grass	E
Polygala curtissii	Curtiss' Milkwort	E
Polygala incarnata	Pink Milkwort	T
Polypodium polypodioides	Little Gray Polypody	T
Potamogeton pulcher	Spotted Pondweed	T
Potamogeton tennesseensis	Tennessee Pondweed	E
Pteridium aquilinum var. *pseudocaudatum*	Tailed Bracken	E
Pycnanthemum verticillatum var. pilosum	Hairy Mountain-mint	E
Quercus falcata	Spanish Oak	T
Quercus marilandica	Blackjack Oak	T
Ramalina intermedia	Rock Ramalina	E
Ramalina petrina	Appalachian Trail Ramalina	T
Ramalina pollinaria	Chalky Ramalina	E
Rhododendron calendulaceum	Flame Azalea	E
Rhododendron maximum	Great Rhododendron	T
Rosa blanda	Smooth Rose	E
Sagittaria rigida	Deer's-tongue Arrowhead	T
Selaginella eclipes	Midwest Spike-moss	T

Threatened and Endangered Plants of the Scioto Watershed (cont'd.)

Scientific Name	Common Name	State Status
Silene caroliniana var. *pensylvanica*	Carolina Catchfly	T
Silene caroliniana var. *wherryi*	Wherry's Catchfly	E
Smilax herbacea var. *pulverulenta*	Downy Carrion-flower	E
Solidago odora	Sweet Goldenrod	T
Sphagnum bartlettianum	Bartlett's Peat Moss	E
Sphenopholis obtusata var. *obtusata*	Prairie Wedge Grass	T
Spiraea virginiana	Appalachian Spiraea	E
Sporobolus heterolepis	Prairie Dropseed	T
Stenanthium gramineum	Feather-bells	T
Triadenum tubulosum	Large Marsh St. John's-wort	T
Trichomanes boschianum	Appalachian Filmy Fern	E
Trichostema dichotomum var. *lineare*	Narrow-leaved Bluecurls	E
Trifolium reflexum	Buffalo Clover	E
Triphora trianthophora	Three-birds Orchid	T
Verbesina occidentalis	Yellow Crown-beard	E
Viburnum molle	Soft-leaved Arrow-wood	T
Viola pedata	Birdfoot Violet	T
Viola pedatifida	Prairie Violet	E
Viola primulifolia	Primrose-leaved Violet	E
Viola tripartita var. *glaberrima*	Wedge-leaved Violet	E
Viola walteri	Walter's Violet	E
Weissia sharpii	Sharp's Green-cushioned Moss	E
Zizania aquatica	Wild Rice	T

APPENDIX C: CORRESPONDENCE

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November 10, 2003

Ms. Rachel M. Tooker, SHPO
Ohio Historical Society
567 East Hudson Street
Columbus, OH 43211-1030

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

Dear Ms. Tooker:

Our contractor, Geo-Marine, Inc., is preparing a PEA for the proposed implementation of Ohio's Scioto River Watershed CREP agreement. The agreement would enroll 70,000 acres of lands in the following counties in CREP: Adams, Allen Auglaize, Champaign, Clark, Clinton, Crawford, Delaware, Fairfield, Franklin, Fayette, Greene, Hardin, Highland, Hocking, Jackson, Licking, Logan, Madison, Marion, Morrow, Perry, Pickaway, Pike, Richland, Ross, Scioto, Union, Vinton, and Wyandot. Approved conservation practices 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.

Pursuant to the National Environmental Policy Act and the National Historic Preservation Act, we are requesting information regarding archaeological, historical or traditional cultural resources that may be present in the project area. Please forward your responses by 30 November 2003 to Elizabeth Pruitt, Geo-Marine's Program Manager:

11846 Rock Landing Drive
Suite C
Newport News, VA 23606

If you have any questions regarding this request, please feel free to contact Ms. Pruitt at (757) 873-8253. Thank you in advance for your input; it will greatly assist us in our planning.

Sincerely,

Jerry Hines
Ohio State Environmental Coordinator

November 10, 2003

Gary Moore
Nature Conservancy
6375 Riverside Drive, Suite 50
Dublin, Ohio 43017

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

Dear Mr. Moore:

Our contractor, Geo-Marine, Inc., is preparing a PEA for the proposed implementation of Ohio's Scioto River Watershed CREP agreement. The agreement would enroll 70,000 acres of lands in the following counties in CREP: Adams, Allen Auglaize, Champaign, Clark, Clinton, Crawford, Delaware, Fairfield, Franklin, Fayette, Greene, Hardin, Highland, Hocking, Jackson, Licking, Logan, Madison, Marion, Morrow, Perry, Pickaway, Pike, Richland, Ross, Scioto, Union, Vinton, and Wyandot. Approved conservation practices 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.

Pursuant to the National Environmental Policy Act, we are requesting your participation in identifying relevant issues related to the proposed CREP implementation. Please forward your responses by 30 November 2003 to Elizabeth Pruitt, Geo-Marine's Program Manager:

11846 Rock Landing Drive
Suite C
Newport News, VA 23606

If you have any questions regarding this request, please feel free to contact Ms. Pruitt at (757) 873-8253. Thank you in advance for your input; it will greatly assist us in our planning.

Sincerely,

Jerry Hines
Ohio State Environmental Coordinator

November 10, 2003

Dan Binder
WQAL
910 Dublin Road
Columbus, Ohio 43215

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

Dear Mr. Binder:

Our contractor, Geo-Marine, Inc., is preparing a PEA for the proposed implementation of Ohio's Scioto River Watershed CREP agreement. The agreement would enroll 70,000 acres of lands in the following counties in CREP: Adams, Allen Auglaize, Champaign, Clark, Clinton, Crawford, Delaware, Fairfield, Franklin, Fayette, Greene, Hardin, Highland, Hocking, Jackson, Licking, Logan, Madison, Marion, Morrow, Perry, Pickaway, Pike, Richland, Ross, Scioto, Union, Vinton, and Wyandot. Approved conservation practices 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.

Pursuant to the National Environmental Policy Act, we are requesting your participation in identifying relevant issues related to the proposed CREP implementation. Please forward your responses by 30 November 2003 to Elizabeth Pruitt, Geo-Marine's Program Manager:

11846 Rock Landing Drive
Suite C
Newport News, VA 23606

If you have any questions regarding this request, please feel free to contact Ms. Pruitt at (757) 873-8253. Thank you in advance for your input; it will greatly assist us in our planning.

Sincerely,

Jerry Hines
Ohio State Environmental Coordinator

November 10, 2003

Michael Warley
U.S. Army Corps of Engineers
502 8th Street
Huntington, WV 25701

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

Dear Mr. Warley:

Our contractor, Geo-Marine, Inc., is preparing a PEA for the proposed implementation of Ohio's Scioto River Watershed CREP agreement. The agreement would enroll 70,000 acres of lands in the following counties in CREP: Adams, Allen Auglaize, Champaign, Clark, Clinton, Crawford, Delaware, Fairfield, Franklin, Fayette, Greene, Hardin, Highland, Hocking, Jackson, Licking, Logan, Madison, Marion, Morrow, Perry, Pickaway, Pike, Richland, Ross, Scioto, Union, Vinton, and Wyandot. Approved conservation practices 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.

Pursuant to the National Environmental Policy Act, we are requesting your participation in identifying relevant issues related to the proposed CREP implementation. Please forward your responses by 30 November 2003 to Elizabeth Pruitt, Geo-Marine's Program Manager:

11846 Rock Landing Drive
Suite C
Newport News, VA 23606

If you have any questions regarding this request, please feel free to contact Ms. Pruitt at (757) 873-8253. Thank you in advance for your input; it will greatly assist us in our planning.

Sincerely,

Jerry Hines
Ohio State Environmental Coordinator

November 10, 2003

Ginger Mullins
U.S. Army Corps of Engineers
502 8th Street
Huntington, WV 25701

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

Dear Ms. Mullins:

Our contractor, Geo-Marine, Inc., is preparing a PEA for the proposed implementation of Ohio's Scioto River Watershed CREP agreement. The agreement would enroll 70,000 acres of lands in the following counties in CREP: Adams, Allen Auglaize, Champaign, Clark, Clinton, Crawford, Delaware, Fairfield, Franklin, Fayette, Greene, Hardin, Highland, Hocking, Jackson, Licking, Logan, Madison, Marion, Morrow, Perry, Pickaway, Pike, Richland, Ross, Scioto, Union, Vinton, and Wyandot. Approved conservation practices 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.

Pursuant to the National Environmental Policy Act, we are requesting your participation in identifying relevant issues related to the proposed CREP implementation. Please forward your responses by 30 November 2003 to Elizabeth Pruitt, Geo-Marine's Program Manager:

11846 Rock Landing Drive
Suite C
Newport News, VA 23606

If you have any questions regarding this request, please feel free to contact Ms. Pruitt at (757) 873-8253. Thank you in advance for your input; it will greatly assist us in our planning.

Sincerely,

Jerry Hines
Ohio State Environmental Coordinator

November 10, 2003

William Hegge
U.S. Fish and Wildlife Service
Miami University,Institute of Environmental Sciences
102 Boyd Hall
Oxford, Oh 45056

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

Dear Mr. Hegge:

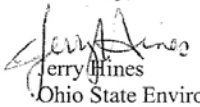
Our contractor, Geo-Marine, Inc., is preparing a PEA for the proposed implementation of Ohio's Scioto River Watershed CREP agreement. The agreement would enroll 70,000 acres of lands in the following counties in CREP: Adams, Allen Auglaize, Champaign, Clark, Clinton, Crawford, Delaware, Fairfield, Franklin, Fayette, Greene, Hardin, Highland, Hocking, Jackson, Licking, Logan, Madison, Marion, Morrow, Perry, Pickaway, Pike, Richland, Ross, Scioto, Union, Vinton, and Wyandot. Approved conservation practices 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. Approved conservation practices 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.

Pursuant to the Endangered Species Act and the National Environmental Policy Act, we are requesting information regarding Federally listed threatened and endangered species and critical habitat that may be present in the project area.
Please forward your responses by 30 November 2003 to Elizabeth Pruitt, Geo-Marine's Program Manager:

11846 Rock Landing Drive
Suite C
Newport News, VA 23606

If you have any questions regarding this request, please feel free to contact Ms. Pruitt at (757) 873-8253. Thank you in advance for your input; it will greatly assist us in our planning.

Sincerely,



Jerry Hines
Ohio State Environmental Coordinator

November 10, 2003

John Dorka, Chief
Ohio Department of Natural Resources
Division of Forestry
1855 Fountain Square Court
Building H-1
Columbus, OH 43224-1383

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

Dear Mr. Dorka:

Our contractor, Geo-Marine, Inc., is preparing a PEA for the proposed implementation of Ohio's Scioto River Watershed CREP agreement. The agreement would enroll 70,000 acres of lands in the following counties in CREP: Adams, Allen Auglaize, Champaign, Clark, Clinton, Crawford, Delaware, Fairfield, Franklin, Fayette, Greene, Hardin, Highland, Hocking, Jackson, Licking, Logan, Madison, Marion, Morrow, Perry, Pickaway, Pike, Richland, Ross, Scioto, Union, Vinton, and Wyandot. Approved conservation practices 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.

Pursuant to the National Environmental Policy Act, we are requesting your participation in identifying relevant issues related to the proposed CREP implementation. Please forward your responses by 30 November 2003 to Elizabeth Pruitt, Geo-Marine's Program Manager:

11846 Rock Landing Drive
Suite C
Newport News, VA 23606

If you have any questions regarding this request, please feel free to contact Ms. Pruitt at (757) 873-8253. Thank you in advance for your input; it will greatly assist us in our planning.

Sincerely,

Jerry Hines
Ohio State Environmental Coordinator

November 10, 2003

Fred Dailey, Director
Ohio Department of Agriculture
8995 East Main Street
Reynoldsburg, OH 43068-3399

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

Dear Mr. Dailey:

Our contractor, Geo-Marine, Inc., is preparing a PEA for the proposed implementation of Ohio's Scioto River Watershed CREP agreement. The agreement would enroll 70,000 acres of lands in the following counties in CREP: Adams, Allen Auglaize, Champaign, Clark, Clinton, Crawford, Delaware, Fairfield, Franklin, Fayette, Greene, Hardin, Highland, Hocking, Jackson, Licking, Logan, Madison, Marion, Morrow, Perry, Pickaway, Pike, Richland, Ross, Scioto, Union, Vinton, and Wyandot. Approved conservation practices 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.

Pursuant to the National Environmental Policy Act, we are requesting your participation in identifying relevant issues related to the proposed CREP implementation. Please forward your responses by 30 November 2003 to Elizabeth Pruitt, Geo-Marine's Program Manager:

11846 Rock Landing Drive
Suite C
Newport News, VA 23606

If you have any questions regarding this request, please feel free to contact Ms. Pruitt at (757) 873-8253. Thank you in advance for your input; it will greatly assist us in our planning.

Sincerely,

Jerry Hines
Ohio State Environmental Coordinator

November 10, 2003

Luke Miller
Ohio Department of Natural Resources
Division of Wildlife
1840 Belcher Drive
Columbus, OH 43224-1329

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

Dear Mr. Miller:

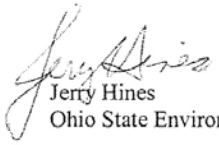
Our contractor, Geo-Marine, Inc., is preparing a PEA for the proposed implementation of Ohio's Scioto River Watershed CREP agreement. The agreement would enroll 70,000 acres of lands in the following counties in CREP: Adams, Allen Auglaize, Champaign, Clark, Clinton, Crawford, Delaware, Fairfield, Franklin, Fayette, Greene, Hardin, Highland, Hocking, Jackson, Licking, Logan, Madison, Marion, Morrow, Perry, Pickaway, Pike, Richland, Ross, Scioto, Union, Vinton, and Wyandot. Approved conservation practices 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.

Pursuant to the National Environmental Policy Act, we are requesting information regarding species of concern and important habitats that may be present in the proposed CREP area. Please forward your responses by 30 November 2003 to Elizabeth Pruitt, Geo-Marine's Program Manager:

11846 Rock Landing Drive
Suite C
Newport News, VA 23606

If you have any questions regarding this request, please feel free to contact Ms. Pruitt at (757) 873-8253. Thank you in advance for your input; it will greatly assist us in our planning.

Sincerely,



Jerry Hines
Ohio State Environmental Coordinator

November 10, 2003

David Hanselmann, Chief
Ohio Department of Natural Resources
4383 Fountain Square Drive
Building B-3
Columbus, OH 43224

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

Dear Mr. Hanselmann:

Our contractor, Geo-Marine, Inc., is preparing a PEA for the proposed implementation of Ohio's Scioto River Watershed CREP agreement. The agreement would enroll 70,000 acres of lands in the following counties in CREP: Adams, Allen Auglaize, Champaign, Clark, Clinton, Crawford, Delaware, Fairfield, Franklin, Fayette, Greene, Hardin, Highland, Hocking, Jackson, Licking, Logan, Madison, Marion, Morrow, Perry, Pickaway, Pike, Richland, Ross, Scioto, Union, Vinton, and Wyandot. Approved conservation practices 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.

Pursuant to the National Environmental Policy Act, we are requesting your participation in identifying relevant issues related to the proposed CREP implementation. Please forward your responses by 30 November 2003 to Elizabeth Pruitt, Geo-Marine's Program Manager:

11846 Rock Landing Drive
Suite C
Newport News, VA 23606

If you have any questions regarding this request, please feel free to contact Ms. Pruitt at (757) 873-8253. Thank you in advance for your input; it will greatly assist us in our planning.

Sincerely,

Jerry Hines
Ohio State Environmental Coordinator

November 10, 2003

Kevin Brown, State Conservationist
Ohio Natural Resource Conservation Service
200 North High Street, Room 522
Columbus, OH 43215

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

Dear Mr. Brown:

Our contractor, Geo-Marine, Inc., is preparing a PEA for the proposed implementation of Ohio's Scioto River Watershed CREP agreement. The agreement would enroll 70,000 acres of lands in the following counties in CREP: Adams, Allen Auglaize, Champaign, Clark, Clinton, Crawford, Delaware, Fairfield, Franklin, Fayette, Greene, Hardin, Highland, Hocking, Jackson, Licking, Logan, Madison, Marion, Morrow, Perry, Pickaway, Pike, Richland, Ross, Scioto, Union, Vinton, and Wyandot. Approved conservation practices 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.

Pursuant to the National Environmental Policy Act, we are requesting your participation in identifying relevant issues related to the proposed CREP implementation.

Please forward your responses by 30 November 2003 to Elizabeth Pruitt, Geo-Marine's Program Manager:

11846 Rock Landing Drive
Suite C
Newport News, VA 23606

If you have any questions regarding this request, please feel free to contact Ms. Pruitt at (757) 873-8253. Thank you in advance for your input; it will greatly assist us in our planning.

Sincerely,

Jerry Hines
Ohio State Environmental Coordinator

NOV-26-2003 16:52 FROM:ODNR DIV OF WILDLIFE 614 262 1143 TO:17578733703 P.1/5

Ohio Department of Natural Resources
Division of Wildlife
Wildlife Management and Research

1840 Belcher Drive
Columbus, Ohio 43224
Phone: (614) 265-6907
FAX: (614) 262-1143

FAX COVER SHEET

To:	Elizabeth Pruitt	***From:***	Luke Miller
Fax:	757/873-3703		5
Date:	11/26/03	***Re:***	Species of concern for Ohio Scioto River CREP

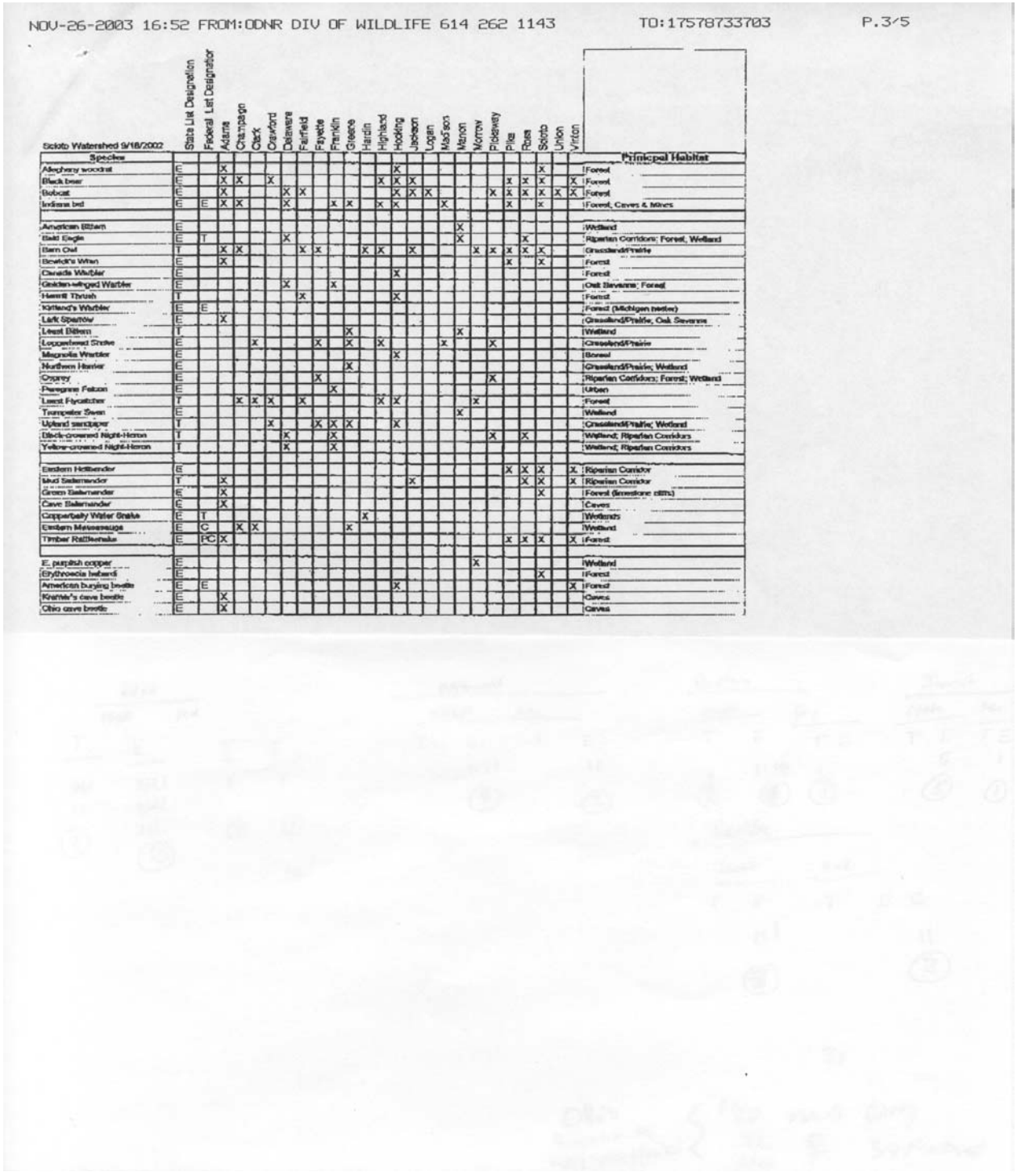
CC:

Comments or Special Instructions:

Elizabeth,

Here is the list of T&E species that are found in the Scioto River Watershed here in Ohio. I received a letter (enclosed) from Jerry Hines that requested that I send it to you. If you have a question about these, you can call me at 614/265-6907 or e-mail me at luke.miller@dnr.state.oh.us. Some of the counties do not have any documented cases of any T&E species. That is why some counties are not listed.

Luke Miller



NOV-26-2003 16:52 FROM:ODNR DIV OF WILDLIFE 614 262 1143 TO:17578733703 P.3/5

Scioto Watershed 9/18/2002

Species	State List Designation	Federal List Designation	Adams	Champaign	Clark	Crawford	Delaware	Fairfield	Fayette	Franklin	Greene	Hardin	Highland	Hocking	Jackson	Logan	Madison	Marion	Morrow	Pickaway	Pike	Ross	Scioto	Union	Vinton	Principal Habitat
Allegheny woodrat	E		X											X									X			Forest
Black bear	E		X	X		X							X	X	X						X	X	X		X	Forest
Bobcat	E		X				X	X						X	X	X					X	X	X	X	X	Forest
Indiana bat	E	E	X	X			X			X	X		X	X			X					X		X		Forest, Caves & Mines
American Bittern	E																	X								Wetland
Bald Eagle	E	T						X										X					X			Riparian Corridors; Forest, Wetland
Barn Owl	T		X	X					X	X			X	X		X			X	X	X	X	X			Grassland/Prairie
Bewick's Wren	E		X																		X		X			Forest
Canada Warbler	E													X												Forest
Golden-winged Warbler	E							X			X															Oak Savanna; Forest
Hermit Thrush	T								X					X												Forest
Kirtland's Warbler	E	E																								Forest (Michigan nester)
Lark Sparrow	E		X																							Grassland/Prairie, Oak Savanna
Least Bittern	T										X							X								Wetland
Loggerhead Shrike	E				X				X		X		X			X				X						Grassland/Prairie
Magnolia Warbler	E													X												Boreal
Northern Harrier	E										X															Grassland/Prairie; Wetland
Osprey	E								X											X						Riparian Corridors; Forest; Wetland
Peregrine Falcon	E									X																Urban
Least Flycatcher	T			X	X	X		X					X	X					X							Forest
Trumpeter Swan	E																	X								Wetland
Upland sandpiper	T					X			X	X	X			X												Grassland/Prairie; Wetland
Black-crowned Night-Heron	T						X			X										X		X				Wetland; Riparian Corridors
Yellow-crowned Night-Heron	T						X			X																Wetland; Riparian Corridors
Eastern Hellbender	E																				X	X	X		X	Riparian Corridor
Mud Salamander	T		X												X							X	X		X	Riparian Corridor
Green Salamander	E		X																				X			Forest (limestone cliffs)
Cave Salamander	E		X																							Caves
Copperbelly Water Snake	E	T										X														Wetlands
Eastern Massasauga	E	C		X	X						X															Wetland
Timber Rattlesnake	E	PC	X																		X	X	X		X	Forest
E. purplish copper	E																		X							Wetland
Erythroecia hebardi	E																						X			Forest
American burying beetle	E	E												X											X	Forest
Krekler's cave beetle	E		X																							Caves
Ohio cave beetle	E		X																							Caves

Federal & State endangered OH mussels, live or freshdead, 1980+

Species	endangered status	water body	county	comments
Elephant Ear	O	Big Walnut Creek	Franklin	Williams Rd. - single stray
		Little Darby Creek	Madison	Darby Rd. - single stray
Northern Riffleshell	F, O	Big Darby Creek	Pickaway	Scioto Twp.
		Big Darby Creek	Franklin	Pleasant Twp.
Snuffbox	O	Big Darby Creek	Pickaway	Scioto, Jackson, Mohlenberg, Twps.
		Big Darby Creek	Franklin	Pleasant Twp.
		South Fork Scioto Brush Creek	Scioto	Brush Creek Twp.
		Scioto Brush Creek	Scioto	Union Twp.
		Stillwater River	Montgomery	single specimen at Butler/Randolph line
		Deer Creek	Pickaway	2 shells from Darby Twp.
		Salt Creek	Ross	1 specimen from Jefferson Twp.
		Little Darby Creek	Union	1 specimen from Union Twp.
Washboard	O	Scioto River	Pickaway	Harrison/Scioto Twp. (stray)
		Ohio River	Clermont	mouth of Nine Mile Creek
		Big Darby Creek	Pickaway	Fox (stray)
Clubshell	F, O	Little Darby Creek	Madison	Pike, Monroe, Darby, Union Twps.
Rabbitsfoot	O	Little Darby Creek	Union	Darby/Union line
		Little Darby Creek	Madison	Pike, Monroe, Jefferson Twps.
Rayed Bean	O	Deer Creek	Pickaway	single specimen in Darby Twp.
Little Spectaclecase	O	Middle Fork Salt Creek	Vinton	Harrison Twp.
		Middle Fork Salt Creek	Ross	Jefferson Twp.
		Buffalo Creek	Lawrence	Symmes Twp.

OHIO Threatened mussels, live or freshdead, 1980+

Species	status	water body	county	Township or [towns]
Fawns foot	T	Scioto River	Pike	Newton, Jackson
		Scioto River	Pickaway	Scioto, Pickaway, Harrison

NOV-26-2003 16:52 FROM:ODNR DIV OF WILDLIFE 614 262 1143 TO:17578733703 P.5/5

		Scioto River	Ross	Union	
		Scioto River	Franklin	Hamilton	
		Big Walnut Creek	Franklin	Hamilton - 1 specimen	
		Salt Creek	Ross	Jefferson	
Black sandshell	T	Big Darby Creek	Pickaway	Scioto	
Threehorned Wartyback	T	Scioto River	Ross	Union - 1 specimen	
Pondhorn	T	Hellbranch Run	Franklin	Prairie	
		swamp of Little Salt Creek	Jackson	Franklin - 1 specimen	
		Olentangy River	Franklin	Clinton	

FRENCH CREEK PROJECT

19 November 2003

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

Dear Ms Pruitt:

I am writing on behalf of the French Creek Project in support of the expansion of the Conservation Reserve Enhancement Program agreement to the Ohio Basin. The French Creek Project was created to raise public awareness about the unique qualities of French Creek, one of the most biologically diverse streams in the NE US. The stream is part of the Allegheny and Ohio River systems and harbors a number of rare and endangered species, including the northern riffleshell and clubshell mussels.

Project staff work closely with farmers on best management practices in our watershed in order to reduce non-point source pollution to French Creek. We believe that expanding the CREP into our region will allow us to increase participation in our BMP programs. Therefore, CREP expansion will lead to improved water quality and enhanced habitat.

Again, we support CREP expansion, because of the potential positive environmental impacts.

Sincerely,

Brian J. Hill

cc: Mr. Carl Pelino

Brian J. Hill, Director
Box 172, Allegheny College, Meadville, PA 16335, 814-332-2946, Fax 814-333-8149

Ohio Department of Agriculture

OHIO PROUD.

Governor Bob Taft
Lieutenant Governor Jennette Bradley
Director Fred L. Dailey

Administrative Offices
8995 East Main Street • Reynoldsburg, Ohio 43068-3399
Phone: (614) 466-2732 • Fax: (614) 466-6124
ODA home page: www.state.oh.us/agr/ • e-mail: agri@odant.agri.state.oh.us

December 1, 2003

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

Dear Ms. Pruitt:

Thank you for the opportunity to comment on the proposed implementation of the Conservation Reserve Enhancement Program (CREP) in the Scioto River Watershed region.

Ohio's agriculture industry is vital to the state's well-being. It generates billions in economic activity, while at the same time providing us with important environmental and social benefits. The most valuable resource a farmer has is his land, which makes the majority of farmers good stewards who want to protect their most-precious resource and the environment around them.

It is for all of these reasons that the Ohio Department of Agriculture strongly supports land preservation and conservation including the implementation of the CREP in Ohio's Scioto River Watershed. The department will encourage eligible farmers who participate in our state's farmland preservation programs to participate in CREP and will even help market this program to interested individuals.

I am pleased with the proposed implementation of this program, which should go a long way toward maintaining the integrity of our strong agrarian society and the many economic, social, and environmental benefits it brings to Ohio.

Sincerely,

Fred L. Dailey
Director

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
6950 Americana Parkway, Suite H
Reynoldsburg, Ohio 43068-4127
(614) 469-6923/Fax: (614) 469-6919

December 4, 2003

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

Dear Ms. Pruitt:

This is in response to your November 10, 2003 letter requesting information we may have regarding the occurrence or possible occurrence of Federally-listed threatened or endangered species within the vicinity of the project area. The project area includes 70,000 acres of land proposed for the Ohio Scioto River Watershed Conservation Reserve Enhancement Program (CREP) Agreement in the following counties in Ohio: Adams, Allen, Auglaize, Champaign, Clark, Clinton, Crawford, Delaware, Fairfield, Franklin, Fayette, Greene, Hardin, Highland, Hocking, Jackson, Licking, Logan, Madison, Marion, Morrow, Perry, Pickaway, Pike, Richland, Ross, Scioto, Union, Vinton, and Wyandot. Approved conservation practices would be established on these lands. There are no Federal wildlife refuges, wilderness areas, or Critical Habitat within the vicinity of this project.

ENDANGERED SPECIES COMMENTS: The proposed project lies within the range of:

Federally listed endangered species
American burying beetle *(Nicrophorus americanus*) Hocking, Vinton
Clubshell mussel (*Pleurobema clava*) Delaware, Fairfield, Franklin, Greene, Madison, Pickaway, Union
Indiana bat (*Myotis sodalis*) All counties in project area.
Northern rifflеshell mussel (*Epioblasma torulosa rangiana*) Franklin, Madison, Pickaway
Scioto madtom (*Noturus trautmani*) Franklin, Madison, Pickaway, Union

Federally threatened species
Bald eagle *(Haliaeetus leucocephalus)* Crawford, Delaware, Fairfield, Hocking, Licking, Marion, Ross, Wyandot
Copperbelly watersnake *(Nerodia erythrogaster neglecta)* Hardin
Eastern prairie fringed orchid *(Platanthera leucophaea)* Clark
Northern monkshood *(Aconitum noveboracense*) Hocking
Small whorled pogonia *(Isotria medeoloides)* Hocking, Scioto
Virginia spiraea *(Spiraea virginiana*) Scioto

Federal candidate species
Eastern massasauga *(Sistrurus catenatus catenatus)* Champaign, Clark, Clinton, Crawford, Fairfield, Fayette, Franklin, Greene, Hardin, Licking, Logan, Marion, Wyandot

Species with a Federal pre-listing Conservation Plan
Timber rattlesnake *(Crotalus horridus horridus)* Hocking, Jackson, Pike, Ross, Scioto, Vinton

Species currently under evaluation for Federal candidate status
Rayed bean mussel *(Villosa fabalis)* Champaign, Delaware, Franklin, Hardin, Madison, Marion, Pickaway, Scioto, Union, Wyandot
Sheepnose mussel *(Plethobasus cyphus)* Scioto

A list of species by county has been included with this letter.

This technical assistance letter is submitted in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C.661 et seq.), the Endangered Species Act of 1973, as amended, and is consistent with the intent of the National Environmental Policy Act of 1969, and the U.S. Fish and Wildlife Service's Mitigation Policy.

If you have questions, or if we may be of further assistance in this matter, please contact Karyn Tremper at extension 13 in this office.

Sincerely,

Mary Knapp

Mary Knapp, Ph.D.
Supervisor

cc: ODNR, DOW, SCEA Unit, Columbus, OH

Ohio Historic Preservation Office

567 East Hudson Street
Columbus, Ohio 43211-1030
614/ 298-2000 Fax: 614/ 298-2037

Visit us at www.ohiohistory.org

OHIO HISTORICAL SOCIETY
SINCE 1885

December 31, 2003

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

Dear Ms. Pruitt:

Re: Programmatic Environmental Assessment
Scioto River Watershed Conservation Reserve Enhancement Program, Ohio

This is in response to a letter dated November 10, 2003 from Jerry Hines requesting information on archaeological and historical resources for 30 Ohio counties. Please note that there are many thousands of properties listed in the National Register of Historic Places and recorded in the Ohio Historic Inventory and Ohio Archaeological Inventory. We do not have the time or staff to conduct literature reviews but you are welcome to consult our files. You may make an appointment with Carrie Simmons at (614) 298-2000 to use these resources. Hours are 9 AM to 5 PM, Monday through Friday.

From what I understand about the program, the primary focus is keeping lands out of agricultural production. Such conservation measures are unlikely to have negative effects on historic properties. However, should any ground disturbing activities be included in the program, further coordination will be necessary per 36 CFR 800.

Any questions concerning this matter should be directed to me at (614) 298-2043.

Sincerely,

Julie Quinlan, Program Reviews Manager
Resource Protection and Review

999191

APPENDIX D: 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	$100.00
Farm Expenditure	$100.00
Land Rental	$140.00
Maintenance	$
Value of Lost Jobs	$1,412,108.32
Value of Lost Sales	$6,611,655
Total Acres	70,000
State Expenditure	370
Total Acres	17500
State Expenditure	120
Total Acres	52500

Socioeconomic Analysis Data												
Year	Discount Factor	Cost Share	Farm Expenditure	Rental Rate	Maintenance	State Expenditure	State Expenditure	Lost Jobs	Lost Sales		Sum	NPV
2004	1.00											
2005	0.95	$ 7,000,000.00	$ 7,000,000.00	$ 9,800,000.00	$ -	$ 6,475,000.00	$ 6,300,000.00	$ (1,412,108.32)	$ (6,611,655.34)		$ 28,551,236.34	$ 27,165,781.48
2006	0.91			$ 9,800,000.00	$ -			$ (1,412,108.32)	$ (6,611,655.34)		$ 1,776,236.34	$ 1,608,034.34
2007	0.86			$ 9,800,000.00	$ -			$ (1,412,108.32)	$ (6,611,655.34)		$ 1,776,236.34	$ 1,530,004.13
2008	0.82			$ 9,800,000.00	$ -			$ (1,412,108.32)	$ (6,611,655.34)		$ 1,776,236.34	$ 1,455,760.35
2009	0.78			$ 9,800,000.00	$ -			$ (1,412,108.32)	$ (6,611,655.34)		$ 1,776,236.34	$ 1,385,119.27
2010	0.74			$ 9,800,000.00	$ -			$ (1,412,108.32)	$ (6,611,655.34)		$ 1,776,236.34	$ 1,317,906.06
2011	0.71			$ 9,800,000.00	$ -			$ (1,412,108.32)	$ (6,611,655.34)		$ 1,776,236.34	$ 1,253,954.39
2012	0.67			$ 9,800,000.00	$ -			$ (1,412,108.32)	$ (6,611,655.34)		$ 1,776,236.34	$ 1,193,105.98
2013	0.64			$ 9,800,000.00	$ -			$ (1,412,108.32)	$ (6,611,655.34)		$ 1,776,236.34	$ 1,135,210.26
2014	0.61			$ 9,800,000.00	$ -			$ (1,412,108.32)	$ (6,611,655.34)		$ 1,776,236.34	$ 1,080,123.94
2015	0.58			$ 9,800,000.00	$ -			$ (1,412,108.32)	$ (6,611,655.34)		$ 1,776,236.34	$ 1,027,710.69
2016	0.55			$ 9,800,000.00	$ -			$ (1,412,108.32)	$ (6,611,655.34)		$ 1,776,236.34	$ 977,840.81
2017	0.52			$ 9,800,000.00	$ -			$ (1,412,108.32)	$ (6,611,655.34)		$ 1,776,236.34	$ 930,390.88
2018	0.50			$ 9,800,000.00	$ -			$ (1,412,108.32)	$ (6,611,655.34)		$ 1,776,236.34	$ 885,243.46
2019	0.47			$ 9,800,000.00	$ -			$ (1,412,108.32)	$ (6,611,655.34)		$ 1,776,236.34	$ 842,286.83
2020	0.45							$ (1,412,108.32)	$ (6,611,655.34)		$ (8,023,763.66)	$ (3,620,217.57)
2021	0.43							$ (1,412,108.32)	$ (6,611,655.34)		$ (8,023,763.66)	$ (3,444,545.74)
2022	0.41							$ (1,412,108.32)	$ (6,611,655.34)		$ (8,023,763.66)	$ (3,277,398.42)
2023	0.39							$ (1,412,108.32)	$ (6,611,655.34)		$ (8,023,763.66)	$ (3,118,361.96)
2024	0.37							$ (1,412,108.32)	$ (6,611,655.34)		$ (8,023,763.66)	$ (2,967,042.78)
2025	0.35							$ (353,027.08)	$ (1,652,913.84)		$ (2,005,940.92)	$ (705,766.60)
2026	0.33							$ (353,027.08)	$ (1,652,913.84)		$ (2,005,940.92)	$ (671,519.12)

Socioeconomic Analysis Data												
Year	**Discount Factor**	**Cost Share**	**Farm Expenditure**	**Rental Rate**	**Maintenance**	**State Expenditure**	**State Expenditure**	**Lost Jobs**	**Lost Sales**		**Sum**	**NPV**
2027	0.32							$ (353,027.08)	$ (1,652,913.84)		$ (2,005,940.92)	$ (638,933.51)
2028	0.30							$ (353,027.08)	$ (1,652,913.84)		$ (2,005,940.92)	$ (607,929.13)
2029	0.29							$ (353,027.08)	$ (1,652,913.84)		$ (2,005,940.92)	$ (578,429.24)
2030	0.27							$ (353,027.08)	$ (1,652,913.84)		$ (2,005,940.92)	$ (550,360.83)
2031	0.26							$ (353,027.08)	$ (1,652,913.84)		$ (2,005,940.92)	$ (523,654.46)
2032	0.25							$ (353,027.08)	$ (1,652,913.84)		$ (2,005,940.92)	$ (498,244.01)
2033	0.24							$ (353,027.08)	$ (1,652,913.84)		$ (2,005,940.92)	$ (474,066.61)
2034	0.22							$ (353,027.08)	$ (1,652,913.84)		$ (2,005,940.92)	$ (451,062.43)
Total												$ 21,660,940.45
NPV/Acre												$ 412.59